Crime and Piety

A cross-sectional study on the effect of religion on crime

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2012602408

“Depart from evil, and do good; seek peace, and pursue it.”
(Psalms 34:15)

The second half of the twentieth century was witness to many challenges to religion and its relevance in modern society on a number of ideological and practical fronts. As debate ravaged, the numbers of the irreligious increased to include one in six people in the world (Pew Research Center, 2012). Among the consequences of religious indifference, rising immorality and crime were touted passionately by the religiously inclined. Such fears have come to naught, however, as societies across the world have, on average, become less violent and crime-ridden.

Research on the connections between religiosity and crime has intensified in recent years. Much of the work done has focused on experimental data from religious programs conducted on a small scale. In order to address the need for a more expansive exploration of the topic, this paper aims to explore observational data from over 50 geographically and religiously diverse countries to investigate whether religion is associated negatively with crime. We will start by describing two competing theoretical frameworks that deal with the causal links between spiritual belief and lawbreaking before considering the contributions and weaknesses of past literature. The section on methodology will build on this theoretical base to test the competing models through the procedure of ordinary least squares (OLS) regression. Our findings and their relevant policy implications will then be thoroughly discussed before we present our conclusion.

While a discussion on the origins of religion is beyond the scope of this paper, it would be pertinent to mention that most scholars trace the beginning of organized religion to the time when human beings adopted group living. The success of a group depends on effective cooperation and the restraining of individual impulses. Human policing of anti-social behavior within groups can be effective but is restricted by scale. Accordingly, the idea of an all-seeing, all-knowing supernatural Being developed to target those whose transgressions go undetected by other humans (Kruger, 2004). For the purposes of our discussion, we will be treating religions as social movements whose primary purpose, among a few others, is to provide a code of laws for societal organization. Also, we will not be considering religiously-motivated crime like terrorist attacks where there is a direct

link. On the contrary, our particular focus is on trying to understand whether religion plays a significant role in reducing crime in a society.

Theoretical frameworks

While a number of theories on transmission mechanisms between religion and crime have been put forward in recent years, two of them have gradually emerged as the most popular ones. They differ in their unit of analyses – 'social control theory' considers religious intensity at the societal level and the 'hellfire hypothesis' does so at the individual level.

Social control theory suggests that human choices are guided not by internal motivation but by the implicit and explicit social contracts and arrangements within a society (Ulmer, 2004). Criminality can only be curtailed by increasing the degree to which individuals are integrated and attached to the community as this leads to a higher personal opportunity cost for deviant or antisocial acts that go against community interest. When applied to the topic under consideration, the theory would suggest that religious institutions reinforce social control by inculcating normative beliefs and engendering strong connections within the whole society. One can consider the examples of regular prayer gatherings and collectively celebrated festivals; both boost the social capital of a community and increase the stake that its members have in protecting and maintaining the community's well-being (Putnam, 2000). In support of this idea, quite a few studies have demonstrated positive connections between increasing religiosity and prosocial acts including but not limited to charity, educational attainment, and civic volunteering (Koenig & McCullough, 2001). Limited work has been done on the converse argument – that social capital, as represented by religiosity, can discourage and limit criminal behavior. The first model in our regression analysis will investigate this implication of social control theory as will be described in detail in the Methodology section.

The other theoretical perspective through which we approach our topic is the 'Hellfire hypothesis' which was introduced by Hirschi (1967) as the postulate that religion discourages criminality at an individual level through the risk of supernatural punishment and encourages prosocial behavior through the incentive of supernatural reward. Individuals consider every action in relation to the

punishment or reward that religious scripture has decreed for said action. This causally direct effect of religion on crime contrasts sharply with the previously mentioned social control hypothesis in which religion played an indirect role in forming morally-inclined communities. While the 'hellfire hypothesis' might make more intuitive sense, one reason for its relatively less popularity is the difficulty inherent in empirically measuring something as intrinsic as belief in heaven and hell on a large basis. Researchers have, thus, gravitated towards applications of the social control theory by measuring outward indicators of religiosity like church attendance and the proportion of the population that is 'officially religious'. The second model in our regression analysis will examine the strength of the 'hellfire hypothesis' in explaining criminal activity in a society.

Literature review

Research on religion's ramifications on crime began during the 1960s which is considered as a very prolific period on criminological scholarship. Hirschi and Stark's (1969) empirical testing of the hellfire hypothesis, albeit conducted on a very small scale, set the tone for much of the work that came later in terms of methodology. While they were unable to find a significant connection, later studies have been quite evenly divided between those that did find robust effects for religion on crime (e.g., Cochran and Akers (1989); Powell (1997)) and those that did not (e.g., Ross (1994); Benda (1995)). A meta-analysis by Baier (2001) showed that of the 60 studies conducted on the topic, roughly 65 percent found a significant and robust relationship while the rest were unable to reject the null. Understanding the reasons behind this inconsistency can aid us in building a more reliable and reproducible model.

All studies were localized at the county or district level within the United States which indicates that their findings could have been subject to different cultural and religious attitudes at a larger unit of analysis like the state or country. Durkheim's (1925) theory on moral communities suggests that the "deterrent effect of religion on crime is visible only in areas that have high rates of collective religiosity". In simpler terms, there might be an interaction between the degree of religious intensity and the proportion of the society that is religious. We account for this potential weakness by using countries as the unit of analysis and including the appropriate interaction terms.

Another explanation for the inconsistency in research findings can be the fact that almost none of them considered multiple types of crime. As discussed before, the studies' scope was limited to experimental data from carefully designed religiously oriented programs or surveys. This over specification led to their inability to consider more than one category of crime and might have contributed directly to the variation in results across studies. Our analysis will attempt to correct for this by scrutinizing different categories of crime separately.

While different methodologies are expected to produce varying results, this issue is made more acute when the main explanatory variable under focus is indefinite and directly unmeasurable like religious intensity. Finding an appropriate proxy naturally introduces subjectivity in all models but it is certainly not impossible to find one that attempts to replicate the transmission mechanism between spiritual belief and crime in a more direct manner than has been done before. Most researchers have used behavioral measures of religion like church attendance and membership. Such proxies appear to have a superficial connection with religious intensity (Welch, 1999) and may not accurately represent the personal, intrinsic beliefs that are associated with levels of delinquency. Also, they are generally unavailable on a country-wide scale as required by our research. By considering these potential weaknesses, the two regression models that we describe in the next section will attempt to target more accurate measures of religiosity.

Data and Methodology

The present study consists of data on 52 countries that are religiously and geographically diverse. The choice of countries to include was dictated by the quantity of data on the key explanatory variables in our second model and was not affected by any biases on the part of the author.

Dependent Variables

As mentioned in the previous section, we will consider two categories of crime – victim and nonvictim. Victim crime refers to crimes in which the perpetrator's actions affect someone else. This category covers crimes like homicide, assault, and robbery. On the other hand, nonvictim crimes include offences like illegal drug use and underage alcohol consumption.

Cross-country comparisons of crime face several challenges apart from the quality and availability of data. Legal definitions of crime vary across countries and depend on a host of cultural factors. This is particularly relevant for crimes that require subjective judgment from a police officer as in the case of assault; this difference will be reflected in the number of occurrences recorded. Also, it has been shown that reporting of crime varies in different countries and is influenced by infrastructure, civil-police relations, and the general confidence in the police's abilities (Shaw & Rhomberg, 2008). This issue is compounded in the case of conservative societies where considerations like familial honor often prevent reporting of offences including rape and abuse.

The possible weaknesses of cross-country comparisons described above apply more to some kinds of crimes than others. For instance, homicide is unaffected by police subjectivity, definitional differences, and reporting tendencies. Thus, homicide statistics from different countries are more reliably comparable. It is also widely considered as a representative proxy for broader characterizations of victim crime. Homicide statistics are measured in terms of incidents per 100,000 people. They were collected from the United Nations Office on Drug and Crime (2016) for the period 2011 through 2013 and averaged to improve stability. The homicide rates were log transformed because some countries with particularly high rates skew the distribution. These transformed homicide rates will be regressed separately on our two explanatory models to determine whether religion has an effect on victim crimes.

Nonvictim crime will be proxied through statistics on illegal marijuana use. We do not consider more 'dangerous' narcotics like methamphetamine or cocaine because their use is more uncommon and varies greatly between countries due to a number of factors like culture and historical preferences. Marijuana, on the other hand, is a more 'universal' drug and is generally uncorrelated with other crimes like smuggling. Usage rates are measured in terms of the proportion of the population using the drug and were also collected from the United Nations Office on Drug and Crime (2016). While yearly data was unavailable, we were able to find usage rates measured in at most the last five years for all countries. It is pertinent to mention that marijuana use is illegal in all the countries in our sample. The log transformed rates will be regressed on the two explanatory models separately to infer the link between nonvictim crime and religion.

Explanatory variables under focus

The first model that we investigate is based on social control theory which was described earlier. The general expectation is that a prominent proportion of religious adherents in a country's population can produce the cultural and sociological norms that prevent crime. Using information on proxies like religious attendance would only serve to complicate the transmission mechanism that the theory suggests. Therefore, we choose as our main explanatory variable the proportion of the country's population that follows some religion. Data was collected from the CIA World Factbook (Central Intelligence Agency, 2016) and we used local sources as alternates for countries whose data was more than ten years old. As the theory focuses on the society as a whole, we include an interaction term between the proportion of religious people and an index on religious fractionalization. This could possibly indicate whether religion's effect on crime is robust to religious diversity in society.

The alternate model tries to investigate the issue through the postulates of the 'hellfire hypothesis' mentioned before. Using a more micro-level approach, it suggests that individuals' propensity to commit crime is indicated by their beliefs in supernatural punishment and reward as opposed to the general characteristics of the society. Data on belief in heaven and hell was taken from the 2010-2014 wave of the World Values Surveys (WVS, 2014). Two explanatory variables were constructed respectively for beliefs in heaven and hell with each variable indicating the proportion of the country's sample that answered 'Yes' to the oral questions, "Do you believe in Heaven?" and "Do you believe in Hell?". These particular questions were chosen from the WVS because they fully capture the essence of the 'hellfire hypothesis' in simple and direct terms.

The alternate model has a number of theoretical advantages over the first model. The first model might be subject to reverse causality as it has been observed in the past that religious organizations strengthen their proselytizing efforts in areas with high crime (Heaton, 2006). The church or other religious organizations can provide material benefits which might cause more people to become members as opposed to true religious conviction. Hence, we might observe a causal link from crime, the dependent variable, to the explanatory variable of the proportion of religious people. In contrast, the alternate model would be able to avoid this potential weakness by virtue of its design. Belief in heaven and hell is usually intrinsic to a person. Coupled with the anonymity of the WVS

survey procedure, respondents' answers are expected to not be affected by the incidence of crime in their vicinity.

Control Variables

In the attempt to isolate the effect of religion on crime, we add control variables that cover commonly-accepted economic, sociological, and legal contributors to crime. Per capita GDP and GINI coefficient data was taken from the CIA World Factbook (Central Intelligence Agency, 2016) to account for the notion that richer and more equal societies have less crime on average. For crimes like homicide where the penalty is usually a life sentence, life expectancy would play a part in the decision of the rational criminal who weighs the pros and cons fully. We add a control variable for life expectancy using data from the WHO (World Health Organization, 2016). The strictness and efficacy of a country's law enforcement divisions are proxied by the number of police officers per 100,000 citizens using aggregated data (World Heritage Encyclopedia, 2014). Also, an index for religious fractionalization, a measure of how diverse a country is in terms of religion with a score of 1 representing maximum diversity, is included based on Easterly's (2003) work on social fractionalization. Religious homogeneity might be important in promoting value consensus and social cohesion so the control for fractionalization might prove to be relevant.

The two dependent variables representing homicide and marijuana use were separately regressed on the two explanatory models and the set of control variables using OLS regression. The results of our analyses are presented below:

OLS Regression of homicide and marijuana use

	Log (Homicide)		Log (Marijuana Use)	
Variables	Model 1	Model 2	Model 1	Model 2
Religious proportion	-0.012 (0.008)		-0.038** (0.013)	
Rel. proportion X Rel. fractionalization	0.005 (0.003)		0.009 (0.005)	
Belief in Heaven		0.054 (0.041)		-0.022 (0.015)
Belief in Hell		-0.026** (0.009)		-0.047* (0.021)
GDP per capita	0.000 (0.002)	-0.001 (0.001)	0.003* (0.001)	0.004 (0.002)
GINI	0.036* (0.015)	0.019** (0.006)	-0.008 (0.005)	0.013 (0.007)
Life expectancy	-0.024 (0.017)	0.013 (0.007)	0.029* (0.012)	0.011 (0.016)
Police per 100,000	-0.049* (0.023)	-0.015 (0.008)	0.006 (0.004)	0.008 (0.006)
Religious Fractionalization	0.007 (0.005)	-0.003 (0.002)	-0.023 (0.015)	0.037 (0.020)
R-squared	0.35	0.48	0.56	0.43
F-value	2.73*	4.61**	3.18*	2.29*

Note: Asterisks indicate significance levels of the coefficient estimates (* = significant at 5% level, ** = significant at 1% level). The standard error for the coefficient is indicated within parentheses below it.

Results and Discussion

The proportion of a country's population that follows some religion does not show a statistically significant link with homicide rates. The interaction term, while also statistically insignificant, shows a surprisingly positive value for the coefficient which indicates that more religious societies are associated with higher homicide rates as religious fractionalization increases. In contrast to the first model's apparent weakness, the alternate model's variable on belief in Hell is significant at the 1% level and suggests that homicide rates decrease by 2.6% for every percentage point increase in the proportion of a country's population that believes in Hell. Of the control variables, the control for inequality, GINI, and the number of police personnel per 100,000 people show the expected associations as significant. The alternate model is able to predict 48 percent of the variability in the log transformed homicide variable as indicated by its R-squared value and can, thus, be considered more powerful.

The first model's variable on religious proportion emerges as a highly significant and the strongest predictor of marijuana usage rates with the coefficient value suggesting that a percentage point increase in a population's religious proportion, all else held equal, is associated with a 3.8 percent decrease in marijuana usage rates. An unintuitive significant positive value for the GDP per capita control variable, while minuscule in magnitude, indicates that increasing wealth is associated with higher marijuana usage rates. On the other hand, the results of the alternate model show a statistically significant relationship for only one variable, belief in hell. A higher R-squared value for Model 1 in marijuana use's regression shows that its predictive power might be dependent on the nature of the crime.

The results show robustness over geographical and religious variability. The variables on belief in heaven and hell have a large correlation constant of 0.63. In consideration of the fact that the 'belief in heaven' variable does not show statistically significant results for both homicide and marijuana usage, it can be suggested that dropping it from the model would help in dealing with potential multicollinearity and make the model more parsimonious. Similarly, religious fractionalization fails to show any significant impact on either type of crime. While the rationale behind including a measure for religious diversity appears to be theoretically sound, we might need an alternately-formulated real-life index for it to show practical significance.

The differential performance of the first model, using the proportion of religious adherents, can be explained by Burkett's (1980) 'Antiascetic Hypothesis' which puts forward the idea that religiosity affects those behaviors more significantly that violate religious values, but are not explicitly disapproved by secular norms, in comparison to behaviors that go against both religious and secular values. One potential explanation for this difference can be the fact that religious institutions often act alone to prevent nonvictim crimes like drug use, whereas victim crimes like homicide are targeted by both secular and religious institutions.

The second model, based on the 'hellfire hypothesis', performed reasonably well for both crime categories. This can be attributed to the model's ability to fully capture the direct relationship between religious beliefs and the propensity to commit crimes as represented by the belief in supernatural punishment. While our findings are correlational, we see no indication that an omitted variable is driving the effects. Additionally, reverse causation should not pose a realistic challenge because the WVS survey questions pertain to intrinsic beliefs that aren't plausibly affected by an outside factor like crime.

Policy Implications

Our findings can be used to address the crucial issue of crime control and reduction. The differential strength of the variable representing a population's religious proportion indicates that specially-designed strategies might be required for different categories of crime in contrast to the one-size-fits-all approach common in most countries. For nonvictim crimes like drug use, there is potential in cooperation between secular and religious organizations to build stronger and more cohesive societies. Increasing religious membership through communal events can aid in plugging the proverbial cracks through which drug users usually fall. However, religious membership has been shown to be ineffective in mitigating victim crimes like homicide. Hence, it would be advisable for governments to pursue other proven preventive measures like the strictness and efficiency of law enforcement.

Discussion on sensitive issues like religious education often gets derailed through the reliance by some on subjective opinions. In situations like these, research like ours can provide an objective

platform through which the potential benefits and costs of religious education can be assessed. Our research has indicated that participation in religious activities or even nominal membership of a religion do not have significant effects on victim crime. Instead, fundamental concepts like supernatural punishment in the afterlife should be emphasized in religious education at schools and elsewhere. In short, more focus is needed on conveying important religious principles than in trying to enforce superficial adherence to religion. This can aid in maximizing the deterrent effects of religion on crime while limiting expenditures on programs that merely seek to boost the number of religious adherents.

Our work also provides some real-life evidence to those who question the preferential treatment given to religious organizations by governments. As mentioned in the introduction, religion's original purpose was to provide a set of laws to enhance societal living. If organized religion fails to serve that purpose today as indicated by our study, one could question the relevance of religion to modern society itself. On a more practical scale, governments could reconsider their relationship with religious institutions. For instance, churches and temples of all religions are exempt from federal income tax in the United States (Wood, 2015). In fact, they even receive state funding in some religiously orthodox states like Iran and Saudi Arabia. Our findings cannot provide a definitive answer to such contentious issues but can at least serve to illuminate the discussion further.

Conclusion

This paper provides new evidence on the mechanism through which religious beliefs affect the level of crime. We considered two popular theoretical frameworks that describe the causal link between religion and crime – 'social control theory' and the 'hellfire hypothesis' – and constructed explanatory models based on them. After testing these models on data from 52 geographically and religiously diverse countries, we found that the performance and predictive power of each model depends on the type of crime committed. The 'social control theory' model, which is grounded in the idea that religious organizations induce conformance to societal norms and abstention from criminal actions by increasing social integration, can be used to effectively model religion's effect on nonvictim crime. The model based on the 'hellfire hypothesis', which considers core beliefs on

supernatural punishment and reward to be the direct determinants of the likelihood of crime, produced significant results for both victim and nonvictim crime. We hope that policymakers can use our conclusions to make well-targeted strategies to combat crime while curtailing the ones that have proved to be ineffective.

Future research on the topic will be needed to ensure our conclusions are maximally robust. The present findings tie societal-level measures such as the proportions of people who are religious or believe in hell to crime statistics. Our findings will need to be replicated at the level of the individual before they become widely accepted. Considering that there is an inevitable tradeoff between the scope and the depth of a study, future research might attempt to confirm the underlying transmission mechanisms in a controlled experimental setting. In order to account for the influence of unobservable cross-country differences, panel data can be studied in the future as data availability hopefully improves. Our inability to include panel data was solely due to the lack of reliable crime data for periods longer than the previous five years. Other measures of religious intensity should be explored that incorporate a higher degree of nuance than the binary choice variables that we used in the 'hellfire' model. Such work can eventually improve society's utilization of religion as a tool to combat crime.

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