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Abstract

Substantial scholarship argues that regulation of religion suppresses religiosity in a community by reducing individuals' satisfaction with their religious experience. To date this research has assumed that regulations are enforced on and affect religious communities uniformly. It has also focused heavily on Western Christian populations and aggregated national data. We suggest that state regulation of religious communities and behaviours impacts citizens differently based on their affiliation. Using individual-level assessments of freedom and religiosity from Muslim-majority countries, we show that, at the individual level, restricting freedom suppresses religious belief and behaviour. Restrictions on religious minorities, however, can increase religiosity. As such, we question the religious market theory literature's conclusion that the freest religious markets must have the greatest levels of religious participation. We also raise concerns about current measures of religious freedom's capacity to measure individuals' freedom in Muslim-majority countries.

Keywords: Islam; regulation; freedom; religious market theory; religion

Abundant research has identified religious groups' capacity to increase adherence, participation, and perceived veracity by intense self-regulation (Iannaccone 1992b; Raynold 2014). States' policies, both overtly religious and seemingly secular, also drive citizens' religiosity by influencing both the supply and demand for religion in the populace. On one hand, religious market theory proposes that the consumption and production of religious products are sensitive to government interference. The need for religious groups to compete for members and the freedom to follow one's preferences would make religious belief and behaviour most prevalent in the societies with the most freedom (Iannaccone 1991, 1992a). On the other hand, some scholars propose that monopoly and subsidy are superior protectors of religious truth and participation (Phillips 1998; Olson 1999). Additionally, state policies targeting democratisation, development, and human security would decrease demand for religion according to theories of

secularisation (Lerner 1958; Norris and Inglehart [2004] 2011). The state is thus theoretically capable of directly and indirectly influencing religious belief and behaviour. This article contributes to the robust debate on the effect of freedom from state regulation on citizens' religiosity.

This literature has previously relied on aggregate measures of religiosity, which introduces ecological fallacies, making inferences about individual nature based on group data. We avoid this methodological problem by aligning the methodological focus with the theoretical focus. While the market analogy is based on individual responses to market forces, research has been constrained to national rates of religious participation and measures of regulation that apply to the entire country uniformly. A single religious freedom score for a country conceals the disparate impact of state policies on the diverse religious communities within the jurisdiction. By leveraging individual assessments of freedom in the religious market, this study distinguishes the impact of restrictions placed on one's own religion from those placed on members of other religions. Using those measures in combination more realistically represents the regulation in the entire religion market. This study additionally expands on the literature's concentration on Christian-majority countries by examining the effects of regulation of religion in Muslim-majority countries.

The impact of freedom is evaluated using survey data from 24 Muslim-majority countries in Europe, Asia, and Africa. We find that restrictions on individual freedom reduce the propensity for religious belief and behaviour. We also identify effects of freedom for religious minorities on Muslims' belief in Allah and religious salience. These findings are broadly consistent with the proposed mechanism of religious market theory, but they introduce the caveat that the freest religious market is not necessarily most religious. The failure to find consistent

effects using country religious freedom scores, however, exposes potential weaknesses in the current state-level measurements for assessing religious freedom.

Religious markets

Iannaccone, Finke, and Stark built the foundation of the religious market model studying pluralism. It proposes that the disestablishment of religion and 'regulatory agencies' allows individuals to create, change, and choose religions 'without penalty' (Finke 2013, 2). Regulation is understood as any means by which the state interferes in religious groups' operations or individuals' decision or ability to practise a religion.[1] The model assumes that individuals have a natural interest in religion ranging from no religion to very strict religion and no participation to very high participation. Religious groups compete for members based on belief, strictness, and social service provision (Iannaccone 1992a; Iyer, Velu, and Weeks 2014). In this way, religious providers are not merely pushing a fully formed and unchanging product into the market; their innovations and delivery reflect their understanding of the consumer base. The capacity for innovation may be restricted by doctrine or tradition; substantial or rapid change could reduce credibility or drive away existing consumers, and some modifications would be more compatible with the existing product than others. Some groups may even prefer not to maximise congregation size because they favour commitment over scale (Iannaccone 1992a). These new or modified products increase the supply of religious products available. From these offerings, individuals choose a religion, if any, and participation rate iteratively based on the perceived cost and benefits, their endowed demand, and how well the supply of religions can satisfy it. Individuals' freedom to choose, in turn, influences religious groups and potential founders of new religious movements (Iannaccone 1991, 1995). Deregulation then does not just influence

providers. Regulations that reduce freedom make it less likely citizens 'will find a religious movement suited to them' (Fox and Tabory 2008, 246). This regulation decreases consumption.

Potential consumers would experience greater freedom to practise their religion when the state's blocks are removed and when they can practise in a way closer to their ideal position. Their sense of freedom to practise their religion reflects both the state's level of interference and the suppliers' responsiveness to their religious preferences; they are not constrained either directly by the state or indirectly by the resultant lack of products. As noted, the literature tends to assume for modelling simplicity that the endowed level of demand is fixed. In practice, the ability of religious movements old and new to make adherents of atheists or to lose members to unbelief shows that this is not perfectly realistic. Life experiences could induce changes in faith, and a changing religious landscape could change views on the proper expression of faith. For a discussion of life history and environmental factors' influences on individual religiosity, see Ruiter and van Tubergen (2009). In the theory, between low natural barriers-to-entry and diverse personal preferences, absent government intervention the market shows 'competitive pluralism' (Gill 2008, 42), and entrepreneurialism determines market share (Pearce, Fritz, and Davis 2010). At a given time point, the market seeks equilibrium; consumers are as close as they can be to their preferred religion, given the costs of participation and the benefits they anticipate deriving, and religious groups have attracted as many members as they can with the product they are choosing to offer.[2] The adherence and participation levels themselves may shift over time based on dynamic factors.

Studies identify contradictory effects of regulation. Iannaccone (1991) and Chaves and Cann (1992) find that countries with higher regulation have lower national rates of church attendance. Norris and Inglehart ([2004] 2011) do not find a significant correlation between a

regulation index and national rates of prayer and service attendance. North and Gwin (2004) conclude that having a state religion and high scores on their regulation index both reduce the population share attending services regularly; conversely, constitutional provisions protecting religious freedom increase attendance. McCleary and Barro (2006), on the other hand, find that having a state religion increases the population attending services weekly, though it does not impact rates of belief. State appointment of religious leaders, which McCleary and Barro use to identify regulation, correlates negatively with national rates of religious participation, some beliefs, and self-identification as religious. Fox and Tabory (2008), employing six indexes of regulation, conclude that increased regulation reduces attendance and identification as religious. They, however, find that regulation does not affect rates of religious belief. These studies thus identify inconsistent effects of state regulation on religious belief and behaviour both between and among measures of state interference.

A crucial innovation in the literature was evaluating the sociological and state factors that influence religious belief and behaviour at the *individual* level. As Ruiter and van Tubergen (2009, 866) note, '[a]n important drawback of this macro-oriented research is that inferences about micro-level processes are based on aggregate statistics, possibly leading to "ecological fallacies."' Decisions regarding belief and behaviour are made individually in response to personal circumstances in society, and actors should be distinguished into subpopulations or analysed individually, rather than treated as a single group. National averages obscure the individual condition and heterogeneous effects in subpopulations. Ruiter and van Tubergen (2009), looking at whether individuals attend religious services weekly, find that regulation reduces the likelihood, but the effect is dwarfed by insecurity and socialisation. Unfortunately, their regulation index measure is *national*, which maintains the risk of false generalisations about

individuals' circumstances. Focusing on national-government policy overestimates the government's capacity to restrict religious freedom. Individuals may not be aware of the state's regulation because it is remote from them or affects only some groups; such politics would not drive their choices. Even in the face of severe state regulatory efforts, illicit and semi-licit religious observance persists in the populace, like Christians in China (Minarik 2018; Yang 2006). Country scores are thus inadequate metrics of regulation. We build on Ruiter and van Tubergen's individual focus by considering an individual-level measure of religious freedom.

The religious market theory literature is dominated by Christian-majority population studies. More recent works maintain that pattern despite including 'several major Asian countries' and a 'few predominantly Islamic countries' (North and Gwin 2004, 108). This poses a problem if the theory does not hold in other contexts. Chaves and Cann (1992, 288–289) specifically note that Islam has 'monopolistic privileges' in many countries that do not 'dampen individual religious participation,' and they suggest extending the study 'across this sort of cultural boundary.' This article extends the literature to a Muslim-majority context.

Predictions

The fundamental prediction of the market theory is that restrictions on religious freedom culminate in decreased religiosity (H1). By the same token, rules that increase citizens' freedom to practise their preferred religion, such as policies that reduce the cost of their participation, would make them more likely to practise than an environment in which they were not free. We examine the effect on religious beliefs, the importance of religion, prayer, and service attendance. This will help us understand if restricted freedom suppresses religiosity similarly across dimensions of religiosity. It will also demonstrate whether or not the premise of religious market theory translates to Muslim-majority countries.

We also introduce another consideration. By assigning a uniform national score, scholars implicitly assume that all citizens are equally impacted by whatever state policies led to the rating. This is highly improbable. The regulations that prop up or suppress a religious group regularly apply unequally across groups. In terms of the market, respondents' behaviour could be influenced by the taxes and subsidies applied to members of other religions. Religious market theory as it stands proposes that any regulation will reduce consumption, meaning individuals will be less religious if members of other religions are taxed (H2a). One of Fox and Tabory's (2008) indexes includes state policies specifically targeting minorities, and they find a similar negative association for this index and their other indexes and national rates of religious behaviour. However, individuals are consumers in a market witnessing alternative products being taxed. They might be indifferent to the costs of participation in a different religion. Alternatively, they may increase consumption of their own chosen product if the regulation of others increases its apparent veracity (H2b). Others' free practice, after all, could delegitimate the primary religion to 'the extent that people rely on others for evaluating religious beliefs' by highlighting the 'lack of consensus' (Fox and Tabory 2008, 247). Separating the effects of freedom of different religions improves on existing religious market studies.

Materials and methods

Data

We test these expectations using two representative surveys conducted by the Pew Research Center in 2008–2009 and 2011–2012 in Africa, Asia, and Europe.[3] The first wave covered sub-Saharan Africa; the second wave focused on countries with large Muslim populations. Summary results and methodology are described in several reports: 'Tolerance and

Tension: Islam and Christianity in Sub-Saharan Africa' (2010), 'The World's Muslims: Unity and Diversity' (2012), and 'The World's Muslims: Religion, Politics and Society' (2013).

As only Muslims' data was reported in the second survey, only Muslims' data is used from the first wave. For ease of interpretation, the results shown here are those from Muslim-majority countries, so the 'other' religion(s) are always minorities. This mirrors the original literatures' focus on Christians' behaviour in Christian-majority countries. The sample includes 26,572 respondents from 24 countries: Albania, Azerbaijan, Bangladesh, Chad, Djibouti, Egypt, Indonesia, Iraq, Jordan, Kazakhstan, Kosovo, Kyrgyzstan, Lebanon, Malaysia, Mali, Morocco, Niger, Pakistan, Palestine, Senegal, Tajikistan, Tunisia, Turkey, and Uzbekistan. Algeria and Iran were omitted in Pew's analysis, so they are excluded here.

Identifying an effect in Muslim populations answers Chaves and Cann's (1992) call to expand culturally and buttresses the theory with regard to human behaviour in religious markets rather than simply American/European behaviour in Christian markets. Although the governments may not encourage competition from other religions, 'Islam in the global age has been increasingly fragmented, and multiple agencies, including populist preachers, Sufi masters, lay pious intellectuals, and officially sanctioned clergy compete for the loyalties of Muslims' (Tezcur, Azadarmaki, and Mehri 2006, 220). This is akin to the intra-Christian competition that spurred Iannaccone, Finke, and Stark's work. These countries in the sample also have minority religious communities, including Christian, Jewish, and traditional religious groups.

The surveys included several measures of religiosity. Beliefs include 'one God, Allah, and his prophet Muhammed' and belief in heaven. These are indicators of belief, rather than questions relating to the strength of the beliefs. Behaviours include prayer, mosque attendance,

and fasting during Ramadan. Respondents also indicated how important religion is in their lives.[4] These are measured at the *individual level* and not aggregated to country percentages.

While freedom is argued to increase religiosity, other conditions are proposed to suppress it. Modernisation theory is the principle demand-side theory in the religious market theory literature.[5] For a detailed discussion, see McCleary and Barro (2006). It proposes that economic development, education, urbanisation, democratisation, and secularisation are mutually related phenomena. The scientific world view, weakening interpersonal bonds, and a declining role of communal religion in social governance undermine individual religious belief and behaviour (Lerner 1958; Taylor 2007). By this reasoning, urban residence, economic development, and education reduce religious belief and participation. McBride (2010), conversely, theorises that economic development has no effect in highly secularised environments or highly religious markets with prohibitions on non-religious activities. Blue laws are common inside and outside Muslim-majority countries, but McBride's null effect prediction is noted (Fox 2015). Economic development is also predicted to suppress religion by reducing survival threats. This increased 'existential security' decreases the need for religion (Norris and Inglehart [2004] 2011, 4). Norris and Inglehart ([2004] 2011) argue that security drives decreased participation in the (post)industrial world. They suggest incorporating individual-level assessments of economic development and security whenever possible. Respondents' evaluation of the country's economy and their personal economic condition are included. Higher scores indicate worse conditions, thus greater insecurity. A binary variable identifies rural residence.

Gender and age are incorporated to account for cohort and lifecycle effects and gendered norms in Islamic law. Gender is an indicator for male. Age is a scale from 18-24 (1) to 60+ (9) in five-year increments. The reference category is 40-44 years of age. We also control for post-

communist states due to the anti-religious policies of communist regimes. A binary indicator is included for living in a Shiite-majority country. Respondents were also asked if they were Sunni, Shia, or something else. A factor variable identifies whether the respondent self-identified as a Sunni, Shiite, 'Just a Muslim,' or other. This group includes Ahmadiyya, Alevi, Bektashi, 'other,' and those who were not specific. Sunni is the reference category.[6]

[Table 1 roughly here]

The data show a strong demographic mix [Table 1]. The average respondent is middle aged. The population is split evenly in gender and urban/rural residence. Self-identifying Sunnis are the largest bloc, followed by those who identify as just a Muslim. Belief in Allah and heaven are nearly pervasive, though belief in heaven is less common and imperfectly correlated with belief in Allah. That not all Muslims believe in Allah reflects the fact that one can both be born and become a Muslim; as there is no recognized system for exiting the religion, those who do not believe in Allah may maintain the identity. Why belief in heaven is less common cannot be determined from this dataset. Rates of fasting and stating that religion is very important in life are high. Half of the respondents attend the mosque weekly, and two thirds pray daily.

[Table 2 roughly here]

The extant literature has measured state regulation and restrictions on religious freedom using country-based measures, which assign a score to the nation as a whole. On that basis, we include several country scores. Several metrics are used to account for misspecification in any one measure and potential conflicting results from their different methods of construction and the state policies on which they focus. Using multiple scores will indicate that effects are not restricted to one measurement system. The country-level measures are significantly but weakly correlated (Table 2).

The first measure is the religious freedom scale 'v2clrelig' from the Varieties of Democracy Database for 2009 and 2012 respectively. It 'specifies the extent to which individuals and groups have the right to choose a religion, change their religion, and practice that religion in private or in public as well as to proselytise peacefully without being subject to restrictions by public authorities' from not respected (0) to fully respected (4) based on country-expert evaluations (Coppedge 2017). It has the advantage of treating religion as a natural right subject to infringement rather than compiling lists of regulations, which may or may not infringe individuals' freedom.

Two additional measures are the Government Regulation of Religion and Government Favoritism of Religion scales. Government Regulation of Religion (GRI) is a 0 to 10 scale based on prohibitions against missionary work, interference with freedom of worship, and legal protections for freedom of religion. Government Favoritism of Religion (GFI) is a 0 to 10 scale of government funding for religion or related person and entities and establishing a religion (Grim and Finke 2006). Scores from 2008, the most recent year available, are used.[7] These country ratings are limited by the included policies. However, the indices distinguish restrictions (restrictive regulation) from subsidies (enabling regulation), which are combined in other scales. This could show whether different facets of regulation – subsidy and restriction, as measured in these scales – impact behaviour differently, which is contested in the prior literature, as previously noted.

As religious innovation and practise are theorised to stem from individuals' choices, we also focus on religious freedom as identified by the respondent. The country's scores have served as second-best proxies for citizens' freedom to innovate and participate. It is the citizen's actual understanding of the market that is framing his decision to consume and to what extent rather

than formal policies of which he may (not) be aware. Each respondent was asked how free he is to practise his religion in that country. He was also asked how free members of other religions are to practise their religions. The ratings range from very free (4) to not at all free (1). As the sample is restricted to Muslims in Muslim-majority states, these variables consider the respondent's evaluation of Muslims' religious freedom and that of religious minorities. These variables, along with the others, are used to test the relationship between freedom and beliefs and behaviour.

Methods

Belief in God and heaven and observing Ramadan are yes/no questions in the surveys, so logistic regressions are used for the analysis, and the results represent changing likelihood of believing. The importance of religion in respondents' lives is a scale ranging from not at all important (1) to very important (4). Mosque attendance is a scale from never (1) to more than once a week (6). Prayer outside of religious services is a scale from never (1) to several times a day (7). Ordered logistic regression is employed. All models are estimated as multilevel mixed-effects models clustered by country to account for the hierarchical data structure and to avoid artificially inflating the significance of second-level variables (Wells and Krieckhaus 2006). This applies to being formerly communist and Shiite majority as well as, most importantly, the country religious freedom ratings. The individual-level freedom models also include a national-level measure of regulation, the GRI score.

Results

[Table 3 roughly here]

We begin with the belief elements of religiosity. There is a positive effect of Muslims' freedom on propensity to believe in Allah and a negative effect of others' freedom, meaning that

Muslims who feel freer to practise their religion are more likely to believe while they are less likely to believe if members of other religions are free to practise their minority faiths (Table 3). Two of the country regulation scores are positively associated with likelihood of believing in Allah. This would be consistent with the country-level measures picking up the freedom to practise for minorities. Rural Muslims are also more likely to believe in Allah.

[Table 4 roughly here]

Belief in heaven shows substantially less impact from restrictions than belief in Allah (Table 4). Neither individuals' assessments of their freedom to practise nor that of members of other religions is significant. Additionally, the country ratings of religious freedom are also not significant predictors of likelihood of belief. Residence in a formerly communist country decreases that propensity, as does being non-Sunni Muslim. Why the other branches are less likely to believe in heaven is beyond the scope of this project.

[Table 5 roughly here]

Countries' religious freedom ratings are not significant predictors of the importance of religion to the respondents (Table 5). On the other hand, believing that Muslims and members of other religions are freer to practise is positively correlated with feeling that religion is important. The freer people are to practise their religions, the more salient religion becomes. The countrywide ratings, then, are not capturing the individual effects.

Worsening personal economic circumstances reduce the importance of religion. Religion has less salience for men, as well as for younger Muslims. Residents of formerly communist countries are less likely to find religion important. While Shiites do not place less import on religion than Sunnis, less affiliated Muslims do.

[Table 6 roughly here]

Country ratings of religious freedom are not significantly associated with Muslims' propensity to fast for Ramadan (Table 6). Individual freedom is significantly positively associated with fasting, while others' freedom is not. Muslims who feel free to practise Islam are more likely to observe this pillar of the faith. The freedom of minority religion members does not significantly change fasting behaviour. Ridge (2019) shows that state laws enforcing the fast increase propensity to fast, but the individual freedom effect is robust to the influence of religious legislation.

Men are significantly less likely to fast, despite Islamic law's giving women more exceptions to the fasting requirement. Rural Muslims are more likely to fast. Residents of former communist states and non-Sunni Muslims are less likely to observe.

[Table 7 roughly here]

Country's religious freedom ratings do not relate significantly to prayer behaviour (Table 7). Muslims who feel free to practise Islam pray more frequently. Others' freedom, though, is not significantly associated with prayer frequency. The countries' freedom ratings, thus, are not capturing individuals' freedom's effect on this facet of religiosity.

Men pray less frequently than women. Older Muslims pray more often. Individuals living in formerly communist countries pray less frequently. While Shiites do not demonstrate frequency differences compared to Sunnis, members of other denominations report less frequent prayer.

[Table 8 roughly here]

Service attendance, the most common metric of religiosity in the religious market theory literature, does not show significant effects of religious freedom (Table 8). The country ratings are not predicting how frequently Muslims attend the mosque. Furthermore, individuals' reports

of their own religious freedom and the freedom of members of other religions to practise their religions are not significantly associated with levels of mosque attendance.

Worsening national economic conditions decrease attendance. Male, older, and rural Muslims attend more frequently. Residents of formerly communist countries attend less frequently. While Shiites do not attend mosque less frequently than Sunnis, members of other denominations report less frequent participation. Residents of Shiite majority countries also attend less frequently.

Discussion

The fundamental prediction in religious market theory is that state regulation is bad for the religious market, decreasing supply, competition, and choice, and thereby suppressing religiosity in a public that cannot find offerings to suit its demand. In these Muslim-majority countries, looking only at the country's religious freedom and regulation ratings, however, provides almost no support for this pattern, even in the quintessential element of religion for the religious market theory literature: religious service attendance. We only see a strong effect of regulation on propensity to believe in Allah, where we see levels of both restrictive and enabling regulations are instead positively associated with the propensity to believe.

Extending the measurement to the individual to align with the proposed mechanism of religious market theory, however, does demonstrate the value of deregulation and religious freedom. We see significant effects of freedom for one's religious practise and religiosity in belief in Allah, identifying religion as important, fasting during Ramadan, and prayer. As individuals perceive their lives as having more freedom to practise Islam, they are, on average, more likely to demonstrate religiosity in belief and in behaviour. This pattern follows religious market theory expectation of the effect of freedom. As such, despite the weak showing in the

countrywide measures of religious freedom, we do not construe these findings as a refutation of the religious market theory.

We also asserted that the religious market theory speaks to the entire, diverse market but that these uniform national measures of religious regulation cannot account for religious diversity's heterogeneous experience of regulation. Any regulation, according to the religious market theory, should reduce religiosity, since it constrains market actors. Such an effect is not consistently observed in the elements of religiosity examined here. Greater freedom to practise for members of religious minorities decreases the propensity to believe in Allah. This aligns with the second version of the second hypothesis, in which the effect minorities' freedom diverges from the traditional religious market theory. On the other hand, increasing perceived freedom for those minorities increases the salience of religion for members of the majority religion. A positive relationship between freedom and religiosity would fit the traditional religious market theory, as described in H2a. Other elements are not significantly impacted. Taken together these findings suggest that regulation *qua* regulation is not suppressive in the religious market. The null effects, while not proving that no relationship exists, could suggest that Muslims are indifferent to the taxes placed on minority products when determining their consumption level for their chosen product.

The finding that Muslims living in areas with freedom for religious minorities are less likely to believe in Allah and that Muhammad was a prophet could have several causes. Minorities' freedom itself may cause some people to conclude that multiple religious choices are equally valid, reducing belief in the tenets of the majority tradition by introducing doubt. Alternatively, these groups' use of their freedom to believe and practise could be luring members

away, so people who are Muslim by birth are moving away from that faith toward others. The cause(s) at work cannot be determined from the current data.

A minority freedom effect is also evident in the importance of religion in life. This may reflect that, in addition to the increased salience of religion in the life of the Muslim whose freedom to practise increased observance, the salience of religion overall is increased when others are free as well. The minorities' freedom to practise – which the respondents may see them exercise – may make religion more prevalent in the environment. The Muslim respondent may then view religion as more important in his life from his own observance and/or from the increased religiosity of the environment. These 'minority effects' also justify our consideration and incorporation of the freedom of minority religions in our understanding of the religious market and the effect of religious freedom on religiosity and would be worthy of further study.

Conclusion

This project brings the religious market theory into Muslim-majority countries. It tests whether national regulations suppress religiosity outside of its original Western, Christian context as the theory would indicate. Unfortunately, we do not find strong indications of reduced religiosity in the national-level measures of state regulation. This could suggest either that the religious market theory does not hold in Muslim-majority countries, as Chaves and Cann (1992) conjectured, or that current measurements for countries' levels of religious freedom are not adequately identifying policies that impinge on individuals' freedom.

Given the identified effect of individual freedom on religiosity, which functions as the theory predicts, we favour the second explanation. This interpretation is optimistic with respect to the religious market theory; by and large the theory's predictions about the positive effect of religious freedom on individuals' religiosity are apparent. It is pessimistic, however, for our

capacity to identify the government policies that reduce individuals' freedom to practise their religion. The scales we are using to assess state regulation of religion are not accurately capturing religious freedom. This is consistent with the minimal correlations between the country-level and individual-level measures of freedom (Table 2). The global applicability of our current measurements of state regulation, though, must be reserved for subsequent research.

Religious market theory literature would benefit from testing individual freedom's effect in Christian-majority countries. This would allow researchers to verify whether the market performs as the theory predicts in the states that originated the theory. These studies could then include both personal and others' religious freedom. Possibly our country rating metrics are better at capturing individual freedom in Christian-majority countries, which would account for this discrepancy in results. Developing measures of countries' levels of religious freedom that accurately assess individual freedom is a topic for subsequent research; this test could then be repeated with the superior national evaluations.

In addition to testing in Christian-majority countries, it would be useful to study the relationship for religious minorities. Since the data here focused on Muslims in Muslim-majority countries, we cannot conclude whether religious minorities have the same response to in-group and out-group religious freedom. This, however, would be an interesting area for subsequent research. Another avenue for future research would be to incorporate qualitative information in surveys on religious freedom and observance. This information could help researchers tease out the effects of religious freedom, particularly others' religious freedom, on their beliefs and behaviour. Scholars could then evaluate the causal logic of the respondents and examine whether it aligns with the reasoning of religious market and secularisation theory literatures.

By leveraging individual-level data on religious freedom, we are able to tap further into the religious market theory. We find strong evidence for the effect of individuals' freedom on religiosity and an intriguing heterogeneous effect of regulation for members of the majority and minority religions. As the theory would expect all regulation to reduce religiosity as constraints on the market, we incorporated the freedom of other religions to study the effect of 'minority' signals in religious market on members of the religious majority. We do not find a consistent negative effect of constraints on members of other religions. Freedom for religious minorities sometimes decreases religiosity among members of the majority religion although it increases religious salience. Regulation *qua* regulation is not necessarily or equally deleterious for the religious market or religiosity. Overall consumption may then not be greatest in the freest markets, contrary to the conclusions of much of the religious market theory literature.

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Table 1: Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Attend Mosque at Least Weekly	0.50	0.50	0	1
Pray Daily	0.68	0.47	0	1
Fast for Ramadan	0.86	0.35	0	1
Belief in God	0.97	0.16	0	1
Belief in Heaven	0.94	0.23	0	1
Religion is Very Important	0.73	0.44	0	1
National Economy Evaluation	2.52	0.95	1	4
Personal Economy Evaluation	2.35	0.85	1	4
Male	0.51	0.50	0	1
Sunni	0.58	0.49	0	1
Shiite	0.07	0.25	0	1
Just a Muslim	0.28	0.49	0	1
Age	4.16	2.40	1	9
Rural Residence	0.48	0.50	0	1
Formerly Communist	0.15	0.36	0	1
Muslims' Religious Freedom	3.69	0.59	1	4
Others' Religious Freedom	3.57	0.67	1	4

Table 2: Correlation of Religious Freedom Measures

	Varieties of Democracy	Grim/ Finke GRI	Grim/ Finke GFI	Muslims' Freedom	Non-Muslims' Freedom
Varieties of Democracy	1.00	-0.56	-0.26	0.05	0.07
Grim/Finke GRI		1.00	0.53	-0.11	-0.11
Grim/Finke GFI			1.00	-0.04	-0.05
Muslims' Freedom				1.00	0.54
Non-Muslims' Freedom					1.00

*All correlations significant $p<0.001$

Table 3: Belief in Allah

	Model 1	**Model 2**	**Model 3**	**Model 4**
(Intercept)	5.36***	2.70***	2.95***	2.39***
	(1.05)	(0.58)	(0.58)	(0.65)
Varieties of Democracy	-0.38			
	(0.34)			
Grim/Finke GFI		0.27**		
		(0.08)		
Grim/Finke GRI			0.24**	0.25**
			(0.09)	(0.09)
Muslims' Religious Freedom				0.33***
				(0.08)
Non-Muslims' Religious Freedom				-0.19*
				(0.08)
National Economy Evaluation	0.05	0.04	0.05	0.05
	(0.06)	(0.06)	(0.06)	(0.06)
Personal Economy Evaluation	0.05	0.05	0.05	0.05
	(0.06)	(0.06)	(0.06)	(0.06)
Male	-0.14	-0.14	-0.14	-0.14
	(0.08)	(0.08)	(0.08)	(0.08)
18-24	0.08	0.09	0.09	0.10
	(0.15)	(0.15)	(0.15)	(0.15)
25-29	0.07	0.08	0.09	0.08
	(0.16)	(0.16)	(0.16)	(0.16)
30-34	-0.08	-0.07	-0.07	-0.06
	(0.16)	(0.16)	(0.16)	(0.16)
35-39	0.45*	0.45*	0.45*	0.45*
	(0.18)	(0.18)	(0.18)	(0.18)
45-49	0.14	0.14	0.14	0.15
	(0.18)	(0.18)	(0.18)	(0.18)
50-54	0.27	0.27	0.27	0.28
	(0.19)	(0.19)	(0.19)	(0.19)
55-59	0.57*	0.57*	0.58*	0.59*
	(0.23)	(0.23)	(0.23)	(0.23)
60+	0.29	0.29	0.29	0.29
	(0.19)	(0.19)	(0.19)	(0.19)
Rural Residence	0.30***	0.31***	0.30***	0.31***
	(0.09)	(0.09)	(0.09)	(0.09)
Formerly Communist	-1.49	-0.42	-1.16	-1.15
	(0.81)	(0.72)	(0.72)	(0.72)
Just a Muslim	-0.07	-0.07	-0.07	-0.06
	(0.11)	(0.11)	(0.11)	(0.11)

Other	-0.37**	-0.37**	-0.37**	-0.35**
	(0.13)	(0.13)	(0.13)	(0.14)
Shiite	-0.25	-0.26	-0.24	-0.26
	(0.24)	(0.24)	(0.24)	(0.24)
Shiite-Majority Country	0.15	0.75	0.23	0.26
	(1.10)	(0.93)	(0.99)	(0.99)
AIC	5284.08	5234.54	5236.41	5225.43
Num. obs.	26125	25207	25207	25207
Num. groups: Country	24	23	23	23
Var: Country (Intercept)	2.00	1.38	1.57	1.58

***p<0.001, **p<0.01, *p<0.05

Table 4: Belief in Heaven

	Model 1	**Model 2**	**Model 3**	**Model 4**
(Intercept)	4.14***	3.12***	3.54***	3.19***
	(0.82)	(0.56)	(0.53)	(0.57)
Varieties of Democracy	-0.24			
	(0.27)			
Grim/Finke GFI		0.05		
		(0.08)		
Grim/Finke GRI			-0.02	-0.02
			(0.08)	(0.08)
Muslims' Religious Freedom				0.04
				(0.06)
Non-Muslims' Religious Freedom				0.05
				(0.05)
National Economy Evaluation	0.04	0.03	0.03	0.03
	(0.04)	(0.04)	(0.04)	(0.04)
Personal Economy Evaluation	0.14**	0.16***	0.16***	0.16***
	(0.05)	(0.05)	(0.05)	(0.05)
Male	-0.07	-0.06	-0.07	-0.07
	(0.06)	(0.06)	(0.06)	(0.06)
18-24	-0.15	-0.15	-0.15	-0.15
	(0.11)	(0.11)	(0.11)	(0.11)
25-29	-0.06	-0.04	-0.04	-0.04
	(0.12)	(0.12)	(0.12)	(0.12)
30-34	-0.13	-0.12	-0.12	-0.12
	(0.12)	(0.12)	(0.12)	(0.12)
35-39	-0.03	-0.03	-0.03	-0.03
	(0.13)	(0.13)	(0.13)	(0.13)
45-49	-0.21	-0.22	-0.22	-0.22
	(0.13)	(0.13)	(0.13)	(0.13)
50-54	0.03	0.05	0.05	0.05
	(0.14)	(0.14)	(0.14)	(0.14)
55-59	0.16	0.15	0.15	0.15
	(0.16)	(0.16)	(0.16)	(0.16)
60+	-0.26*	-0.27*	-0.27*	-0.27*
	(0.13)	(0.13)	(0.13)	(0.13)
Rural Residence	0.07	0.08	0.07	0.08
	(0.06)	(0.06)	(0.06)	(0.06)
Formerly Communist	-1.66**	-1.41*	-1.59*	-1.57*
	(0.63)	(0.70)	(0.66)	(0.66)
Just a Muslim	-0.36***	-0.33***	-0.33***	-0.33***

	(0.08)	(0.08)	(0.08)	(0.08)
Other	-0.46***	-0.43***	-0.44***	-0.43***
	(0.11)	(0.11)	(0.11)	(0.11)
Shiite	-0.37*	-0.35*	-0.35*	-0.35*
	(0.15)	(0.15)	(0.15)	(0.15)
Shiite-Majority Country	-0.06	0.10	0.03	0.04
	(0.86)	(0.89)	(0.89)	(0.89)
AIC	9271.14	9102.95	9103.30	9104.69
Num. obs.	25992	25156	25156	25156
Num. groups: Country	24	23	23	23
Var: Country (Intercept)	1.26	1.34	1.37	1.37

***p<0.001, **p<0.01, *p<0.05

Table 5: Importance of Religion

	Model 1	**Model 2**	**Model 3**	**Model 4**
Varieties of Democracy	-0.23			
	(0.26)			
Grim/Finke GFI		0.02		
		(0.08)		
Grim/Finke GRI			-0.07	-0.05
			(0.07)	(0.07)
Muslims' Religious Freedom				0.39***
				(0.03)
Non-Muslims' Religious Freedom				0.10***
				(0.03)
National Economy Evaluation	0.02	0.01	0.01	0.02
	(0.02)	(0.02)	(0.02)	(0.02)
Personal Economy Evaluation	-0.11***	-0.10***	-0.10***	-0.08**
	(0.02)	(0.02)	(0.02)	(0.02)
Male	-0.08*	-0.07*	-0.07*	-0.07*
	(0.03)	(0.03)	(0.03)	(0.03)
18-24	-0.29***	-0.25***	-0.25***	-0.24***
	(0.06)	(0.06)	(0.06)	(0.06)
25-29	-0.23***	-0.22***	-0.22***	-0.22***
	(0.06)	(0.06)	(0.06)	(0.06)
30-34	-0.16*	-0.15*	-0.15*	-0.14*
	(0.06)	(0.07)	(0.07)	(0.07)
35-39	-0.01	0.00	0.00	-0.00
	(0.07)	(0.07)	(0.07)	(0.07)
45-49	-0.06	-0.05	-0.05	-0.04
	(0.07)	(0.07)	(0.07)	(0.07)
50-54	0.14	0.15	0.15	0.15*
	(0.08)	(0.08)	(0.08)	(0.08)
55-59	0.01	0.02	0.02	0.04
	(0.08)	(0.08)	(0.08)	(0.08)
60+	0.29***	0.29***	0.29***	0.28***
	(0.08)	(0.08)	(0.08)	(0.08)
Rural Residence	0.01	0.01	0.01	0.01
	(0.03)	(0.03)	(0.03)	(0.03)
Formerly Communist	-2.43***	-2.28***	-2.38***	-2.30***
	(0.62)	(0.69)	(0.63)	(0.64)
Just a Muslim	-0.54***	-0.54***	-0.54***	-0.53***
	(0.04)	(0.04)	(0.04)	(0.04)
Other	-0.77***	-0.76***	-0.76***	-0.73***
	(0.06)	(0.06)	(0.06)	(0.06)

Shiite	0.01	0.00	0.00	-0.01
	(0.08)	(0.08)	(0.08)	(0.08)
Shiite-Majority Country	-1.41	-1.30	-1.31	-1.21
	(0.83)	(0.87)	(0.85)	(0.85)
1|2	-6.92***	-6.12***	-6.58***	-4.65***
	(0.80)	(0.53)	(0.48)	(0.50)
2|3	-5.07***	-4.27***	-4.73***	-2.79***
	(0.80)	(0.53)	(0.47)	(0.50)
3|4	-2.98***	-2.18***	-2.64***	-0.68
	(0.80)	(0.53)	(0.47)	(0.50)
AIC	32742.40	31953.67	31952.95	31664.51
Num. obs.	26343	25420	25420	25420
Groups (Country)	24	23	23	23
Variance: Country: (Intercept)	1.22	1.31	1.27	1.29

***p<0.001, **p<0.01, *p<0.05

Table 6: Fasting for Ramadan

	Model 1	**Model 2**	**Model 3**	**Model 4**
(Intercept)	3.94***	2.96***	3.59***	2.80***
	(0.86)	(0.55)	(0.53)	(0.55)
Varieties of Democracy	-0.13			
	(0.28)			
Grim/Finke GFI		0.10		
		(0.08)		
Grim/Finke GRI			-0.01	-0.00
			(0.08)	(0.08)
Muslims' Religious Freedom				0.16***
				(0.04)
Non-Muslims' Religious Freedom				0.03
				(0.04)
National Economy Evaluation	-0.05	-0.06	-0.06	-0.05
	(0.03)	(0.03)	(0.03)	(0.03)
Personal Economy Evaluation	-0.04	-0.04	-0.04	-0.03
	(0.03)	(0.03)	(0.03)	(0.03)
Male	-0.16***	-0.15***	-0.15***	-0.15***
	(0.04)	(0.04)	(0.04)	(0.04)
18-24	-0.24**	-0.22**	-0.22**	-0.21*
	(0.08)	(0.08)	(0.08)	(0.08)
25-29	-0.12	-0.09	-0.09	-0.09
	(0.09)	(0.09)	(0.09)	(0.09)
30-34	-0.03	-0.01	-0.01	-0.00
	(0.09)	(0.09)	(0.09)	(0.09)
35-39	0.02	0.03	0.03	0.02
	(0.09)	(0.10)	(0.10)	(0.10)
45-49	-0.07	-0.06	-0.06	-0.06
	(0.10)	(0.10)	(0.10)	(0.10)
50-54	0.21*	0.23*	0.23*	0.23*
	(0.11)	(0.11)	(0.11)	(0.11)
55-59	0.22	0.23*	0.23*	0.24*
	(0.11)	(0.11)	(0.11)	(0.11)
60+	0.13	0.14	0.14	0.13
	(0.10)	(0.10)	(0.10)	(0.10)
Rural Residence	0.13**	0.13**	0.13**	0.13**
	(0.05)	(0.05)	(0.05)	(0.05)
Formerly Communist	-2.38***	-1.99**	-2.33***	-2.29***
	(0.67)	(0.70)	(0.68)	(0.68)
Just a Muslim	-0.71***	-0.72***	-0.73***	-0.72***
	(0.06)	(0.06)	(0.06)	(0.06)

Other	-1.02***	-1.03***	-1.03***	-1.02***
	(0.08)	(0.08)	(0.08)	(0.08)
Shiite	-0.55***	-0.56***	-0.56***	-0.56***
	(0.10)	(0.10)	(0.10)	(0.10)
Shiite-Majority Country	-1.55	-1.36	-1.49	-1.45
	(0.90)	(0.89)	(0.92)	(0.92)
AIC	14627.77	14335.59	14337.13	14316.84
Num. obs.	26343	25429	25429	25429
Num. groups: Country	24	23	23	23
Var: Country (Intercept)	1.42	1.39	1.48	1.49

***p<0.001, **p<0.01, *p<0.05

Table 7: Frequency of Prayer

	Model 1	**Model 2**	**Model 3**	**Model 4**
Varieties of Democracy	0.04			
	(0.22)			
Grim/Finke GFI		-0.04		
		(0.06)		
Grim/Finke GRI			-0.10	-0.10
			(0.06)	(0.06)
Muslims' Religious Freedom				0.14***
				(0.03)
Non-Muslims' Religious Freedom				0.02
				(0.02)
National Economy Evaluation	0.01	0.00	0.00	0.00
	(0.02)	(0.02)	(0.02)	(0.02)
Personal Economy Evaluation	-0.02	-0.01	-0.01	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)
Male	-0.09***	-0.07**	-0.07**	-0.07*
	(0.03)	(0.03)	(0.03)	(0.03)
18-24	-0.48***	-0.46***	-0.46***	-0.45***
	(0.05)	(0.05)	(0.05)	(0.05)
25-29	-0.25***	-0.22***	-0.22***	-0.22***
	(0.05)	(0.05)	(0.05)	(0.05)
30-34	-0.21***	-0.19***	-0.19***	-0.18***
	(0.05)	(0.05)	(0.05)	(0.05)
35-39	-0.07	-0.06	-0.06	-0.06
	(0.06)	(0.06)	(0.06)	(0.06)
45-49	0.06	0.07	0.07	0.07
	(0.06)	(0.06)	(0.06)	(0.06)
50-54	0.25***	0.25***	0.25***	0.25***
	(0.06)	(0.06)	(0.06)	(0.06)
55-59	0.22**	0.22**	0.22**	0.23**
	(0.07)	(0.07)	(0.07)	(0.07)
60+	0.50***	0.49***	0.49***	0.49***
	(0.07)	(0.07)	(0.07)	(0.07)
Rural Residence	-0.01	-0.01	-0.01	-0.01
	(0.03)	(0.03)	(0.03)	(0.03)
Formerly Communist	-2.37***	-2.48***	-2.42***	-2.39***
	(0.51)	(0.54)	(0.48)	(0.48)
Just a Muslim	-0.40***	-0.40***	-0.40***	-0.39***
	(0.04)	(0.04)	(0.04)	(0.04)
Other	-0.50***	-0.50***	-0.50***	-0.49***
	(0.05)	(0.05)	(0.05)	(0.05)

Shiite	-0.04	-0.04	-0.04	-0.04
	(0.07)	(0.07)	(0.07)	(0.07)
Shiite-Majority Country	0.59	0.56	0.64	0.67
	(0.68)	(0.69)	(0.65)	(0.65)
1|2	-3.55***	-3.83***	-4.14***	-3.49***
	(0.67)	(0.40)	(0.37)	(0.39)
2|3	-2.54***	-2.82***	-3.13***	-2.48***
	(0.67)	(0.40)	(0.37)	(0.39)
3|4	-2.23***	-2.51***	-2.82***	-2.17***
	(0.67)	(0.40)	(0.37)	(0.39)
4|5	-1.91**	-2.19***	-2.51***	-1.86***
	(0.67)	(0.40)	(0.37)	(0.39)
5|6	-1.46*	-1.74***	-2.06***	-1.41***
	(0.67)	(0.40)	(0.37)	(0.39)
6|7	-1.01	-1.28**	-1.59***	-0.94*
	(0.67)	(0.40)	(0.37)	(0.39)
AIC	63088.58	61462.62	61460.08	61420.36
Num. obs.	26122	25208	25208	25208
Groups (Country)	24	23	23	23
Variance: Country: (Intercept)	0.82	0.83	0.74	0.75

***p<0.001, **p<0.01, *p<0.05

Table 8: Frequency of Mosque Attendance

	Model 1	**Model 2**	**Model 3**	**Model 4**
Varieties of Democracy	-0.02			
	(0.19)			
Grim/Finke GFI		-0.06		
		(0.06)		
Grim/Finke GRI			-0.10	-0.10*
			(0.05)	(0.05)
Muslims' Religious Freedom				0.04
				(0.02)
Non-Muslims' Religious Freedom				-0.03
				(0.02)
National Economy Evaluation	-0.09***	-0.10***	-0.10***	-0.10***
	(0.02)	(0.02)	(0.02)	(0.02)
Personal Economy Evaluation	0.00	-0.01	-0.01	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)
Male	1.71***	1.71***	1.71***	1.71***
	(0.03)	(0.03)	(0.03)	(0.03)
18-24	-0.31***	-0.29***	-0.29***	-0.29***
	(0.04)	(0.05)	(0.05)	(0.05)
25-29	-0.22***	-0.21***	-0.21***	-0.21***
	(0.05)	(0.05)	(0.05)	(0.05)
30-34	-0.10*	-0.11*	-0.11*	-0.11*
	(0.05)	(0.05)	(0.05)	(0.05)
35-39	-0.07	-0.06	-0.06	-0.06
	(0.05)	(0.05)	(0.05)	(0.05)
45-49	0.06	0.07	0.07	0.07
	(0.06)	(0.06)	(0.06)	(0.06)
50-54	0.29***	0.30***	0.30***	0.30***
	(0.06)	(0.06)	(0.06)	(0.06)
55-59	0.35***	0.35***	0.35***	0.35***
	(0.06)	(0.06)	(0.06)	(0.06)
60+	0.36***	0.36***	0.36***	0.36***
	(0.06)	(0.06)	(0.06)	(0.06)
Rural Residence	0.07**	0.08**	0.08**	0.08**
	(0.03)	(0.03)	(0.03)	(0.03)
Formerly Communist	-2.21***	-2.44***	-2.29***	-2.29***
	(0.48)	(0.52)	(0.46)	(0.46)
Just a Muslim	-0.46***	-0.50***	-0.50***	-0.50***
	(0.03)	(0.03)	(0.03)	(0.03)
Other	-0.55***	-0.57***	-0.58***	-0.57***
	(0.05)	(0.05)	(0.05)	(0.05)

Shiite	0.06	0.05	0.05	0.05
	(0.06)	(0.06)	(0.06)	(0.06)
Shiite-Majority Country	-1.84**	-1.94**	-1.82**	-1.82**
	(0.65)	(0.65)	(0.61)	(0.61)
1|2	-1.63**	-2.02***	-2.20***	-2.14***
	(0.58)	(0.40)	(0.36)	(0.36)
2|3	-0.90	-1.29**	-1.47***	-1.41***
	(0.58)	(0.40)	(0.36)	(0.36)
3|4	-0.34	-0.73	-0.91*	-0.85*
	(0.58)	(0.40)	(0.36)	(0.36)
4|5	0.02	-0.36	-0.53	-0.48
	(0.58)	(0.40)	(0.36)	(0.36)
5|6	1.17*	0.81*	0.63	0.69
	(0.58)	(0.40)	(0.36)	(0.36)
AIC	73094.37	70292.99	70290.72	70292.13
Num. obs.	26272	25353	25353	25353
Groups (Country)	24	23	23	23
Variance: Country: (Intercept)	0.75	0.74	0.67	0.67

***p<0.001, **p<0.01, *p<0.05

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[1] Interference is certainly evident when states attempt to restrict actions that religious people or groups may take, such as requiring registration or forbidding meeting for worship. Some interference can occur when states attempt to promote or enable a group, such as collecting taxes for it or forbidding other groups from trying to convert its members. Some such policies then become repressive restrictions on other groups. Even the regulations meant to enable can constrain, however. For instance, if the state funding causes religious leaders not to work for their market share, the group can shrink *because of* state’s pseudo-enabling (Iannaccone 1991). The state’s imprimatur can also damage the religion’s public image (Tezcur, Azadarmaki, and Bahar 2006). Whether these attempts to enable negatively impact the religious communities they are meant to help is not consistently demonstrated in the literature

(see discussion of North and Gwin 2004, McCleary and Barro 2006, and Fox and Tabory 2008). We account for the potential difference in influence between 'restricting' and 'enabling' regulation by including country ratings both for regulation and for favouritism (see discussion of Grim and Finke 2006). In theory this scale measures the state's effort to enable any religion, but, in the countries in this sample, the religion is Islam. The restricting regulations include restrictions applied to any religion. Ultimately, we do not find that regulations seeking to restrict and regulations seeking to enable are producing different effects. The survey does not address which particular regulations are driving Muslims' views of their own and others' religious freedom. We can see, in Table 2, though, that the correlations between respondents' evaluations and the restriction index are greater than the correlations and the favouritism index. This could indicate that restrictive policies loom larger in the public imaginary of religious freedom.

[2] Analyses of dynamic effects remain an interesting area for further study. Such an examination would require individual level panel data, which could include the country-level elements modernisation theory predicts would influence demand and person-specific elements. The necessary cross-temporal data is not available here. As such, point-in-time models, like those used in other studies in this literature, are employed.

[3] Pew Research Center bears no responsibility for the analyses or interpretations of the data presented here.

[4] It cannot be guaranteed that no respondent lied on a survey as a form of preference falsification (Kuran 1995). However, Pew Research Center's performed sensitivity tests on these questions. They were not considered sensitive in any questions included in this study. Furthermore, these are common religiosity questions used in global surveys.

[5] As noted above, individual demand might shift for other reasons over time, such as contact with a religious entrepreneur or life milestones (i.e. births and deaths), and these influences are not discernable in non-panel data. However, the factors related to modernisation theory are largely static in the adult population and are available in point-in-time data. As such, these factors are included here.

[6] A sample that excluded Shiite-majority countries and Muslims who identified as Shiite or with a small denomination was also tested. The results are functionally similar; they are available on request.

[7] Data comes from the Association of Religion Data Archives. Palestine is not included.