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Islam and Patriarchy:

How Robust Is Muslim Support for Patriarchal Values?

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ABSTRACT

Evidence that Muslims support patriarchal values more than Non-Muslims is abundant but the nature of this evidence is contested. The 'cultural' interpretation suggests that patriarchal values are an inherent element of Muslim identity. The 'structural' interpretation holds that patriarchal values reside in structural characteristics and have little to do with Muslim identity. Evidence on these contradictory claims is inconclusive. Neither have advocates of the cultural position shown that Muslim support for patriarchal values remains robust under control of structural characteristics; nor have proponents of the structural position demonstrated that Muslim support for these values vanishes under such controls. Filling this gap, we use multi-level models to test whether Muslim support for patriarchal values vanishes under control of patriarchy's structural underpinnings. We find that Muslim support for patriarchal values is robust against various controls. And, we identify mosque attendance as a mechanism to sustain Muslim support for patriarchy in Non-Muslim societies. Yet, rising levels of education, labor market participation, and a glacial emancipative trend diminish Muslim support for patriarchy, especially among women.

Key Words: Gender Equality - Islam - Oil Economies – Patriarchy (9,655 words)

CITATION

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INTRODUCTION

In two studies, Inglehart and Norris (2003a, b) examine the connection between Islam and patriarchal values.¹ Their findings confirm Huntington's (1996) thesis of a cultural chasm between Islam and the 'West.' However, they clarify that the key difference is not on matters of democracy but on matters of emancipation. It is in values about "eros, not demos" (2003a:65) where Muslims and Westerners differ. Indeed, Inglehart and Norris provide the broadest evidence to date for Muslim support of patriarchal values.

The evidence is echoed in studies of Muslim women's education and positional achievement. Fish (2002) and numerous secular feminists describe adherence to Islamic norms as a barrier to women's advancement (Afshar 1982; Ghoussoub 1987; Karam 1998; Minces 1982; Moghissi 1999; Tabari 1982). These views suggest that socialization under Islamic norms ingrains patriarchal values as an inherent attribute of Muslim identity.

Others, however, attribute patriarchal values to different factors, which dominate in Muslim societies for reasons *other* than Islam itself. These reasons are structural in character as they emanate from economic and political power relations. Thus, Moghadam (2003:5-8) claims:

[T]he position of women in the Middle East cannot be attributed to the presumed intrinsic properties of Islam. It is also my contention that Islam is neither more nor less patriarchal than other religions [...] [T]o understand the social implications of Islam, therefore, it is necessary to look at the broader sociopolitical and economic order within which it is exercised.

A similar position is taken by Ross (2008). His explanation of Muslim patriarchy emphasizes non-cultural factors, especially oil and gas rents (2008:117):

Women have made less progress in gender equality in the Middle East than in any other region. Many observers claim this is due to the region's Islamic traditions. I suggest that oil, not Islam is at fault [...] Oil production reduces the number of women in the labor force, which in turn reduces their political influence. As a result, oil-producing states are

¹ Patriarchy is the systematic subordination of women to men. This subordination has structural and cultural facets. The structural facet is evident in organizational patterns that *enforce* female subordination. The cultural facet is manifest in values that *legitimize* female subordination (cf. Walby 1989:227). In the following, we use the term 'culture' in reference to subjective beliefs and 'structure' in the sense of objective patterns of organization, be those social, economic or political.

left with atypically strong patriarchal norms, laws, and political institutions.

These views contradict the cultural interpretation; they endorse a 'structural' interpretation. Patriarchal values are not pronounced among Muslims because of Islam's inherent affinity to patriarchy. Instead, Muslims are socialized under patriarchal structures that characterize Muslim societies for other reasons than Islam.

One might argue that the two positions are not contradictory: Muslim support for patriarchal values might be strong for both cultural and structural reasons. But this conclusion misses the key disagreement. For the structural position takes an extreme stance: it holds that Muslim support for patriarchal values is *solely* a derivative of patriarchal structures and not inherent in Muslim identity. In analytical terms, this means that--in dissociation from patriarchal structures--Muslim identity shows no effect on patriarchal values. By contrast, the cultural interpretation suggests that Muslim support for patriarchal values is *at least partly* a property of Muslim identity and does not vanish when one dissociates Muslims from patriarchal structures.

So far, the evidence is inconclusive. On one hand, Ross provides the broadest evidence for the structural position but does not analyze patriarchal values. Thus, his claim that "oil-producing states are left with atypically strong patriarchal norms" because oil economies reduce women's access to the labor market remains undemonstrated. On the other hand, Inglehart and Norris (2003a; b) provide the broadest evidence for the cultural position but do not take into account oil rents and other indicators of structural patriarchy. Their claim that the Muslim affinity to patriarchal values cannot be reduced to structural factors remains undemonstrated, too. The question of whether Muslim support for patriarchal values holds up in dissociation from structural factors is open.

This is not a technical question because it touches upon the nature of Muslim patriarchy. Muslim patriarchy is *merely* a structural phenomenon if Muslim support for patriarchal values vanishes in dissociation from structural features that are typical of Muslim societies for reasons other than Islam. If this is true, Muslims support patriarchal values more strongly than Non-Muslims only if these Muslims live in Muslim societies. By contrast, Muslim patriarchy is *at least partly* a cultural phenomenon if Muslim support for patriarchal values remains robust even in dissociation from patriarchy's structural underpinnings. In this case, patriarchal values are an inherent element of Muslim identity. If so, these values travel wherever Muslims settle and retain their own identity.

We examine this question by analyzing how individual Muslim identification and Muslim social dominance affect patriarchal values, under control of key structural factors that have so far been left out of the study of patriarchal values.

Part one of this study describes the research design. Part two introduces the data and measurements. Using the World Values Survey, we examine the patriarchal values of about 130,000 respondents from some 80 societies. Part three presents the findings. The concluding part discusses broader implications.

RESEARCH STRATEGY

Inglehart and Norris (2003a; b) present the broadest evidence of a Muslim affinity to patriarchal values.² There are, however, shortcomings in their study. The exclusion of key structural factors, such as oil rents, is one of them. Another is the unsystematic distinction between Muslim identity at the individual level and Muslim dominance at the societal level. Even though the authors demonstrate a tendency towards patriarchal values for both Muslim self-identification and Muslim social dominance (2003b:44, 67), they do not isolate these effects from each other in a multi-level model. This is not a trivial shortcoming. In the absence of multi-level modeling, it remains unclear at which level the Muslim affinity to patriarchal values primarily works: is it the living in a dominantly Muslim society or the self-identification as a Muslim that favors patriarchal values more strongly?

Existing research has not solved this question. Studies in Europe and the US compare the values of Muslim immigrant populations with those of the host populations. They find that Muslim immigrants support patriarchal values more strongly even if they are second or third generation immigrants (Buijs & Rath 2002; Fetzer & Soper 2005; Kosmin & Mayer 2001; Laurence & Vaisse 2006; Morin & Horowitz 2006; Pipes 2002; Pfaff 2007). However, these studies cannot tell whether leaving a dominantly Muslim society makes Muslims less patriarchal, because the studies cannot compare the values of immigrant Muslims with Muslims of similar age and background in Muslim societies. Vice versa, studies among Muslims in dominantly Muslim societies lack comparison with immigrant Muslims in Western societies and, therefore, cannot isolate the effect of living in a Muslim society (Blaydes & Linzer 2008; Rizzo, Abel-Latif, & Meyer 2007). In order to separate the effects of living in a Muslim society and being a Muslim, one needs a sample that allows one to compare the values of Muslims and Non-Muslims in both Muslim and Non-Muslim societies.

The World Values Survey offers this possibility. Analyzing these data, we examine whether Muslim support for patriarchal values vanishes in dissociation from a number of confounding factors that are not defining elements of Muslim identity.

A Muslim tendency towards patriarchal values can be present on two levels: the societal level and the individual level. At the societal level, a Muslim tendency towards patriarchal values means that societies exhibit higher mean levels of patriarchal values when the Muslim share of the population is larger. At the individual level, a Muslim tendency towards patriarchal values means that within any given society, Muslims hold stronger patriarchal values than Non-Muslims. If one can establish that, on both levels, the Muslim tendency towards patriarchal values vanishes under control of confounding factors that are not inherently Muslim, the patriarchal tendency is not inherently Muslim either.

² More precisely, they evidence a Muslim repulsion of gender-egalitarian values. But since gender-egalitarian values are the opposite of patriarchal values, the repulsion of gender-egalitarian values is the same as an affinity to patriarchal values.

Confounding Factors

Scholarship has claimed a number of factors as responsible for the support of patriarchal values in a society. Ross (2008) argues that oil rents keep women out of the workforce and that this effect explains the prevalence in patriarchal values. Unlike oil economies, knowledge economies involve large proportions of women into the workforce. If the same logic applies, this should diminish the prevalence of patriarchal values (Inglehart & Welzel 2005:282). Hence, Muslim societies might exhibit higher base levels of patriarchal values mostly because the structure of their economies excludes women, not because they are dominantly Muslim.

Apart from economic structures, political institutions have been found to influence patriarchy. Specifically, the endurance of democracy decreases a society's base level of patriarchal values (Paxton & Hughes 2007). Accordingly, Muslim societies might exhibit higher base levels of patriarchal values because they lack a democratic tradition, not because of Muslim social dominance.

The effect of individual Muslim identification on patriarchal values, too, might be accounted for by a number of confounding factors. One factor is religiosity. A huge literature establishes a link between religious devotion and patriarchal values (Harkness 1972; Ruether 1974; Peek, Lowe & Williams 1991; Okin 1999; Burn & Busso 2005; Paxton & Hughes 2007: 109-114). Thus, Muslims might be more patriarchal not because they are Muslim but because more of them are strongly religious.

In order to function as a transmitter of patriarchal values, religion needs a socializing institution (Beit-Hallahmi & Argyle 1997). Attendance of the mosque or church for religious service can meet this function. Service attendance exposes people to the propagated values of their religion and repeats a group experience that fosters identification with one's religion's values (Hood, Hill & Williamson 2005). Hence, Muslims might be more patriarchal only in as far as they attend religious service more frequently.

Muslims' support for patriarchal values may also be confounded with an individual's level of education. As Inglehart and Welzel (2005:220) demonstrate, educated people are more tolerant and egalitarian in each of more than 70 societies surveyed in the WVS. A recent study of 'fundamentalist patriarchy' shows that the level of education among Muslims significantly decreases their support for patriarchal values (Blaydes & Linzer 2008). Accordingly, Muslims might not be more patriarchal because they are Muslims but because they tend to be less educated.

The literature identifies two additional individual-level characteristics that weaken patriarchal values: female sex and cohort sequence. As documented by Inglehart and Norris (2003b:44) and Inglehart and Welzel (2005:275), most societies for which data are available show an increase in emphasis on gender equality from older to younger generations, following a growing emancipative *zeitgeist*. The same analysis shows that women score higher in emancipative values and, by implication of this, lower in patriarchal values throughout all generations and in all types of societies. The study by Blaydes and Linzer (2008) confirms these patterns for Muslim societies. Accordingly, we

expect younger Muslims and Muslim women to exhibit weaker patriarchal values than older Muslims and Muslim men.

The literature suggests yet another two characteristics to affect patriarchal values, especially among Muslim women: employment and marital status. With the advancement of knowledge societies (Lesthaege 2004), more women are mobilized into the workforce and many of them marry later or chose non-traditional forms of cohabitation. These developments increase the number of employed and unmarried women. These women are economically and socially more independent, which has been shown to lower their support for patriarchal values (Blaydes & Linzer 2008).

How individual-level characteristics affect people's values is often contextually shaped by characteristics of the surrounding society. Thus, Muslims' support for patriarchal values at the individual level might vary with the dominance of Muslims at the societal level. In the extreme case, it might turn out that Muslims support patriarchal values only in dominantly Muslim societies. In this case, we cannot speak of a general patriarchal effect of Muslim identification. Instead, the effect is contingent. To examine this possibility in a conclusive way, one has to combine societal-level effects, individual-level effects, and cross-level interactions in multi-level models (Bryk & Raudenbusch 2002). Hence, we use a multi-level approach.

DATA AND VARIABLES

Sample Description

To analyze patriarchal values among Muslims and Non-Muslims and across societies with varying percentages of Muslims, we use the two most recent rounds of the World Values Survey (henceforth: WVS). The two most recent rounds of the WVS were conducted in 1999-2001 (round four) and 2005-2008 (round five). After excluding missing data on any of the variables included in our multi-level models, we are left with a sample of 133,295 individuals from 83 societies around the world. Which societies are included is visible in Figure 8.³

The societies vary in the percentage of Muslims from less than 5 percent in Australia to more than 99 percent in Saudi Arabia. Of these societies, 21 include a sizeable proportion of Muslims of 10 percent and more. Twelve of these societies are composed of a clear majority of Muslims of above 60 percent and 9 societies fill the wide middle range between 10 and 60 percent.⁴

At the individual-level, 33,073 or 25 percent of our respondents identify themselves as Muslim. 100,222 or 75 percent identify themselves with a different or no

³ Documentation of sample sizes, sampling methods, questionnaire wording and data access can be found at the WVS website at www.worldvaluessurvey.org.

⁴ See the Appendix for the list of these countries.

religious denomination.⁵ Given these figures, the WVS data show enough variation to separate the effects of Muslim social dominance and individual Muslim self-identification.

The Dependent Variable: Patriarchal Values

We measure patriarchal values using all WVS questions suited to indicate support for the subordination of women to men. Overall, the WVS includes three such questions that are fielded in both the fourth and fifth round.⁶

The first question reads: "Do you agree, disagree or neither agree nor disagree with the following statements?" Then the statement in variable V44 reads: "When jobs are scarce, men should have more right to a job than women." The second and third questions are taken from the same battery, which read as follows: "Do you strongly agree, agree, disagree, or strongly disagree?" Then the item in variable V61 reads: "On the whole men make better political leaders than women do." The item in variable V62 reads: "A university education is more important for a boy than for a girl." Each of these items offers a rank-ordered four-point response option. We recode responses in such a way that they all have a scale range from minimum 0 for the least patriarchal position and 1.0 for the most patriarchal position.⁷

The items represent patriarchy in the domains of labor market participation, education, and political leadership. Analyzing the dimensionality of these items yields a single principal component with an Eigenvalue above 1.0. On this component, the three patriarchy items show loadings of .82 for male priority in political leadership, .75 for male priority in labor market participation, and again .75 for male priority in education. A reliability analysis yields a Cronbach's alpha of .65, which is above the acceptance threshold of .30 for three items.

The uni-dimensionality of these items justifies a combination into a summary index of patriarchal values. We add up the scores over the three items and divide the sum by three. This yields a 12-point index with minimum 0, when there is no support of patriarchy on any included item, and maximum 1.0, when there is full support of patriarchy on all included items.

⁵ Religious identification is asked in WVS question V185: "Do you belong to a religion or religious denomination? If yes, which one? (*Code answer due to list below.*)" In different countries, country-specific lists of denominations were used. WVS variable V185 summarizes them in a list of 90 different denominations. Code 49 represents Muslim denomination.

⁶ We are interested in patriarchal values as such and in religiosity as a potential influence. Therefore we keep the two apart and do not follow the practice of Blaydes and Linzer (2008) to summarize patriarchal values and religiosity into an overall measure of fundamentalist values.

⁷ See the Appendix for the exact coding scheme.

The global mean in patriarchal values falls almost exactly on the midpoint of the scale, on .49 to be precise, with a standard deviation of .26. The median and mode are located close to the mean, at .46.

Independent Variables: Muslim Identification and Muslim Dominance

At the individual level, we dichotomize respondents into those who identify themselves as Muslim (coded 1) and all others who identify with no or another religious denomination (coded 0). This dichotomy entails no information of how strongly Muslims identify themselves with their denomination. However, as will be seen below, the overwhelming majority of people who identify themselves as Muslim are very strongly religious. It seems obvious that when people are strongly religious, the identification with their self-reported denomination must also be strong.

To estimate the link between Muslim identification and patriarchal values, we examine to what extent self-identifying Muslims support patriarchal values more strongly than Non-Muslims with the same characteristics. The alternative approach would be to ask self-identifying Muslims directly if they think that patriarchal values are a defining element of their religious identity. The WVS does not ask such a question for good reason. Such a question would be too sensitive to social desirability: respondents might not want to admit that patriarchy is a defining element of their belief even if it is. By contrast, respondents have limited control over a latent pattern that guides their responses to unconnected questions. Analyzing the association of responses to unconnected questions uncovers these patterns and thus evidences a link even if respondents would not admit that link in a direct question. That respondents did not 'design' their responses from the viewpoint of their religious denomination can be confidently assumed because the WVS asks respondents only at the end of the interview to report their religious denomination.

At the societal level, we measure Muslim dominance by the percentage of Muslims in the residential population, as documented by the UN Demographic Yearbook for the year 2000 (United Nations Statistical Department 2006) or the CIA Factbook otherwise (Central Intelligence Agency 2006). To triangulate these estimates we compare them with the numbers we obtain when calculating per society the percentages of Muslims from the individual responses in the WVS. Data from the two sources correlate at $r = .95$. To take advantage of both data sources, we assign each society the mean of the percentage of Muslims as calculated from the WVS and as reported by the UN or CIA, respectively.⁸

To simplify things, some analyses use a binary distinction between dominantly Muslim and dominantly Non-Muslim societies: as dominantly Muslim, we classify societies in which more than 50 percent of the adults are Muslim ($N = 15$); as

⁸ To bring the distribution on the percentage scale of Muslims closer to a normal distribution, we logged the percentages. For details, see the Appendix.

dominantly Non-Muslim, we classify societies with less than 50 percent Muslims ($N = 68$). Accordingly, we find that 71,407 respondents of the WVS or 74.5 percent are Non-Muslims in Non-Muslim societies; 4,083 respondents or 4.3 percent are Muslims in Non-Muslim societies; 3,671 respondents or 3.8 percent are Non-Muslims in Muslim societies; and 16,739 respondents or 17.5 percent are Muslims in Muslim societies.

Control Variables

At the individual level, we control the effect of Muslim identification for the respondents' education, religiosity, religious service attendance, sex and cohort. These variables are taken from the WVS.

Sex is documented by observation of the interviewer in variable V235. We code female sex as 1 and male sex as 0.

Cohort is recoded from the question on a respondent's age in variable V237. From information on a respondent's age and the year of the survey, we create eight successive birth cohorts, each covering a ten-year time span, coded from 0 to 1.0, with values increasing from older to younger cohorts.⁹

Education is measured on an eight-point ordinal scale taken from V238 in the WVS, rescaled from 0 for no formal education to 1.0 for a university degree.¹⁰

Religiosity is measured by question V192, which asks: "How important is God in your life? Please use this scale to indicate. 10 means 'very important' and 1 means 'not at all important.'" We change the scale into a 0-to-1.0 format, from 0 for the lowest to 1.0 for the highest importance of God.¹¹

Frequency of attending religious services is measured by question V186, which asks: "Apart from weddings and funerals, about how often do you attend religious services these days?" Response options are: "more than once a week," "once a week," "once a month," "only on special holy days," "once a year," "less than once a year" and "never, practically never." We recode these options into a seven-point scale from 0 for "never, practically never" to 1.0 for "more than once a week."¹² It is self-evident that religious service attendance in the case of Muslims means mosque attendance (and church attendance in case of Christians).

With respect women, two additional characteristics have been emphasized: employment status and marital status. Specifically, employed women and unmarried women are less patriarchal in their values (Inglehart & Norris 2003; Blaydes & Linzer 2008). Information on a respondent's employment status is taken from question V241 and we code the answers as 0 when no employment is reported and 1.0 when self-employment, part time employment or full time employment is reported. Information on

⁹ See the Appendix for the exact coding of this variable.

¹⁰ See the Appendix for the exact coding.

¹¹ See the Appendix for the exact coding.

¹² See the Appendix for the exact coding.

marital status is taken from question V55. We code the responses as 0 when being married is reported and 1.0 otherwise.

At the societal level, we control the effect of Muslim social dominance for four variables that measure key structural aspects of a society's economy and institutions: a society's per capita oil/gas rent, the size of the female workforce, the endurance of democracy and a direct measure of patriarchal power structures, namely the inverse of the "Gender Empowerment Measure." These indicators are measured in about 2000, the beginning of the survey period.

To measure per capita oil/gas rents, we use Ross's data, which indicate a country's total rents from oil and gas, in thousands of international US-Dollars, divided by population size (Ross 2008:111). The highest per capita oil rent among the societies in our sample is 3,252 US-Dollar for Saudi Arabia, the lowest is zero Dollars for Singapore and a couple of other countries. Again, this scale range is standardized into a range from 0 for the lowest and 1.0 for the highest value.

To measure the size of the female workforce, we calculate for each national sample the percentage of women who report to be employed for pay. The highest female employment rate is reported in Iceland (70 percent), the lowest in Saudi Arabia (10 percent). Dividing these figures by 100, we standardize them into the 0-to-1.0 scale format.

Enduring democracy is measured using Gerring's "democracy stock" variable as of 2000 (Gerring et al. 2005). This variable adds up the democracy scores a society has accumulated over time on the Polity IV autocracy-democracy index but depreciates scores from past years by one percent for each year they are preceding the reference year, 2000. This index reflects a society's accumulated experience with democracy with a premium on recent experience. We standardize the index into a scale range from minimum 0, which is represented by Saudi Arabia, to maximum 1.0, which is represented by Australia, Norway, Switzerland and the US.

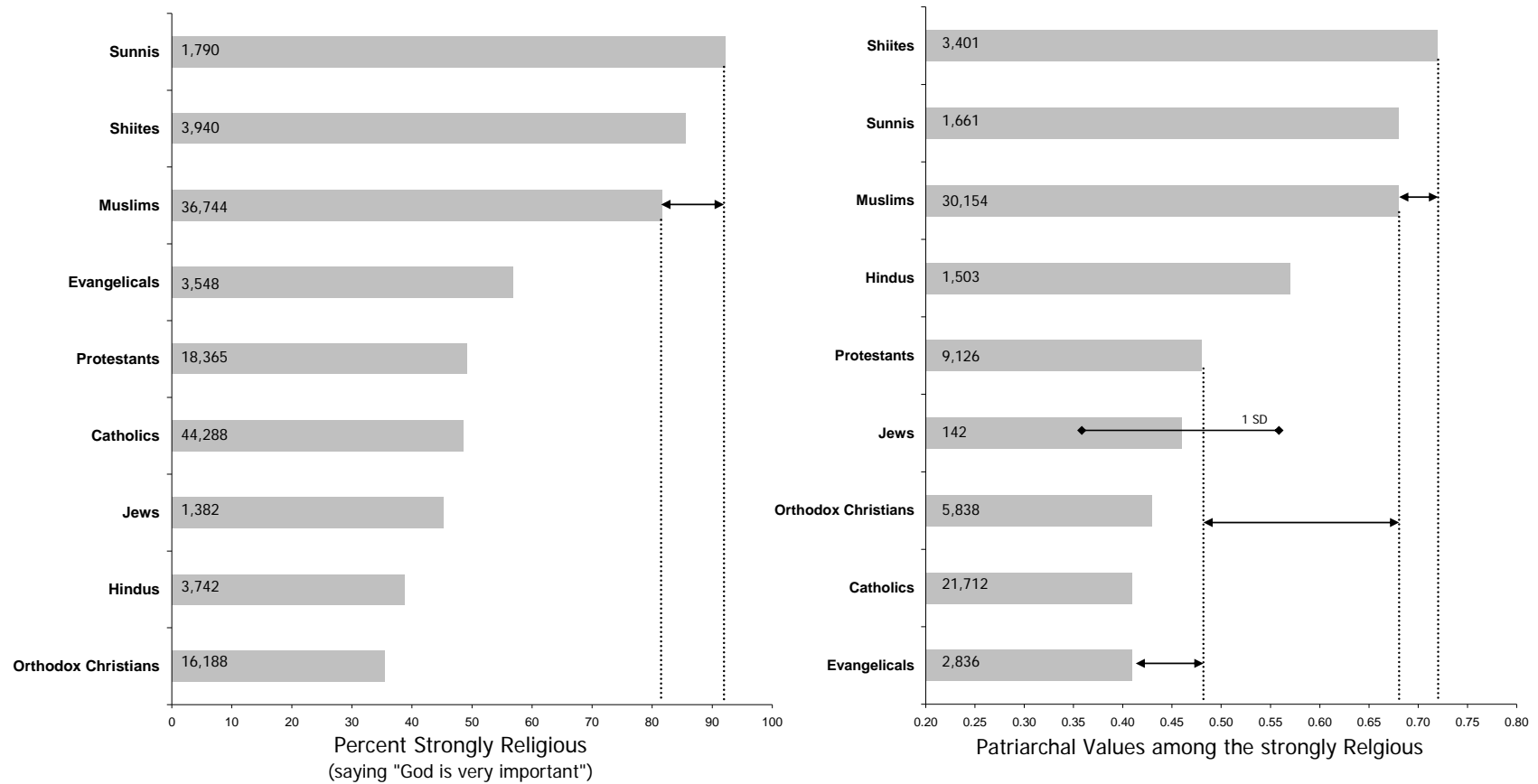
Patriarchal structures are directly manifest in the exclusion of women from positions of power. To measure female exclusion from power, we use the inverse of the Gender Empowerment Measure provided by the United Nations Development Program. The gender empowerment measure indicates on a scale range from 0 to 1.0 women's achievement of positions of power (Human Development Report, various years). Inverted within the same scale range from 0 to 1.0, this indicator measures the exclusion of women from positions of power.

FINDINGS

The Distinctiveness of Muslim Identity

Speaking of Muslim identity suggests that self-identifying Muslims represent a distinct category of people. Evidence for this suggestion is available from question V185, which

Figure 1. Strength of Religiosity by Religious Denomination and Patriarchal Values among the Very Religious



asks for people's religious denomination. From the list of denominations, we look at those with at least 1,000 entries and compare respondents with these identifications to respondents identifying themselves as Muslim. Based on the Iranian and Iraqi samples, we can distinguish Shiite and Sunnite Muslims to check for major internal divisions among Muslims.

The left-hand diagram of Figure 1 shows for respondents of various religious denominations the percentages positioning themselves at the very top of the ten-point religiosity scale. Self-identifying Muslims stick out as the denomination with by far the largest percentage of strongly religious people: 82 percent. Even more astounding, fully 92 percent of all self-identifying Muslims place themselves at the two highest scores of the ten-point religiosity scale. Self-identifying as a Muslim, regardless of the particular branch of Islam, seems to be almost synonymous with being strongly religious.

These results are not an artifact of the WVS. The Bertelsmann Foundation's *Religion Monitor* also finds a uniformly strong religiosity among Muslims in Indonesia, Morocco, Nigeria and Turkey (Heine & Spielhaus 2009).

The WVS does not ask Muslims *how strong* their Muslim identity is. But from the exceptionally strong religiosity of almost all self-identifying Muslims it is evident that Muslim self-identification means a strong Muslim identity for the large majority of Muslims. This conclusion is also plausible because Islam does not have a formally registered membership, which forecloses the possibility that people report Muslim denomination merely because of formal membership even though they do not really identify with their religion.

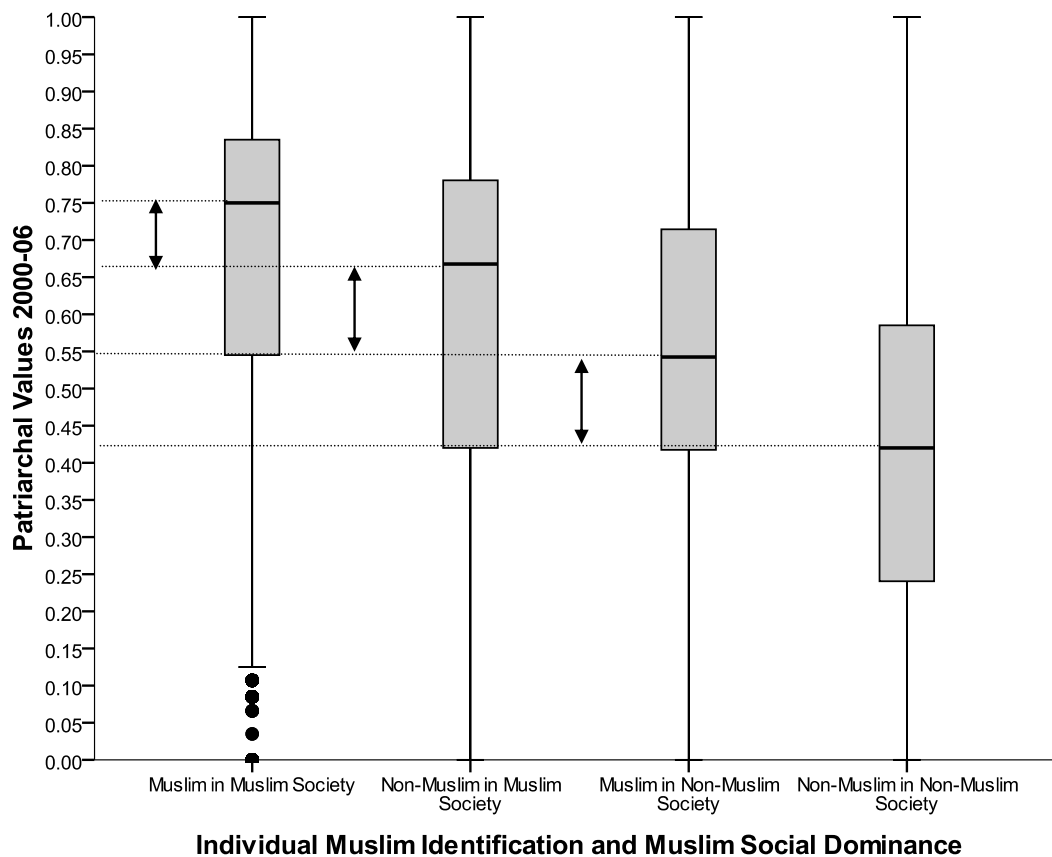
The Muslim/Non-Muslim gap in the strength of religiosity nurtures the suspicion that self-identifying Muslims support patriarchal values simply because they are exceptionally religious. The right-hand diagram of Figure 1 tests this assumption, isolating in each religious denomination those people who are at the highest level of religiosity and comparing their mean scores on the patriarchal values index. Again, the pattern speaks strikingly to the distinctiveness of Muslims. Even at the highest level of religiosity, self-identifying Muslims hold much stronger patriarchal values than people from other denominations, including Hindus, Orthodox Christians and the main branches of Christianity. These findings justify dichotomizing self-identifying Muslims against all other religious denominations.

Muslim Support for Patriarchal Values

The right-hand diagram in Figure 1 evidences exceptionally strong support for patriarchal values among identifying Muslims, even holding religiosity constant. But, perhaps Muslim support for patriarchal values is entirely a property of Muslim social dominance and only seems to be a property of individual Muslim identification because most identifying Muslims live in dominantly Muslim societies. To test this possibility,

Figure 2 compares the patriarchal values of identifying Muslims and Non-Muslims between dominantly Muslim and dominantly Non-Muslim societies.

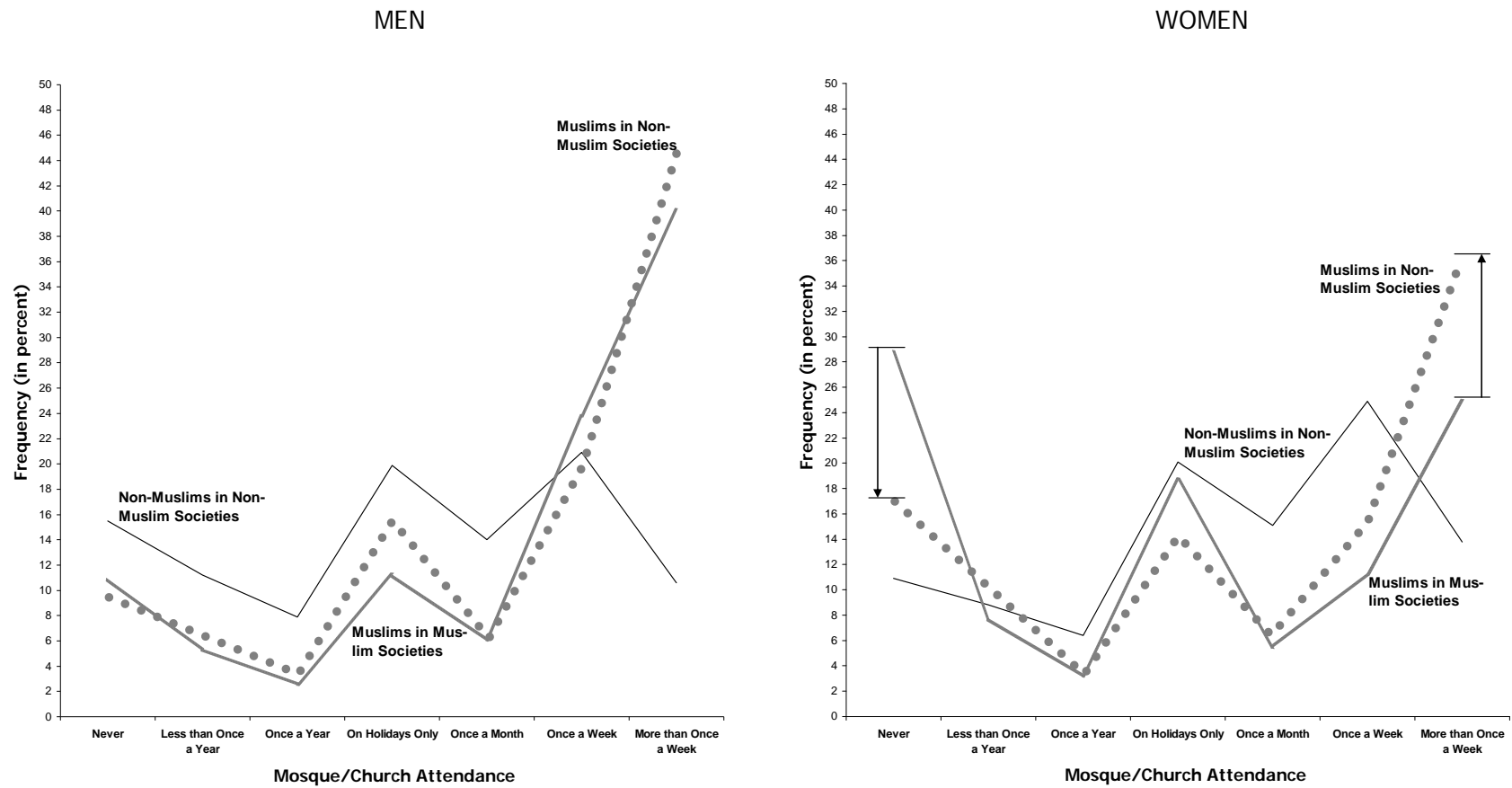
Figure 2. The Patriarchal Effects of Muslim Social Dominance and Individual Muslim Identification



As Figure 2 illustrates, both individual Muslim identification and Muslim social dominance elevate the mean level of patriarchal values. Muslims in Muslim societies score at .75 points in patriarchal values, which is .08 scale points above the level of Non-Muslims. In Non-Muslim societies, Muslims score at .55 points in patriarchal values, which is .13 scale points above the level of Non-Muslims. Thus, individual Muslim identification elevates patriarchal values irrespective of Muslim social dominance, and this tendency is statistically significant at the .001-level.

Yet, Muslim social dominance elevates patriarchal values even more than individual Muslim identification: in dominantly Muslim societies, Muslims score .20 scale points higher (at .75) than in Non-Muslim societies (.55). The same holds true for Non-Muslims: in dominantly Muslim societies, they score .24 points higher (at .66) than in

Figure 3. Frequency of Mosque/Church Attendance among Women and Men by Muslim Identification and Muslim Social Dominance



Non-Muslim societies (.42). Thus, living in a dominantly Muslim society strengthens patriarchal values more than individual identification as a Muslim.

In Non-Muslim societies, identifying Muslims are exposed to a less patriarchal environment. Adjustment to this environment might explain why Muslims in Non-Muslim societies are by .20 scale points less patriarchal than Muslims in Muslim societies. But even in Non-Muslim societies, Muslims retain a by .13 scale points stronger emphasis on patriarchal values than Non-Muslims. A mechanism to retain this emphasis is to shield Muslim communities from the Non-Muslim environment. A social space that may sustain such a shield is the mosque: frequent mosque attendance could reinforce a distinct community experience that helps sustain Muslim support of patriarchal values (Heine & Spielhaus 2009).

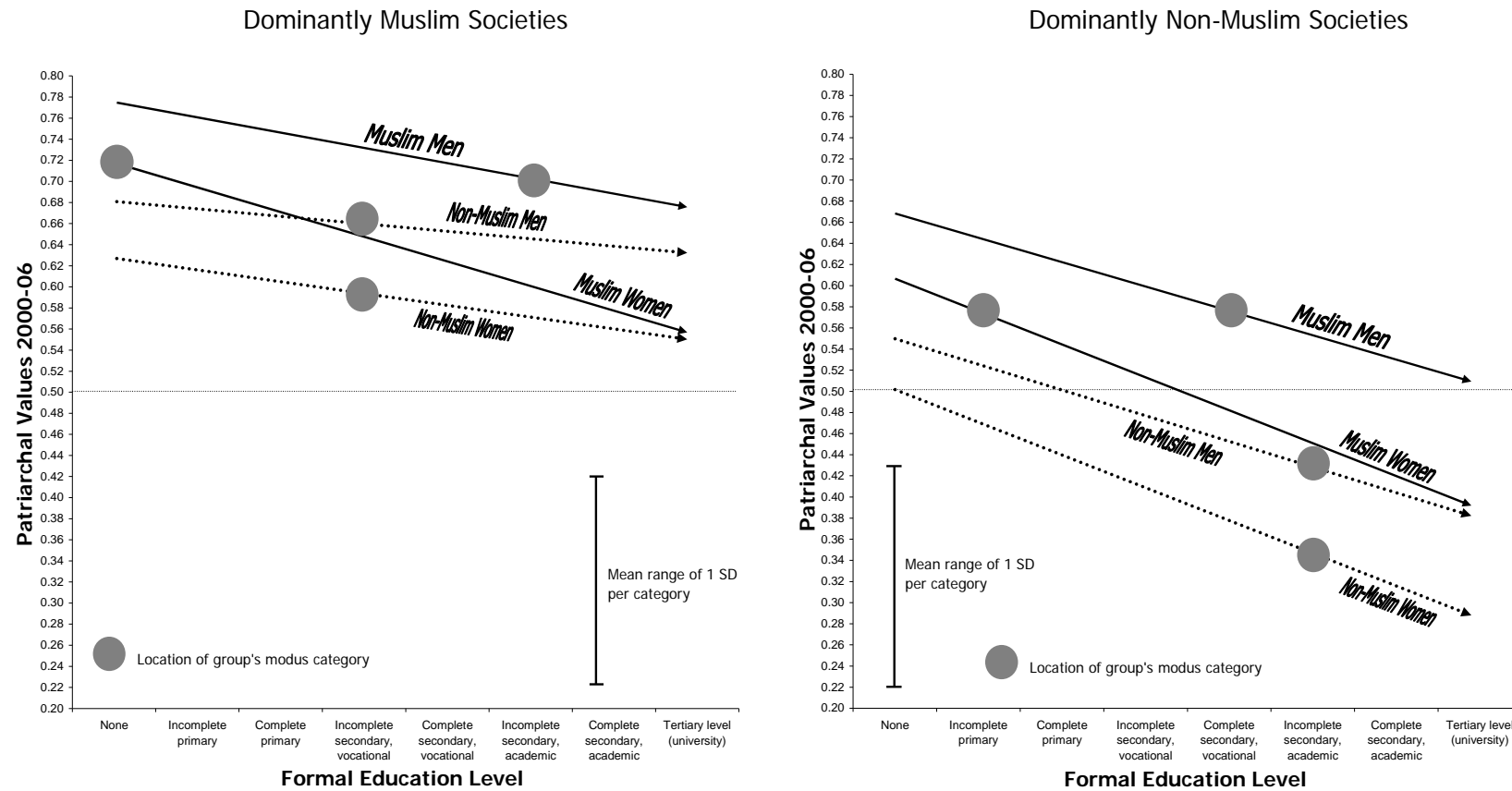
Figure 3 supports this interpretation. From the left-hand diagram we see that, in Non-Muslim societies, only 10 percent of Muslim men say they “never” attend the mosque. But close to 50 percent say that they attend the mosque “more than once a week.” This is five times the proportion of Non-Muslim men who say they attend religious service more than once a week. Interestingly, Muslim men attend the mosque slightly more frequently in Non-Muslim societies than in Muslim societies.

As the right-hand diagram of Figure 3 illustrates, this pattern is even more pronounced among Muslim women. Mosque attendance is less of a requirement for Muslim women than for men, so attendance rates differ by sex in most Muslim societies (Heine & Spielhaus 2009). Figure 3 confirms this regularity. But the key point is that female mosque attendance is significantly higher in Non-Muslim than in Muslim societies. To be precise, in Muslim societies 29 percent of Muslim women say they never attend the mosque while this proportion is only 17 percent in Non-Muslim societies. Likewise, 25 percent of Muslim women in Muslim societies say they attend the mosque more than once a week, compared to 36 percent in Non-Muslim societies. Possibly, attendance of religious service is more needed in Non-Muslim than in Muslim societies to foster Muslim identity. If so, patriarchal values depend more strongly on service attendance in Non-Muslim than in Muslim societies. We examine this question below.

Muslim Support for Patriarchal Values under Key Demographic Controls

Is the Muslim affinity to patriarchal values so sweeping that it holds across group divisions by sex, education, and cohort? The two diagrams in Figure 4 illustrate how education varies the mean level of patriarchal values among four groups: Muslim women, Muslim men, Non-Muslim women and Non-Muslim men. These four groups are separated depending on whether we find them in Muslim societies (left-hand diagram) or Non-Muslim societies (right-hand diagram). The mean levels of patriarchal values of these eight groups are shown on the vertical axes but this is done separately for eight

Figure 4. The Anti-Patriarchal Effect of Education by Sex, Individual Muslim Identification, and Muslim Social Dominance



educational categories, ranging from no formal education on the left to a university degree on the right.¹³

For each group, trend lines fall from left to right. This means that higher education associates with weaker patriarchal values. The anti-patriarchal effect of education is uniform because it is visible in all eight groups. Female sex also shows a uniformly anti-patriarchal effect: in all group categories, women emphasize patriarchal values less than men. But even though the anti-patriarchal effects of formal education and female sex are uniform in *direction*, their *strengths* vary in interaction with each other. This is obvious from the fact that patriarchal values fall on a steeper slope among women than among men with rising education. Education widens the gender gap over patriarchal values.

Individual Muslim identification still makes a difference, irrespective of divisions by education, gender, and Muslim social dominance. Muslims *always* emphasize patriarchal values more than Non-Muslims of the same category.

Muslim social dominance still matters, too. This is evident from the fact that in each group—be it women or men, Muslim or Non-Muslim, highly educated or not so highly educated—the base level of patriarchal values is about .15 to .20 scale points higher when the group is located in a Muslim societies.

Figure 5 replaces level of education by cohort, with cohorts being younger to the right. As does education, cohort sequence diminishes patriarchal values in all groups, yet in all groups the base level of patriarchal values is higher when the group is located in a Muslim society. And, irrespective of sex and Muslim social dominance, identifying Muslims always emphasize patriarchal values more strongly than Non-Muslims of the same category.

Female sex enhances the anti-patriarchal effect of cohort sequence, and does so quite pronouncedly, widening the gender gap from an almost unnoticeable difference among the earliest cohorts to a sizable gap of .10 to .12 scale points among the most recent cohorts.

Education and cohort pull in the same direction. They both lower patriarchal values and both do so in a way that increases the gender gap over patriarchal values. This also holds for self-identifying Muslims and for Muslim societies. Thus, both Muslim individuals and Muslim societies are susceptible to anti-patriarchal forces. But none of the anti-patriarchal forces closes the Muslim/Non-Muslim gap over patriarchal values. Even if they are highly educated, belong to a younger cohort, live in a Non-Muslim society and are female, Muslims remain more patriarchal than Non-Muslims of the same category.

¹³ School systems differ in content and quality, which lowers the equivalence of educational categories across countries. But it does not eradicate equivalence entirely. In all countries, higher levels of formal education imply more knowledge and a better understanding of the world and higher cognitive skills. Thus, inequivalence is partial and not complete. A regularity that surfaces even under partial inequivalence is actually more likely to be true because partial inequivalence obscures regularities.

Figure 5. The Anti-Patriarchal Effect of Cohort Sequence by Sex, Individual Muslim Identification, and Muslim Social Dominance

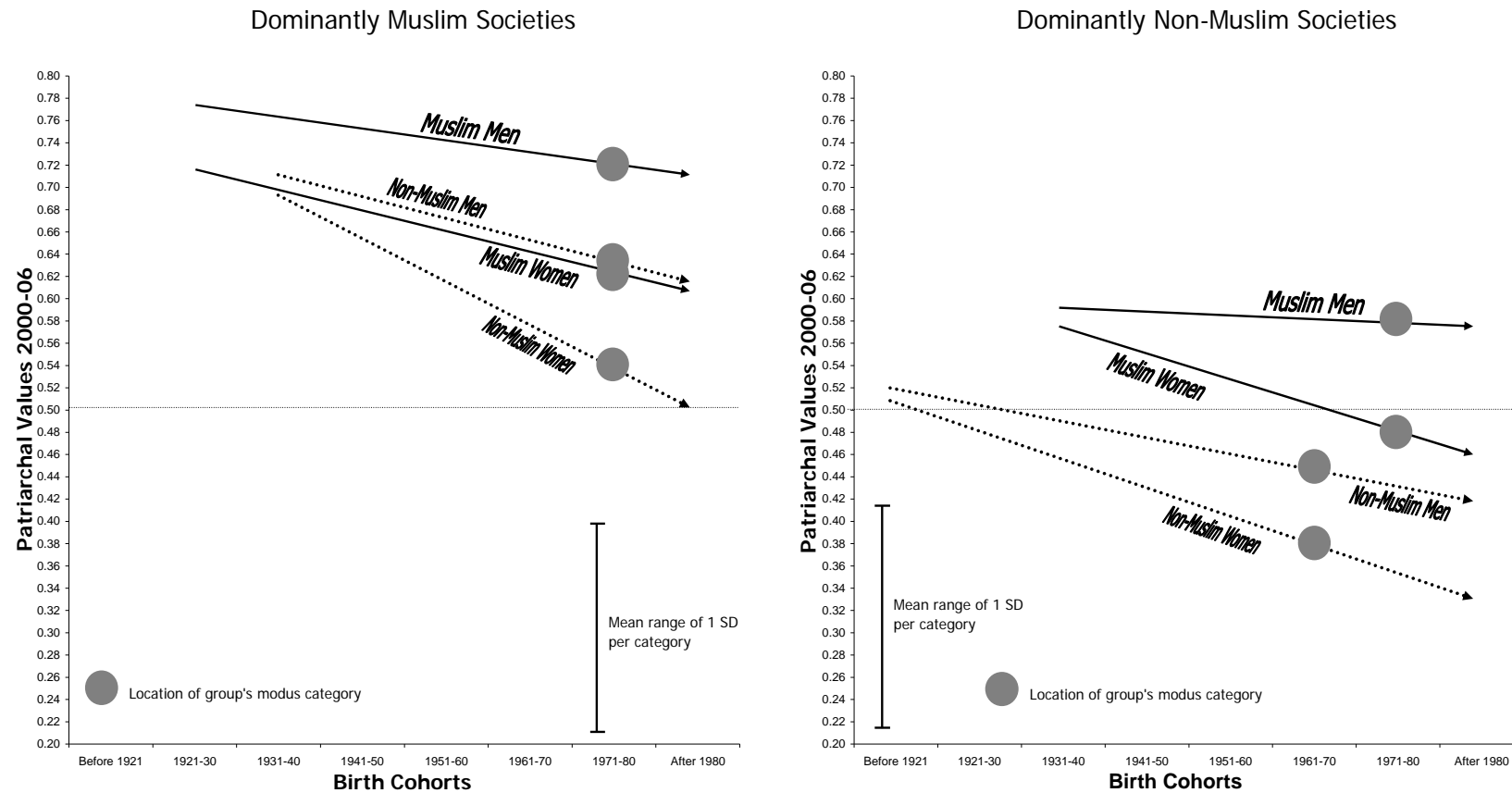
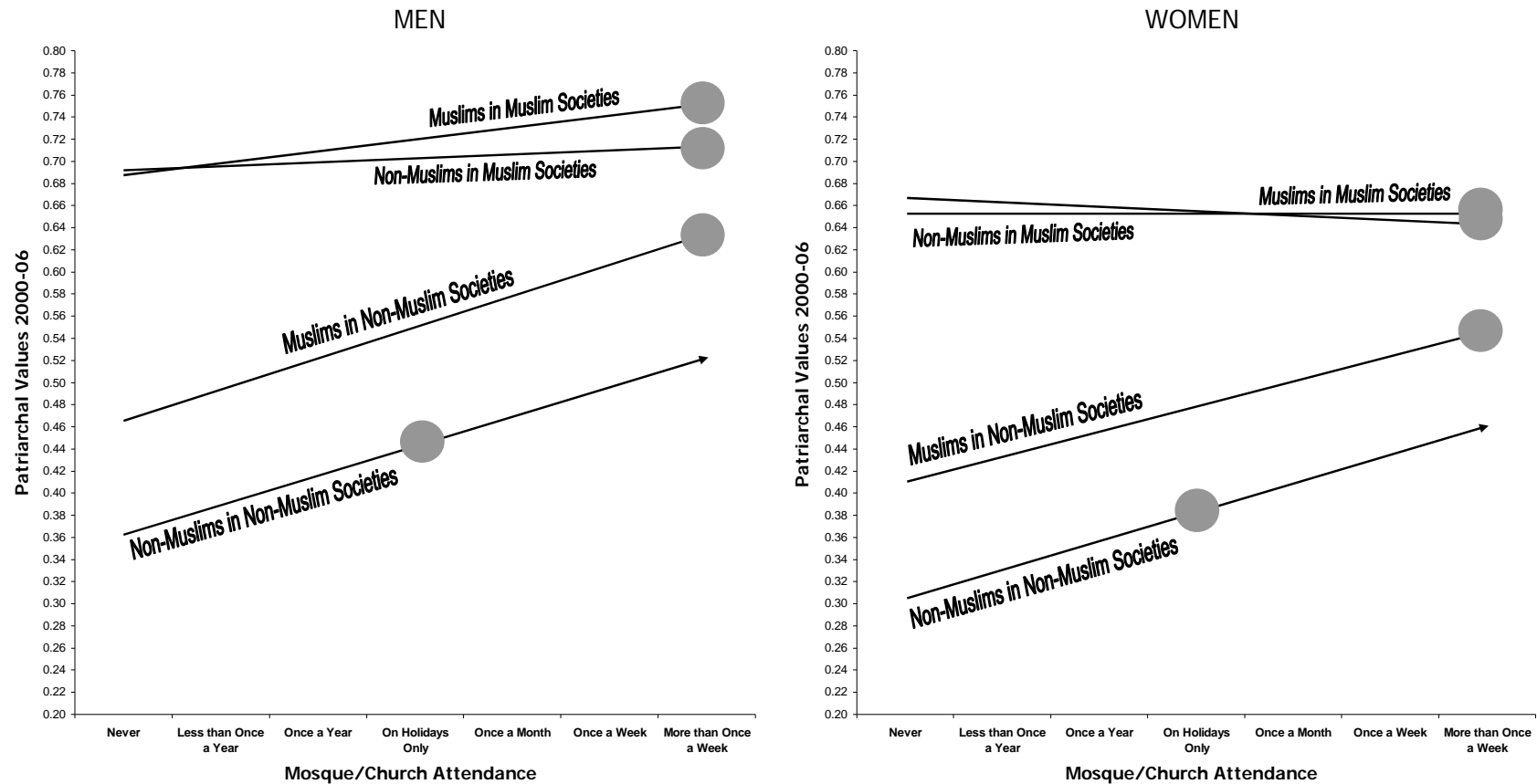


Figure 6. The Patriarchal Effect of Mosque/Church Attendance among Women and Men by Muslim Identification and Muslim Social Dominance



How do Muslims in Non-Muslim societies manage to retain a stronger emphasis on patriarchal values than Non-Muslims of their surrounding society? We hypothesized that creating a space that shields Muslims from the Non-Muslim environment might be instrumental in this respect. Mosques could provide a space to encapsulate Muslims in Non-Muslim societies. If this is the case, one would expect mosque attendance to associate more strongly with patriarchal values among Muslims in Non-Muslim societies.

The two diagrams of Figure 6 show separately for women and men how the frequency of attending religious service affects patriarchal values. The pattern is obvious. In Muslim societies, patriarchal values are so dominant that the mosque is not needed as a space to sustain patriarchal values. Hence, there is no effect of mosque attendance on patriarchal values. In Non-Muslim societies, we see a different picture: among both sexes, frequency of mosque attendance increases patriarchal values from a low of .41 (women) or .47 (men) among non-attendants to a high of .55 (women) or .63 (men) among very frequent attendants. Whether this means that patriarchal values are actively transmitted in the mosque or whether patriarchal-minded Muslims self-select into frequent attendants, is not clear. Yet in either case, the mosque is a space that retains patriarchal values in a Non-Muslim environment.

Muslim Support for Patriarchal Values under Further Controls

The multi-level models in Table 1 test the previous findings for statistical robustness. Looking at the individual-level effects, all five models indicate that more religious people are more patriarchal. To be concrete, religiosity adds a .05-fraction of its given score to patriarchal values. So if religiosity is at its maximum score of 1.0 (the situation when a respondent considers God as very important), this adds exactly .05 scale points to the mean level of patriarchal values (which is .49). When mosque or church attendance is at its maximum of 1.0 (the situation when a respondent attends mosque or church more than once a week), this adds another .04 scale points to the mean in patriarchal values. When formal education is at its maximum of 1.0 (the situation when a respondent holds a university degree), this reduces the mean level of patriarchal values by .12 scale points. When cohort sequences is at its maximum score of 1.0 (the situation when a respondent is born after 1980), this reduces the mean patriarchy level by another .11 scale points. And when the respondent is a women, yet another .07 scale points are to be subtracted from the mean level of patriarchal values.

These are additive effects under mutual control, which are generally weaker than these variables' zero-order effects on patriarchal values. For instance, the zero-order effect of Muslim identification on patriarchal values is $b = .11$, indicating that if a respondent is a Muslim, .11 scale points are to be added to the mean level of patriarchal values.

However, Muslim identity is confounded with high religiosity, frequent mosque attendance, and lower levels of education and when we control for these confounding characteristics, the effect of Muslim identification is cut in half: holding everything else

Table 1. Multi-Level Models Explaining Within-societal and Between-societal Variation in Patriarchal Values (Series 1)

EFFECTS:	DEPENDENT VARIABLE: Patriarchal Values				
	Model 1-1	Model 1-2	Model 1-3	Model 1-4	Model 1-5
• Intercept	.49 (44.0)***	.49 (49.9)***	.49 (44.1)***	.49 (48.0)***	.49 (48.4)***
<i>Societal-Level Effects:</i>					
• Muslim Social Dominance	.25 (7.1)***	.20 (6.2)***	.25 (7.0)***	.21 (6.0)***	.22 (6.7)***
• Base Religiosity Level		.27 (4.2)**			
• Oil Economy			Insignificant		
• Female Workforce				-.32 (-4.0)***	
• Enduring Democracy					-.14 (-4.3)***
<i>Fixed Individual-Level Effects:</i>					
• Strength of Religiosity	.05 (6.9)***	.05 (6.9)***	.05 (6.9)***	.05 (6.9)***	.05 (6.9)***
• Mosque/Church Attendance	.04 (6.1)***	.04 (6.1)***	.04 (6.1)***	.04 (6.1)***	.04 (6.1)***
• Formal Education	-.12 (-13.6)***	-.12 (-13.6)***	-.12 (-13.6)***	-.12 (-13.6)***	-.12 (-13.6)***
• Cohort Sequence	-.11 (8.9)***	-.11 (8.9)***	-.11 (8.9)***	-.11 (8.9)***	-.11 (8.9)***
• Female Sex	-.07 (-18.6)***	-.07 (-18.6)***	-.07 (-18.6)***	-.07 (-18.6)***	-.07 (-18.6)***
<i>Randomized Individual-Level Effects:</i>					
• Muslim Identification	.05 (5.1)***	.05 (3.2)***	.05 (3.3)***	.05 (3.4)***	.05 (2.9)***
* Muslim Social Dominance		Insignificant	Insignificant	Insignificant	Insignificant
* Base Religiosity Level		Insignificant			
* Oil Economy			Insignificant		
* Female Workforce				Insignificant	
* Enduring Democracy					Insignificant
<i>Explained Variances:</i>					
Within-society variation of DV	9.8%	9.7%	9.7%	9.7%	9.7%
Between-society variation of DV	46.4%	55.5%	45.9%	55.6%	53.7%
Variation in effect of Muslim Identification	0%	0%	0%	0%	0%

Notes: Entries are unstandardized regression coefficients with T-values in parentheses (coefficients standardized to first decimals). *N* (number of observations) is 129,543 respondents at the individual level and 83 countries at the societal level. Individual-level variables (except dummies) are country-mean centered; societal-level variables are global-mean centered. Explained variances calculated from change in random variance component relative to base model. Estimates calculated with HLM 6.02. Significance level: Insignificant $p > .090$; * $p < .090$; ** $p < .050$; *** $p < .010$.

constant, being a Muslim still adds another .05 scale points to the mean level of patriarchal values.

Yet, small as this effect is, it is robust against quite a number of confounding variables at the individual level. In addition, we see from the insignificance of the interaction effects in Models 1-2 to 1-5 that societal-level characteristics do *not* vary the individual Muslims' support of patriarchal values. Regardless of how strongly Muslims dominate a society, how religious the society is on average, how strongly the economy depends on oil, how large the female workforce is or for how long democracy has endured, identifying Muslims are a bit more patriarchal than Non-Muslims under all these conditions.

The effect of Muslim identification on support for patriarchal values is robust but small. For Muslim social dominance, the picture is different. Here, the effect on patriarchal values is not only significant but quite sizeable. To be precise, if Muslim social dominance comes close to its maximum score of 1.0 (the situation where almost 100 percent of the adult population is Muslim), this adds .25 scale points to the mean level of patriarchal values. And, variation in Muslim social dominance explains almost 50 percent of the cross-national variation in patriarchal values. Moreover, the patriarchal effect of Muslim dominance remains highly significant against controls of a society's base level of religiosity and key structural factors, including female workforce participation and the endurance of democracy. The latter two significantly diminish patriarchal values at the societal level, yet neither of them absorbs the patriarchal effect of Muslim social dominance.

Muslim Support for Patriarchal Values and Patriarchal Power Structures

So far, we did not test Muslim support for patriarchal values against a *direct* indicator of patriarchal structures. To measure patriarchal structures directly, one has to measure the extent to which women are excluded from positions of decision-making power. Such a measure is available by inverting the UNDP's "Gender Empowerment Measure." This index averages women's advancement to positions of decision-making power in politics, administration, and business on an interval scale with minimum 0 and maximum 1.0. Inverted, this indicator measures the exclusion of women from positions of decision-making power.

The rigidly structural position held by prominent scholars suggests that Islam affects patriarchal values *only* in as far as it is linked with structural patriarchy. If this position is correct, neither individual Muslim identification nor Muslim social dominance will show a significant effect on patriarchal values once patriarchal structures are taken into account.

This is not the case, as all models in Table 2 evidence. Patriarchal structures neither diminish nor change the direction or make less significant the patriarchal effect of Muslim identification. Visually, this is evident from the two partial regression plots in

Table 2. Multi-Level Models Explaining Within-societal and Between-societal Variation in Patriarchal Values (Series 2)

EFFECTS:	DEPENDENT VARIABLE: Patriarchal Values			
	Model 2-1	Model 2-2	Model 2-3	Model 2-4
• Intercept	.49 (56.7)***	.49 (56.4)***	.48 (55.3)***	.49 (56.5)***
<i>Societal-Level Effects:</i>				
• Muslim Social Dominance	.17 (5.0)***	.16 (4.9)***	.17 (5.1)***	.16 (4.9)***
• Patriarchal Power Structures	.41 (8.4)***	.47 (9.6)***	.46 (9.5)***	.46 (9.4)***
<i>Fixed Individual-Level Effects:</i>				
• Strength of Religiosity	.05 (5.6)***	.05 (5.3)***	.05 (5.5)***	.05 (5.4)***
• Formal Education	- .12 (-13.0)***	- .11 (-11.0)***	- .11 (-12.9)***	- .12 (-13.0)***
• Cohort Sequence	- .11 (8.4)***	- .05 (4.4)***	- .10 (8.5)***	- .10 (7.5)***
• Female Sex	- .07 (-17.7)***	- .09 (-10.1)***	- .05 (-11.7)***	- .07 (-18.5)***
• Female Sex * Education Level		- .02 (-3.0)**		
• Female Sex * Cohort Sequence		- .09 (7.9)***		
• Employment (dummy)			- .01 (-2.3)*	- .02 (-7.2)***
• Unmarried (dummy)			.01 (2.9)**	- .01 (-3.8)***
• Female Sex * Employed			- .02 (-5.8)***	
• Female Sex * Unmarried			- .04 (-11.3)***	
<i>Randomized Individual-Level Effects:</i>				
• Muslim Identification	.05 (5.3)***	.05 (2.9)**	.05 (2.6)**	.05 (3.0)***
* Muslim Social Dominance		Insignificant	Insignificant	Insignificant
* Patriarchal Power Structures		Insignificant	Insignificant	Insignificant
• Mosque/Church Attendance	.05 (9.6)***	.05 (11.2)***	.05 (9.4)***	.05 (11.7)***
* Muslim Social Dominance		Insignificant	Insignificant	Insignificant
* Patriarchal Power Structures		- .14 (-4.4)***	- .14 (-4.1)***	- .14 (-4.3)***
• Female Sex * Employed * Unmarried				- .02 (-5.7)***
* Muslim Social Dominance				Insignificant
* Patriarchal Power Structures				Insignificant

to be continued ...

Continuation Table 2:

	Model 2-1	Model 2-2	Model 2-3	Model 2-4
Explained Variances:				
Within-society variation of DV	10.0%	10.3%	10.6%	10.6%
Between-society variation of DV	70.8%	71.4%	72.1%	71.5%
Variation in effect of Muslim identification	0%	0%	0%	0%
Variation in effect of Mosque/Church Attend.	0%	35.7%	35.2%	37.2%

Notes: Entries are unstandardized regression coefficients with T-values in parentheses. *N* (number of observations 122,544 respondents at the individual level and 76 countries at the societal level. Individual-level variables (except dummies) are country-mean centered; societal-level variables are global-mean centered. Explained variances calculated from change in random variance component relative to base-model. Estimates calculated with HLM 6.02.

Figure 7. The Partial Effects of Muslim Social Dominance and Patriarchal Power Structures on Patriarchal Values

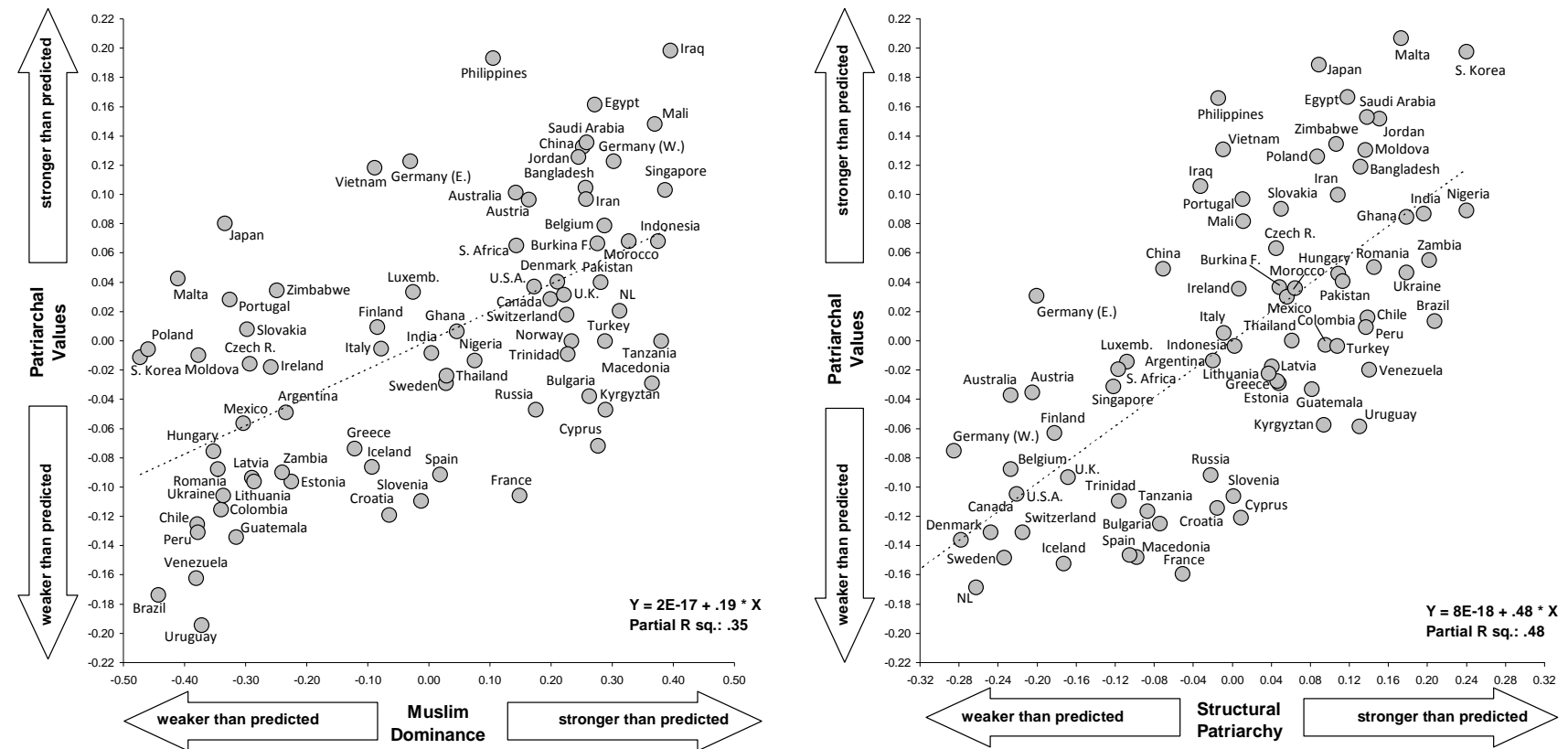


Figure 7, which show the effects of Muslim dominance and of patriarchal structures on patriarchal values under mutual control. Mutually controlled, patriarchal structures and Muslim social dominance explain, respectively, 48 and 35 percent of the cross-national variation in patriarchal values.

A society's base level of patriarchal values is both a reflection of patriarchal structures and Muslim dominance. This finding supports a combined structural and cultural interpretation of patriarchal values and thereby disconfirms a rigid formulation of the structural position.

Some additional findings are noteworthy, especially with respect to interactions. According to Model 2-2, if the respondent is a woman, this reduces the mean level of patriarchal values by .09 scale points. If the respondent belongs to the youngest cohort, this reduces patriarchal values by another .05 scale points. But if the respondent belongs both to the youngest cohort and is a woman, patriarchal values fall by yet another .09 scale points.

As is evident from Model 2-3, employment status and marital status have negligible main effects on patriarchal values. In interaction with female sex, the two variables affect patriarchal values more strongly but the effect sizes remain small, even though they point in the expected direction. To be precise, when the respondent is both a woman and employed, this reduces patriarchal values by .02 scale points. This adds to reduction of .04 scale points when the respondent is female and unmarried.

More important is the interaction of the individual respondents' religious service attendance with patriarchal structures at the societal level. On average, service attendance has a weakly positive effect on patriarchal values but this effect varies pronouncedly with a society's structural patriarchy, becoming *stronger* in *less* patriarchal societies. Thus, service attendance contributes more to patriarchal values when the surrounding society is less patriarchal. This confirms the previous interpretation: the social experience of religious service is a more important anchor for patriarchal values in societies that are less patriarchal.

CONCLUSION

Scholars disagree on whether Muslim support for patriarchal values is an inherent element of Muslim identity and, thus, a defining property of Muslim culture. So far, the evidence has been inconclusive for two reasons. For one, area-specific studies do not integrate into a coherent body of evidence because differences in operationalization, methodology, and model specification defy generalizations across studies. Second, among the few broadly comparative studies, none tested Muslim support for patriarchal values against key structural aspects of patriarchy that might account for the link between Muslim identity and patriarchal values. And, no study did this in a multi-level design that allows one to decide whether Muslim social dominance, individual Muslim identification or both nurture patriarchal values. To the best of our knowledge, this study

is the first broadly cross-national and multi-level test of whether Muslim support for patriarchal values proves robust throughout a multitude of comparative contrasts, comparing Muslims with Non-Muslims over inner-societal divisions by sex, age, education, and religiosity and over between-societal differences in the percentage of Muslims, the oil base of the economy, the size of the female workforce, the endurance of democracy, and the prevalence of patriarchal power structures. What did we find?

No matter what social sub-group we look at, Muslims in this group are always more patriarchal than Non-Muslims. We find this pattern to hold for *each* group, be it defined by sex, cohort, religiosity or education. And we find it to hold in *each* type of society, regardless of whether the society's economy is oil-based, mobilizes women into the workforce, is democratic, religious or patriarchal in its power structures. Even if we strip Muslim identification from confounding individual-level characteristics, such as religiosity, mosque attendance, and education, its effect on patriarchal values remains intact, though on a smaller scale. The tendency of Muslims to support patriarchal values more strongly than Non-Muslims of the same category is a remarkably robust tendency.

Evidence for the robustness of this tendency is new in the comparative scope provided here. Also new is the evidence of how Muslim identity affects patriarchal values simultaneously at the individual level and the societal level. At the individual level, Muslim self-identification results in a modest but consistent tendency to emphasize patriarchal values more than Non-Muslims of the same reference category. At the societal level, a larger proportion of Muslims elevates a society's base level of patriarchal values. This affects all groups—including *Non-Muslims*--who support patriarchal values more strongly than elsewhere when they live among more Muslims. This pattern is largely unnoticed in the literature.

On the other hand, Muslims are by no means a homogenous social category with respect to patriarchal values. Instead, Muslim support for patriarchal values varies considerably over inner-societal group divisions by sex, cohort, religiosity, and education and over between-societal differences in the percentage of Muslims and other characteristics. Important in this context, we find group characteristics that vary the patriarchal values of people in general, also to vary the patriarchal values of Muslims and to do so in the same direction. This makes Muslims susceptible to anti-patriarchal group tendencies—an insight that has not been emphasized enough in the literature.

This conclusion is supported by another distinctive pattern: Muslim support for patriarchal values is a strictly relative phenomenon; it is only visible *relative to* a given group's reference level of patriarchal values. The relative nature of Muslim patriarchy suggests that social comparison is a key mechanism involved here, as reference group theory assumes. It seems that Muslims adjust the strength by which they emphasize patriarchal values to the strength of these values in their wider social environment. Such flexibility is an important indication that patriarchal values are susceptible to emancipative forces also among Muslims.

In this vein, there is evidence for a disruption of the nexus between Muslim identity and patriarchal values. Confirming the results of smaller studies on a broader

basis, our findings support the view that education and employment erode patriarchal values more rapidly among Muslim women than Muslim men. This is an important insight, as it suggests that educating Muslim girls and fostering employment opportunities for Muslim women widen the gender gap over patriarchal values among Muslims. In the long run, strategies that create these opportunities for Muslim women are key 'treatments' to diminish Muslim support for patriarchal values.

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APPENDIX

Uniform Scaling

Like the patriarchal values index, all variables in the analyses are 'normalized' into a uniform format from minimum 0 to maximum 1.0, which means that multi-point indices take any fractional value between 0 and 1.0, like .25, .33, .50, .66 or .75. We use this standard format to allow for a uniform interpretation of regression coefficients across all variables: coefficients will appear as fractions between 0 and 1.0 and their value will tell us how many scale points we have to add to or subtract from the overall mean in patriarchal values when the respective independent variable is at its maximum 1.0. A coefficient of -.12 for formal education, for instance, tells us that when education is at its maximum value of 1.0 (for respondents with a university degree), this reduces patriarchal values by .12 scale points. If the score in education is lower than 1.0, this reduces patriarchal values by a .12-fraction of whatever that score in education is.

Recoding the Patriarchal Value Items

Thus, variable V44 was coded 0 for "disagree," .5 for "neither agree, nor disagree," and 1.0 for "agree." We interpret the recoded variable as an indication of patriarchal values in the domain of labor-market participation. For both items, the most patriarchal position is the "strongly agree" option and the least patriarchal one is the "strongly disagree" option. Thus, we code 0 for "strongly disagree," .33 for "disagree," .66 for "agree" and 1.0 for "strongly agree."

List of Countries in the Sample with Proportions of Muslims above 10 Percent

India (11%), Bulgaria (12%), Ghana (15%), Singapore (29%), Macedonia (30%), Cyprus (33%), Tanzania (39%), Nigeria (40%), Burkina Faso (49%), Malaysia (56%), Kyrgyzstan (88%), Bangladesh (89%), Indonesia (90%), Egypt (92%), Mali (93%), Jordan (97%), Pakistan (98%), Saudi Arabia (98%), Iran (99%), Iraq (99%), Morocco (99%), Turkey (99%).

Taking Logs of the Percentage of Muslims

The distribution on the percentage index of Muslims deviates from a normal distribution. The *skewness* shows a positive value of 1.76, indicating a 'right-skewed' distribution. This reflects an imbalance between many societies with few Muslims and few societies with many Muslims. In addition, the *kurtosis* yields a positive value of 1.47, indicating a 'leptokurtic' distribution. This reflects the fact that a large proportion of our societies have either pretty low or pretty high percentages of Muslims while fewer societies have medium-level percentages. To 'normalize' the distribution, we take *logs* of the percentage of Muslims, which stretches differences at the lower end of the percentage scale and condenses differences at the upper end. The result is a closer-to-normal distribution: the skew of the logged percentages is .34 and the kurtosis is -1.21. Thus,

with logged percentages, fewer societies are found at extreme values and the distribution is less left-leaning. To put the logged percentages into the 0-to-1.0 standard format of all other variables, we set the highest logged percentage ($4.6=\ln(99)$) for Saudi Arabia at maximum 1.0 and the lowest logged percentage ($-2.3=\ln(0.1)$) for Japan at 0.

Coding of the Cohort Variable

The coding is: 0 - born before 1921, .125 - born between 1921 and 1930, .250 - born between 1931 and 1940, .375 - born between 1941 and 1950, .500 - born between 1951 and 1960, .625 - born between 1961 and 1970, .750 - born between 1971 and 1980, 1.0 - born after 1980.

Coding of the Education Variable

The coding is: 0 for "no formal education," .125 for "incomplete primary school," .250 for "complete primary school," .375 for "incomplete secondary school of the technical/vocational type," .500 for "complete secondary school of the technical/vocational type," .625 for "incomplete secondary: university-preparatory type," .750 for "complete secondary: university-preparatory type," .875 for "some university-level education, without degree" and 1.0 for "university-level education, with degree."

Coding of the Religiosity Variable

The recoding is as follows: 1 into 0, 2 into .12, 3 into .23, 4 into .34, 5 into .45, 6 into .56, 7 into .67, 8 into .78, 9 into .89, 10 into 1.0.

Coding of the Service Attendance Variable

The coding is: 0 "never, practically never," .17 "less than once a year," .33 "once a year," .50 "only on special holy days," .67 "once a month," .83 "once a week," 1.0 "more than once a week."