

# Does Islam Promote Authoritarianism?\*

Raj Arunachalam

University of Michigan

Sara Watson

The Ohio State University

June 2014

## Abstract

What effect do religion and culture have on the dueling forces of democracy and authoritarianism? Motivated by a series of single-country case studies, a recent slew of quantitative work implementing cross-country regressions has consistently found a strong negative effect of Islam on political freedoms and other measures of democracy, even when controlling for other factors. In this paper we revisit the relationship between Islam and democracy. First, we offer a new instrumental variables strategy stemming from historical demographic movements that allows us to isolate the effect of Islam on political regime type. Second, we assemble new sources of historical data to construct a panel dataset, enabling us to employ fixed effects models that control for country-specific correlates of both Islam and authoritarianism. Implementing these two strategies largely eliminates the estimated negative effect of Islam on democracy. In fact, in most of our specifications the point estimates of Islam's effect on democracy are actually large and positive, indicating that correcting for omitted variables, Islam's effect is to actually increase democracy. However, our estimates are not statistically significant.

---

\*Preliminary and incomplete; please do not cite. Contact: Arunachalam at arunacha@umich.edu and Watson at watson.584@osu.edu. We thank Jiwon Suh, Amanda Yates, Emilie Esmont, Noelle Bruno, Katelyn Vitek and Alexandra Peponis for excellent research assistance; Steve Fish, Daniela Donno and Bruce Russett, Caleb Gallimore, Pippa Norris and Jean-Philippe Stijns for making their data available; and Jeremy Wallace, William Liddle and Amaney Jamal for helpful comments on an early iteration of this paper.

**Are all, or only some, of the world’s religious systems politically compatible with democracy? This is, of course, one of the most important and heatedly debated questions of our times.**

—*Alfred Stepan, “Religion, Democracy, and the ‘Twin Tolerations’ ”*

## **1 Introduction**

What effect do religion and culture have on the dueling forces of democracy and authoritarianism? This classic question in the social sciences has generated intense controversy in recent years. In the wake of 9/11 and subsequent developments in the Middle East, scholars have focused their attention on the potential effect of Islam on democracy. Motivated by a series of single-country case studies, a recent slew of quantitative work implementing cross-country regressions has consistently found a strong negative effect of Islam on political freedoms and other measures of democracy, even when controlling for resource endowment and other factors.

In this paper we revisit the relationship between Islam and democracy. We start by noting that existing work suffers from a potentially serious omitted variables problem: any unobserved correlates of Islam that are correlated with authoritarianism will bias estimates of the relationship between religion and political regime. Furthermore, since the direction of bias is unknown a priori, there is no way to bound existing estimates as too high or too low—although we provide suggestive evidence that estimates are biased toward finding a relationship between Islam and authoritarianism.

We tackle the problem of omitted variables by employing two complementary empirical strategies. First, we offer a new instrumental variables strategy stemming from historical demographic movements that allows us to isolate the effect of Islam on political regime type. Second, we assemble new sources of historical data to construct a panel dataset, enabling us to employ fixed effects models that control for country-specific correlates of both Islam and authoritarianism. Implementing these two strategies largely eliminates the estimated negative effect of Islam on democracy.

In fact, in most of our specifications the point estimates of Islam's effect on democracy are actually large and positive, indicating that correcting for omitted variables, Islam's effect is to actually increase democracy. However, throughout, our estimates are not statistically significant.

The remainder of this paper is organized as follows. Section 2 starts with a discussion of the debate on the relationship between Islam and democracy. In sections 3 and 4, we outline our empirical strategies for assessing the impact of Islam on political regime type. Section 5 reports our empirical results, while the conclusion discusses future avenues of research.

## **2 Situating the Study of Islam and Democracy**

### **2.1 Culture's Effect on Political and Economic Development**

Our research question falls within a long intellectual tradition on the effect of religion and culture on economic and political development. While such discussion can be found in the writings of Locke (*and others to fill in*), modern assessments of the causal effect of culture date at least from Tocqueville (1966 [1832]) and Weber (1935 [1905]). Tocqueville emphasized culture's potentially salutary effect on democratic politics, linking the health of 19th century America's republican institutions to the cultural values ('habits of the heart') and religious beliefs which reined in self-interest and enabled the recognition of the public good. Similarly, in Weber's interpretation of the early years of European capitalist development, the values inherent in Protestantism fostered work ethic, thrift, and other behaviors conducive to industrialization. During other periods, and in other cultures, social and religious ethics inhibited industrial takeoff.<sup>1</sup>

More recently, the notion that culture has important effects on development resurfaced in the 1950s and 1960s with modernization theory. Identifying 'modern' (as distinct from 'traditional') value clusters, one variant of modernization theory analyzed the implications of different sets value

---

<sup>1</sup>Weber's early insights on the importance of values for economic growth have been extended by subsequent scholars to a range of settings. For example, Pye (2000) and Landes (1998, 2000), among others, have attributed rapid economic growth in East Asia since the 1960s to Confucianism's emphases on achievement and interdependence. Slow growth in Latin America since the 19th century, in contrast, has been blamed on 'particularistic' and 'ascriptive' values held by entrepreneurial classes (Cochran, 1960; Lipset, 1967). More recent analyses of the economic effects of culture include North (1990); Putnam (1993); Greif (1994); Fukuyama (1995); Barro and McCleary (2003), and Tabellini (2010).

orientations for economic and political development.<sup>2</sup> Another variant, more structural in its approach to culture, linked the rise of democracy to attitudinal shifts wrought by changes in the class structure. Scholars such as Lipset (1959) and Huntington (1968, 1991), for example, argued that because education tends to increase with wealth, and because educated populations are more likely to hold attitudes conducive to democracy, the rise of a middle class increases the likelihood of democratic forms of governance.<sup>3</sup>

Working outside of the modernization theory paradigm, other scholars interested in the political effects of culture pointed to specific religions, rather than ‘modern’ values or specific class structures, as being important for democratic development. Resurrecting arguments from Weber, a series of scholars in the 1960s and 1970s examining the prerequisites for democracy hypothesized that certain aspects of Protestantism, such as the egalitarian nature of the relationship between the individual and God, were conducive to the acceptance of democratic norms of equality (Lipset, 1960, 1970; Bollen, 1979; Huntington, 1991).<sup>4</sup> Catholicism, in contrast, with its hierarchical and organicist views of social organization—as well as its long history of opposition to the formation of liberal polities in 19th century Europe and its alliances with fascist regimes in the 20th century—was viewed as hostile ground for the implantation of democracy (Philpott, 2005; Anderson, 2007).

This conventional wisdom about Catholicism and autocracy was discredited, however, with the “third wave of democratization,” in which most of the countries with Catholic religious traditions adopted democratic systems of governance.<sup>5</sup> Curiously, just as scholars were abandoning arguments linking Catholicism to autocracy, events of the early post-cold war period—including efforts

---

<sup>2</sup>Foundational studies here were Lerner (1958), McClelland (1961), and Almond and Verba (1963), but see also Deutsch (1953), Deutsch (1961) and Banfield (1958), Cochran (1960), Pye (1962), Smith and Inkeles (1966), Lipset (1963), and, more recently, Inglehart (1997), and Inglehart (2000).

<sup>3</sup>Other scholars linking the presence of a vibrant middle class to economic and political development, without necessarily espousing a cultural interpretation, include Moore, Jr. (1966); Dahl (1971); Murphy, Vishny and Shleifer (1989); Acemoglu, Johnson and Robinson (2005); Acemoglu and Robinson (2006), and Acemoglu, Hassan and Robinson (forthcoming).

<sup>4</sup>Other claims about the inherent compatibility between Protestantism and democracy focus on the commonality of factionalism, as well as the primacy of doctrine over ritual. See Woodberry and Shah (2005).

<sup>5</sup>The sudden change in the political regime types in Catholic countries was frequently attributed to shifts in the orientation of the Roman Catholic Church brought about by Vatican II, which emphasized individual rights and opposition to authoritarian rule (Huntington, 1991; Philpott, 2005), although Gill (1998) suggests this shift was itself the result of increased competition from evangelical Christian movements.

at democracy-building in the Middle East and the rise of Islamic fundamentalism—stimulated the emergence of a new debate on religion and regime type, this one centered on the inherent compatibility between Islam and democracy.

## **2.2 Islam and Democracy: Debate and Evidence**

Before the 20th century, argued Said (1978), western discussions of political Islam explicitly but more often implicitly accepted that Islam “tended toward despotism” and saw Muslims as unfit for self-governance. Thus, Chateaubriand (1969) breezily argued that the western conquest of the Orient brought the promise of liberation to a backward people. Serious scholarly speculation on the prospects for democracy in Islamic countries only appeared with the proliferation of independence movements during and immediately following World War Two. Pessimists argued that democracy was unlikely to develop in these countries because Islam does not allow for the separation of spiritual and temporal authority (Najjar, 1958) and because, at its core, the religion was fundamentally supportive of tyrannical (or even communist) forms of government (Lewis, 1954). Optimists countered that the scriptural basis for theocracy in the Koran was weak (Fakhry, 1954; Syed, 1954), and that autocratic polities instead stem from structural factors (such as the existence of large minority nationalist movements) which—largely due to colonial legacies—happen to occur with greater frequency in Islamic countries (Issawi, 1956).

In the 1990s, a series of influential works reframed earlier debates in the context of the rise of Islamic fundamentalism and theorized threats to international security (Huntington, 1993, 1996; Fukuyama, 1989, 1992; Lewis, 1996). Perhaps the most influential of these writings, Huntington (1996), viewed civilizational conflict between Islam and the West as inevitable because Islam is inherently opposed to the ideas of individual liberty and democratic freedoms. As Huntington so provocatively put it: “The fundamental problem for the West is not Islamic fundamentalism. It is Islam, a different civilization whose people are convinced of the superiority of their culture and are obsessed with the inferiority of their power” (p. 217). With respect to democracy in particular, Elie Kedourie (1992) similarly argues that notions of pluralism, accountable political institutions,

and popular sovereignty as the foundation for governmental authority are all “profoundly alien to the Muslim political tradition” (pp. 5-6).

In terms of quantitative evidence on the relationship between Islam and democracy, while cross-tabulations fail to reveal a clear pattern (Karatnycky, 2002; Stepan and Robertson, 2003), cross-country regressions have consistently found that countries with predominantly Islamic populations are associated with authoritarian political regimes (Midlarsky, 1998; Barro, 1999; Ross, 2001; Fish, 2002; Donno and Russett, 2004; Pryor, 2007; Rowley and Smith, 2009; Fish, N.d.). These new studies are striking in that all show the same result: Islam is consistently associated with autocracy.<sup>6</sup> The robustness of the finding has enabled scholars to build on this research in innovative ways, such as employing Islam as an instrumental variable for non-democracy in cross-country growth regressions (Mobarak, 2005).

However, there is ample cause for questioning the notion that Islam is incompatible with democracy. First, as we shall see below, predominantly Muslim countries differ from non-Muslim countries on a number of dimensions which are typically thought to impoverish democracy. Existing studies tackle these confounds by employing a similar set of standard control variables, including per capita GDP, colonial heritage, and natural resource endowments. Hence, any problems that exist with one study are likely to resurface in replication.

Second, there is no consensus in the theoretical literature as to why Islam would be antithetical to democracy. The alleged incompatibility of Islam and democracy is typically framed in terms of historical legacy (the Islamic world has not built institutions necessary for democracy) or in terms of the fundamental nature of Islamic theology (which does not allow for the separation of religion and politics necessary for democratic institutions, and which does not grant all citizens equal rights).<sup>7</sup> In contrast, a number of scholars have challenged both of these theorized channels for Islam’s negative effect on democracy.<sup>8</sup> Starting from the observation that Islam is far from

---

<sup>6</sup>The only study of which we are aware that finds that Islam has a positive effect on democracy is Boix (2003), who includes Islam as a control variable when regressing democracy on income. He finds that Islam has no effect on democratic transitions and is positively associated with democratic consolidation.

<sup>7</sup>Various versions of these arguments can be seen in Mawdūdī (1976), Najjar (1980), Enayat (1982) Pipes (1983), Kedourie (1992), Karatnycky (2002), and Lakoff (2004).

<sup>8</sup>Among others, see An-Na’im (1990), Esposito and Voll (1996), Abootalebi (1999), Stepan (2000), and Hashemi

monolithic, these authors argue that important elements of Islamic scripture and tradition, rather than buttressing authoritarian institutions, may in fact serve as the foundation for democratic development. They point out that Islamic tradition strongly disapproves of arbitrary rule,<sup>9</sup> and that there exist important elements of consent in the classical Muslim view of government. Islamic concepts of *shura* (consultation), *ijma* (consensus), and *ijtihad* (informed, independent judgment), for example, are compatible with democratic ideals (Esposito and Voll, 1996), and *shura* in particular can be interpreted as a democratic principle, since it demands open debate among elites and the community at large on issues that concern the public (Abootalebi, 1999). Scholars additionally argue that the democratic ideal of pluralism is both upheld in Islamic scripture—Muhammed himself declared that “Differences of opinion within my community are a sign of God’s mercy”—and exemplified in practice by orthodox Sunni Muslims’ acceptance of four different schools of Islamic jurisprudence. Given these facets of Islamic doctrine and tradition, then, there is no unambiguous theoretical reason to suspect that Islam is inherently hostile to democracy.

A third reason to question the results of the macro-quantitative studies on the effect of Islam on democracy is that public opinion polling consistently demonstrates that support for democratic institutions is no more strongly held by non-Muslims than Muslims and is at least as strong in Muslim-majority countries than elsewhere. These findings hold both in studies analyzing mass publics in specific geographical regions such as Central Asia and the Arab world (Rose, 2002; Tessler, 2002, 2003; Hoffman, 2004; Tessler and Gao, 2005; Jamal and Tessler, 2008) as well as in larger global samples (Norris and Inglehart, 2004; Rowley and Smith, 2009; Fish, N.d.). Moreover, several studies analyzing the effects of macro-level religious contexts on individual attitudes also find no evidence that Islam has a negative effect on democratic values. Using World Values Survey data, for example, al Braizat (2002) analyzes the relationship between average per country religiosity and average per country support for democracy, and finds that Arab and other Muslim countries are supportive of both democracy and religiosity. Similarly, in a hierarchical

---

(2009). Ehteshami (2004) offers an excellent overview of current debates.

<sup>9</sup>As even Bernard Lewis—no optimist about the prospects for democracy in the Arab world—observes, the central institution of sovereignty in the traditional Islamic world (the caliphate) was defined by Sunni scholars to have contractual and consensual features that distinguished caliphs from despots (Lewis, 1996).

linear analysis of the same dataset, Meyer, Tope and Price (2008) find that it is Islam, more than any other major religion, which promotes individual-level support for democracy.

Perhaps more importantly, the nature of the historical spread of Islam suggests possible reasons for a spurious positive association between Islam and authoritarianism. Below, we briefly trace patterns of Muslim expansion between the 7th and 16th centuries. This short history has two analytic purposes. First, it establishes that Islam spread to many (although not all) Muslim-majority countries through conquest. If successful conquest was indicative or generative of extractive institutions—and if (as many theoretical and empirical studies hold) such institutions tend to persist over centuries (e.g. Acemoglu, Johnson and Robinson (2002))—Islam may be spuriously blamed for poor democratic outcomes today. Second, the overview motivates our empirical strategy aimed at overcoming historical legacies and other possible omitted variables—one itself grounded in the geographical pattern of the historical spread of Islam.

### **2.3 Spread of Islam**

Islam arose in the Arabian Peninsula in the early seventh century. In 610, Muhammad ibn Abdullah, on a spiritual retreat outside his home town of Mecca, awoke to a vision from the archangel Gabriel who announced that Muhammad was the messenger of God. Over the next twenty-three years, Muhammed received messages in serial form from God (Allah), and began sharing these messages publicly. Although he attracted converts from within his clan, as well as from other low-status groups in Mecca, resistance from Meccan elites led him to flee to the northern town of Medina in 622. After several years of warfare between Medina and Mecca, Mecca surrendered to Muslim armies in 630. By the time of his death in 632, Islam dominated the western part of the Arabian peninsula known as the Hijaz (Watt, 1970).

The spread of Islam beyond the confines of the Arabian peninsula can be linked to two sources: conquest and commerce. A first wave of Islamic expansion took place in the 8th century via the Arab conquests (Holt, Lambton and Lewis, 1970; Donner, 1981). In the century following the death of Muhammad, Arab Muslims carved out a vast empire extending from Western Europe



to South Asia. The first series of conquests involved the taking of the territories to the north of the Arabian peninsula. Within ten years, Arab Muslims controlled Iraq, Syria, Palestine, Egypt and western Iran. Soon after these conquests, they turned their attentions further afield. To the west, Arab ships sailed into the Mediterranean Sea, conquering Cyprus (649), Carthage (698), Tunis (700), Gibraltar and Spain (711), and raiding as far north as the Pyrenees. To the east, Arab armies marched across the Iranian plateau and conquered the Sassanian (Persian) empire. By 712, Arab armies had taken control of major outposts within Central Asia and were waging war with Chinese armies, leading to the conversion of Turkish tribes in Central Asia. To the south, Muslim warships sailed to the western coasts of India, where in 711 they conquered the Hindu-Buddhist society of Sind (present-day Pakistan and Punjab). Thus, within 120 years after the death of Muhammad, Arab Muslims controlled territories extending from Lisbon to the Indus delta, and had made inroads in both central Europe and China.<sup>10</sup>

The second wave of Islamic expansion took place not through militant conquest by nomadic armies but via commercial links. Starting in the 11th century, Muslim traders—and the saints or sufies who accompanied them as spiritual advisors—carried Islam across the steppes to central Asia, through the desert to sub-Saharan Africa and across the ocean to the southern Philippines, Malaysia, Indonesia, as well as to East Africa (Levtzion, 1979; Jones, 1979; Vryonis, 1971). In southeast Asia, Islam appealed to the rulers of coastal principalities who were engaged in intense rivalries with other local rulers; conversion to Islam gave local rulers both access to larger trading networks and social and administrative support vis-a-vis their rivals (Reid, 1988; Ricklefs, 2008). Conversion in East Africa occurred unevenly, but also started in coastal trading towns, and subsequently followed the route of the Nile (Trimingham, 1964). The influence of Muslim traders in these regions led to the doubling of the size of the Muslim world between the eleventh and sixteenth centuries (Voll, 1998).

---

<sup>10</sup>Although the Arab conquests made vast swaths of territories nominally Muslim, conquest of a given area did not automatically lead to rapid conversion of subject populations. Conversion rates were especially slow during the early Arab conquests, and for some time afterwards, in much of the Islamic empire. Nevertheless, there is general agreement that by 1300, Muslim-majority populations existed in the region spanning from North Africa to Iran (Levtzion, 1979; Bulliet, 1979).

As this brief treatment of the spread of Islam reflects, at least a subset of countries that are today of Muslim majority became so through a legacy of conquest. Of course, as we have seen, this history does not hold for all Muslim-majority countries; neither is it the case that medieval institutions affect contemporary institutions in the same way. However, a number of studies have found that early political institutions have long-run effects on both political and economic outcomes, even in cases of long intervening periods of colonial rule (Herbst, 2000; Englebert, 2000; Boone, 2003; Gennaioli and Rainier, 2006, 2007). In this way, such common trends in historical legacy at the very least contaminate causal inference, in that scholars attempting to gauge the causal effect of Islam on contemporary outcomes may actually be measuring the latent effect of legacies of polities built from conquest.<sup>11</sup>

Indeed, figures 1 and 2 illustrate graphically the fact that current patterns of democracy appear to be associated with the nature of Islam's arrival.<sup>12</sup> This pattern holds true both for all countries in the sample and for the sub-sample of Muslim-majority countries. Moreover, the difference in democracy scores between countries in which Islam arrived via conquest versus through peaceful means is greater in the entire sample than it is in Muslim-majority countries.<sup>13</sup> This implies that a history of Islamic conquest influences the nature of regime type today, independent of the effect of Islam. Motivated by the potential importance of such unobservable and/or difficult to measure historical legacies which may be shaping contemporary patterns of democracy, we offer research designs targeted at identifying the causal effect of our central variable of interest: Islam.

---

<sup>11</sup>A detailed analysis of the political and economic institutions of the conquering Islamic empires is beyond the scope of this study, but it is worth noting that during the medieval period the Islamic world witnessed a shift toward more extractive institutions. This was in large part because the Abassids responded to the challenge of paying for a standing army (capable of defending its far-flung empire) by granting military officers the right to set up tax-farms in the provinces where they were stationed. As a result, despite the fact that the early years of the Abassid empire was characterized by a fairly centralized polity which protected property rights and presided over a period of commerce, prosperity and intellectual fermentation, by the eleventh century it had devolved into a decentralized and plundering state (Cahen, 1970).

<sup>12</sup>We coded this measure based on information from *Oxford Islamic Studies Online*, the *Cambridge History of Islam*, and other sources.

<sup>13</sup>We recognize that the relationships depicted in these figures are ordinal, and that one should not necessarily draw conclusions about relationships based on the size of gaps, but given that it is common to discuss relative differences in Freedom House scores between sub-samples of countries, we think it worth mentioning this finding.

### 3 Empirical Strategy

#### 3.1 Instrumental Variable Strategy

Our first contribution is to produce an unbiased estimate of the causal impact of Islam on democracy by exploiting a natural experiment in historical demography. While religion is not “randomly assigned” across countries, we can exploit the nature of the historical spread of Islam to generate a predictor of Islam which is unlikely to be directly correlated with democracy, since location determines historical propensity to convert to Islam. We use a country’s distance from Islam’s origins in Mecca as an instrumental variable predicting Islam.

Instrumental variables strategies are increasingly used to probe the effects on institutions of independent variables which are likely to be contaminated by endogeneity or, more broadly, omitted variables problems (Dunning, 2008; Sovey and Green, 2009). In OLS, the influence of an excluded explanatory variable is included in the error term. When omitted explanatory variables are correlated with included independent variables, however, bias is introduced into OLS because the included variables are now correlated with the error term. In such cases, instrumental variable techniques can be used to produce an unbiased estimate of the effect of interest. This instrumental variable must meet two criteria. First, it must be relevant—that is, it must be correlated with the endogenous regressor. Second, it must be excludable: it must only affect the variable of interest through the endogenous regressor. The new IV estimator is then found by a procedure which essentially matches the variation in the explanatory variable with variation in the instrument, and uses only this variation to compute the estimate. Such a strategy produces an asymptotically unbiased estimator of the effect of the partially endogenous regressor.

In terms of the research question considered here, a valid instrumental variable for Islam should predict Islam well (‘relevance’), and should only affect the outcome of interest—democracy—through the channel of Islam (‘excludability’). We believe that our proposed instrument, distance from Mecca, meets both criteria. First, with respect to the requirement of ‘relevance’, as the map in Figure 1 illustrates graphically, the great-circle distance from Mecca strongly predicts Islamic

religious adherence, and does so both when the variable is defined as percentage of population that is Muslim or as dummy variable for Muslim-majority country. The relevance of the instrument is similarly apparent in Figure 2, where we see that distance from Mecca is clearly related to percentage of Muslim adherents in the population. Although in statistical terms the criteria of relevance requires only that the instrument predict the endogenous regressor well—and not that the instrument be *causally* related to that regressor—in our case there exists a fairly intuitive causal mechanism linking distance from Mecca to percent Islam. The closer a country is located to Islam’s founding city, Mecca, the more likely that its population came into contact with Islamic populations. Contact with either conquering armies or commercial traders, in turn, increased the likelihood of conversion to Islam in these areas. Moreover, insofar as Islam was the latest of the major world religions, it is less likely to have been supplanted in these areas by subsequent contact with ‘newer’ religions.<sup>14</sup>

In positing that distance from Mecca predicts Islam well, we are not claiming that it is the only factor determining whether a country developed a large Muslim population. Variation in the assimilative capacity of Islam historically was, of course, also related to factors such as the existence of strong state structures in neighboring regions, the durability of existing religious institutions, and the extent of Muslim migration to frontier areas (von Grunebaum, 1966/2008; Donner, 1981).<sup>15</sup> However, the existence of other factors shaping the implantation of Islam does not inherently undercut the effectiveness of our distance measure as an instrument because the instrumental variable estimator remains unbiased as long as such omitted predictors are not correlated with distance.

With respect to the second major criteria for a valid instrumental variable (that is, ‘excludability’), we also believe that our exclusion restriction—the claim that distance from Mecca has no effect on democracy today other than through its effect on the development of Islam, conditional on

---

<sup>14</sup>Consider the other two major religions which came out of the Middle East: Judaism (founded approximately 1500 BCE) and Christianity (100 CE). Distance from origin is less likely to be a valid predictor of these religions in light of the subsequent spread of Islam starting in approximately 600 BCE.

<sup>15</sup>In Europe, for example, it was not only distance which limited the spread of Islam to Europe but rather the development of strong states which were able to expel the Moors from southern Iberia and Italy, and to withstand later Ottoman incursions from the East. Similarly, in the Balkans, where previous religious institutions remained vibrant, Islam did not penetrate as successfully as in Anatolia, where church institutions had been progressively weakened before the arrival of the Ottomans. See Lapidus (2002).

the controls included in the regression equations—is plausible, as distance from Mecca is unlikely to directly relate to political regime choice except through its effect on religion.<sup>16</sup>

Formally, we estimate by two-stage least squares. In the first stage, Islamic adherence,  $I_i$ , in country  $i$  is treated as endogenous, and modeled as:

$$I_i = \alpha + \gamma R_i + \mathbf{X}'_i \delta + v_i \quad (1)$$

where  $R_i$  is distance from Mecca,  $\delta$  is a vector capturing the effects of the control variables in  $\mathbf{X}'_i$ , and  $v_i$  is a random error term. The key exclusion restriction is that in the population  $\text{Cov}(\varepsilon_i, R_i) = 0$ , where  $\varepsilon_i$  is the error term in the second-stage equation.

The second-stage equation is:

$$D_i = \zeta + \beta_I^{IV} \hat{I}_i + \mathbf{X}'_i \mu + \varepsilon_i \quad (2)$$

in which  $D_i$  is the democracy score,  $\hat{I}_i$  is the predicted value of the percent of the population that is Islamic, and  $\varepsilon$  is a random error term, assumed to be orthogonal to  $v$ . The main coefficient of interest is  $\beta$ , the coefficient on Islam.

### 3.2 Panel Estimation

Our second contribution to the literature is to exploit the panel nature of the data by including country fixed effects when examining the effect of Islam on democracy. This strategy, we should note, addresses a somewhat different question than does the instrumental variable strategy outlined in the previous section. Instead of looking at the effect of *levels* of Islamic population on political regime type, it looks at the effects of *changes* in a country's Islamic population on changes in the

---

<sup>16</sup>This particular form of instrumental variable, distance from a specific location, has been employed fruitfully in a variety of settings. Recent examples include studies of the effect of Walmart on local labor markets, using distance from Bentonville, Arkansas as an instrumental variable for date of a store's founding (Dube, Lester and Eidlin, 2007; Neumark, Zhang and Ciccarella, 2008); estimates of the impact of the boll weevil on historical agricultural development in the United States, using distance from Brownsville, Texas to predict onset (Lange, Olmstead and Rhode, 2009); and estimates of the spread of HIV in Africa using distance from the origin of the virus (Oster, 2009).

level of democracy. Although it is not clear that the two phenomena—levels versus changes—should have the same causal effects, implementing a panel design is a natural way of trying to control for unobserved, time-invariant country-level differences that might plausibly shape the relationship between Islam and democracy.<sup>17</sup> A recent example of this approach is Acemoglu et al. (2008), who implement panel data models with country fixed effects in order to gauge the robustness of the link between income and democracy over the course of the late 20th century.

In order to implement models with country fixed effects, we have assembled a complete panel dataset with information from 1960 to 2005. This period corresponds to the period in which most Muslim-majority countries became independent.

We estimate the following equation:

$$D_{it} = \zeta + \beta_I^{\text{Panel}} I_{it} + \mathbf{X}'_{it} \boldsymbol{\mu} + \theta_i + \delta_t + \varepsilon_{it} \quad (3)$$

where  $D_{it}$  is the democracy score of country  $i$  in period  $t$ ,  $\mathbf{X}'_{it}$  is a vector of covariates,  $\theta_i$  is the country fixed effect,  $\delta_t$  is a time fixed effect, and  $\varepsilon_{it}$  is a random error term with an expected value of zero for all  $i$  and  $t$ . Again, the central coefficient of interest is  $\beta$ , which measures the causal impact of Islam on democracy.

## 4 Data

Our central measure of democracy is the composite Freedom House score. Freedom House's understanding of democracy is based on the Universal Declaration of Human Rights, and has two components: political rights and civil liberties. Political rights enable people to participate freely in the political process through the right to vote, compete for public office and elect representatives who are accountable to the electorate, while civil liberties allow for the freedoms of expression and belief, associational and organizational rights, rule of law, and personal autonomy without

---

<sup>17</sup>It should be noted that fixed effects estimators do not necessarily identify the causal effect of Islam on democracy. Fixed effects models do not help inference if there are time-varying omitted factors affecting democracy which are correlated with the included independent variables. Thus, our fixed effects analysis should be viewed as complementary to—rather than a substitute for—the instrumental variables estimation.

interference from the state. Based on a checklist of questions, Freedom House ranks countries on each of these two dimensions on a scale of 1 to 7, with 1 being ‘most free’ and 7 ‘least free’. In order to make the Freedom House scores more intuitive, we reverse the indices so that 1 is least free and 7 is most free. Our dependent variable for the cross-sectional IV analysis is the average of the Freedom House scores for the years 2000 through 2008; in the panel analysis, we construct five year panels, taking the observation every fifth year. For the 1980s, Freedom House provides single scores for overlapping years; in order to generate annual scores for these years, we determine the relative contribution of different sets of years to each individual year’s score and weight accordingly. .

In order to check the sensitivity of our results to different measures of democracy, we also run specifications using Polity IV data from 1950 to 2009 (Marshall and Jaggers, 2009). In contrast to Freedom Houses’s rights-based approach to democracy, Polity IV focuses primarily on the existence or absence of institutions in a country. The Polity score measure includes the competitiveness of political participation, the existence of competitive executive recruitment, the openness of the recruitment process, and the constraints placed on the executive. Countries are scored on an eleven-point scale of democracy, and a similarly scaled measure of autocracy. The two scales are then combined into a single democracy-autocracy score, in which pure autocracies receive a score of -10 and pure democracies receive a +10. Importantly, the Polity dataset excludes many smaller countries, thus reducing the coverage of countries.<sup>18</sup>

The data on percent of the population that is Muslim comes from two principal sources: the World Christian Encyclopedia (WCE) and the World Religion Database (WRD). The WCE and its electronic successors are part of an international demography project which documents over-time trends in Christianity and other major religions. The WCE began in 1949 as the *World Christian Handbook*, an Anglican publication containing information on church history and missionary work. In 1968 its founders decided to undertake a comprehensive survey of all branches of global Christianity, leading to two paper editions of the World Christian Encyclopedia (Barrett, 1982;

---

<sup>18</sup>For the year 2000, for example, Polity IV provides data for only 159 countries, as opposed to Freedom House’s 191 countries.

Barrett, Kurian and Johnson, 2001) and the subsequent release of two electronic databases: the World Christian Database (WCD) and the World Religion Database.<sup>19</sup>

WCE estimates rely on census reports, survey reports, anthropological and ethnographic studies, and reputable statistical reports from various religious groups. Although the WCE data is unparalleled in its scope (approximately 240 countries) and comprehensiveness, there has been some controversy about the reliability of the estimates given the project's missionary origins. However, in a systematic analysis of WCE figures with four other major data sources—the World Values Survey, Pew Global Attitudes Project, the CIA World Factbook, and the U.S. Department of State's International Religious Freedom Report—Hsu et al. (2008) find that the WCE estimates are highly correlated. With respect to the Islam figures in particular, correlations with existing datasets are above .97. In our panel analysis, data on the Muslim population for the years 2000, 2005, and 2010 are taken from the World Religion Database (Johnson and Grim, 2010). Figures for 1975, 1980, 1990, and 1995, which were not available from the WRD, came from paper editions of the WCE. For 1960, we supplement the WCE/WRD estimates with data from Kettani (2010), who uses national census and health/demographic surveys, as well as UN Yearbooks, to provide estimates of Islamic populations.

Our distance measure is the great-circle distance in miles between Mecca and the capital city of each country in the Freedom House database, computed with an on-line distance calculator.<sup>20</sup>

The literature on the sources of democracy versus autocracy is perhaps one of the largest sub-fields of comparative politics. In order to verify if Islam retains explanatory power once we consider other possible sources of democracy, we include in our analysis a number of control variables. The first reflects the classic claim that economic development is a central determinant regime type. As mentioned in Section 2, the seminal example of this approach is Lipset's (1959) view that the level of economic development and variables closely associated with it, including the level of

---

<sup>19</sup>The World Christian Database is now housed at the Center for the Study of Global Christianity at Gordon-Conwell Theological Seminary, and the World Religion Database at Boston University's Institute on Culture, Religion and World Affairs. Both databases are currently published by Brill Academic Publishers.

<sup>20</sup>We sought distance information first from <http://www.infoplease.com/atlas/calculate-distance.html>, and then (for the remaining missing observations) from <http://timeanddate.com>.



educational attainment, urbanization, and the growth of a middle class, strongly influence the possibilities for the creation and subsequent consolidation of democracy. Our measure of economic development is real GDP per capita (PPP adjusted), and is taken from Heston, Summers and Aten (2009).

A second prominent hypothesis in the democratization literature is that natural resource dependence undermines democracy. The so-called ‘resource curse’ has been hypothesized to limit the prospects for democratic development through a number of channels. Among the most important is the availability to autocratic leaders of financial resources, which they can use to buy off their publics and fund repressive state apparatus capable of crushing democratic opposition movements (Ross, 2001; Bellin, 2004). Claims about the effect of natural resources on political institutions intersect with our central question—the effect of Islam on regime type—insofar as many Muslim-majority countries also possess an abundance of natural resources such as oil. In order to control for the possibility that resource dependence may undermine democratic institutions, we follow a recent series of prominent studies which advocate using per capita oil and gas production rather than fuel exports as a percent of merchandises exports.<sup>21</sup> Unfortunately, perhaps the most ideal measure—one which measures (exogenous) underlying resource stocks rather than the economic flows from those stocks—are available for only 100 countries (Stijns, 2005). In order not to lose statistical power but to nevertheless avoid many of the problems identified by Ross and other scholars, we therefore rely on per capita oil production figures as our measure of natural resource abundance.

Another common hypothesis in the literature is that previous experiences with democracy can have important effects on current regime type. Huntington (1991), for example, argues that prior democratic experience, as well as a longer and more recent experience with democracy, is conducive to the stabilization of democracies. As Pridham (2000) observes, this could be true for a

---

<sup>21</sup>There are at least two reasons why fuel export measures are viewed as only second-best solutions. First, if the manufacturing sector’s exports rely intensively the country’s natural resources, a resource-rich country may nevertheless export few raw natural resources. Second, the share of natural resources in exports may be endogenous to existing political institutions insofar as countries with authoritarian institutions may not develop policies which encourage healthy manufacturing or service sectors, and hence never develop economic sectors outside of extracting whatever major natural resource they have. See Ross (2009); Haber and Menaldo (2008); Stijns (2005).

number of reasons, including the way in which recent democratic governance shapes mass public opinion, or by providing political leaders with direct experience working within democratic institutions. Whatever the precise mechanism, the observation that former experiences with democracy may shape current institutions seems especially relevant to the discussion of Islam and democracy. Given that Islam was often spread through autocratic forms of governance, it is important to separate out the effects on regime type of Islam *as a religion* from the political mode through which the religion was transmitted. In order to control for the fact that countries with a ‘usable democratic legacy’ (Linz and Stepan, 1996) may be more likely to sustain democratic rule, we follow Donno and Russett (2004) in including a measure of recent experience with democracy: a twenty-year average of the country’s Freedom House score, which measures the openness and competitiveness of elections.<sup>22</sup>

A further potential set of impediments to democratic development are ethnic, linguistic and other social divisions and colonial legacies. Democracy, some have argued, is less likely in multi-ethnic societies due to the likelihood of increased ethnic violence in those countries (Powell, 1982; Horowitz, 1994) and because in fractionalized societies some groups are more likely to restrict political liberty in order to insulate themselves and limit other groups’ access to power (Aghion, Alesina and Trebbi, 2004). Although several recent studies dispute aspects of these findings<sup>23</sup>, because many countries with significant Muslim populations also suffer from societal fragmentation we include measures of ethnic, religious and linguistic fractionalization in the regression equations. These fractionalization indices are taken from Alesina et al. (2003), and are computed as one minus the Herfindahl index of ethnic/religious/linguistic group shares; they reflect the probability that two randomly selected individuals from a population belong to different groups. Similarly, following a large literature on institutions which holds that colonizers’ strategies of conquest and rule are an important determinant of variation in the quality of government among former European colonies (La Porta et al., 1999; Acemoglu, Johnson and Robinson, 2001), we also include dummy variables

---

<sup>22</sup>Note that whereas Donno and Russett use the 20-year average of Polity IV’s political competition variable, we chose to use the FH democracy score in order to maintain the largest sample size possible.

<sup>23</sup>See Fearon and Laitin (2003), Fish and Brooks (2004), and Fish and Kroenig (2006).

for the identity of colonizer (Norris, 2008).

Following Donno and Russett (2004), we also include variables aimed at addressing two hypotheses from the international relations literature. A number of IR scholars argue that democracy is promoted not just by domestic factors such as level of economic development, but also by favorable international environments. Gleditsch and Ward (2007), for example, define such environments in terms of 'political neighborhoods'. They demonstrate that the probability that a randomly chosen country will be a democracy is much higher if its neighbors are also democracies, and that rates of transitions to democracy differ sharply depending on the political makeup of the countries in a country's spatial context (p. 271). In a similar vein, Pevehouse (2004) finds that autocracies connected to 'democratically dense' international organizations are more likely to become democratic. A second, related hypothesis, is that a country's involvement in international conflict increases the likelihood of authoritarianism insofar as it leads to the suppression of civil and political liberties at home, in the name of national security (Gleditsch, 2002). To control for the possibility that political neighborhoods and international conflict shape political regime type, we include two measures in our regression equations. The first is 'degree of democracy in the neighborhood', which provides the average democracy score of contiguous states for the years 2000 to 2008, where contiguity is defined according to Correlates of War categories 1-4 (countries that are either directly contiguous by land or contiguous by sea within 150 miles). Relying on data from the Correlates of War Project's Direct Contiguity Data, 1816-2006, version 3.1 (Stinnett et al., 2002), we calculate versions of this measure for both Freedom House and Polity democracy scores. The second variable is the number of fatal militarized disputes that a country was involved in during the 1990s; this was computed using the Correlates of War Project's Militarized Interstate Dispute (MID) Dataset, version 3.1 (Ghosn, Palmer and Bremer, 2004).

Another debate questions whether it is Islam broadly writ, or the subset of Islamic countries in the Arab world, driving the apparent relationship between Islam and autocracy (Stepan and Robertson, 2003). Notwithstanding the democratic effervescence witnessed in the recent Arab Spring, the Arab world continues to suffer from a democracy deficit (Bellin, 2004; Schlumberger,

2009). Indeed, during the 2000s, the median Freedom House score for Arab Muslim majority countries was at the 25th percentile of that for their non-Arab brethren.<sup>24</sup> Thus, in order to assess whether the effect of Islam on autocracy is being driven by the Arab states, we include a dummy variable for membership in the Arab League.

[NOTE: What does Arabness signify? It is arguably better to control for these factors directly, since other countries may have similar characteristics. The literature identifies (a) patriarchal norms: this we can control for following Fish; (b) high levels of militarism due to spillover from the Arab-Israeli conflict: this we can control for using OECD data on military expenditures.]

Finally, in order to provide a check on the validity of our exclusion restriction, we include a latitude measure as a geographic control. This measure is taken from Gallup, Sachs and Mellinger (1999), which provides the latitude of the country centroid. For countries where the centroid falls in the ocean, it is moved to within the nearest land boundary. For missing countries, we use the latitude of a country's capital city.

## **5 Empirical Results**

### **5.1 Descriptive Statistics**

Before turning to the main empirical analysis, examining the descriptive statistics suggests the contours of the identification problem. Figure 3 provides a graphical representation of the stylized fact motivating our study: the negative relationship between Islam and democracy. Plotting countries' composite Freedom House scores against percent Muslim (both averaged over the 2000s) produces a noticeable sloping trend: a ten percentage point increase in a country's Muslim population is associated with a sixth of a standard deviation decrease in the Freedom House score.

Whether this bivariate relationship actually represents a causal effect, however, is far from straightforward. For one, the negative association between Islam and democracy holds historically; when we examine data from the 1970s through 1990s in Figure 4, the same downward trend

---

<sup>24</sup>More specifically, the average Freedom House democracy score for Arab Muslim-majority countries was 2.38, as compared to 3.38 for Muslim-majority countries outside of the Arab world.

appears. Even the handful of Muslim countries in 1900 that are captured in the Polity dataset suffered from autocratic rule. One interpretation is that something in the nature of Islam has long lent support to autocratic rule; an equally plausible alternative hypothesis, however, is that Muslim countries happen to share a historical legacy of non-democracy, which itself persists as institutions often do.

Furthermore, when compared to non-Muslim countries, predominantly Muslim countries share several characteristics that suggest a poor environment for democracy. For example, when we examine the relationship between percent Muslim and per capita income, we see that Muslim countries indeed tend to be poorer (Figure 5). Here, a ten percentage point increase in a country's Muslim population is associated with a seven percent decrease in per capita income. As with democracy, this pattern appears to hold historically for the 1960s through the 1990s, as seen in Figure 6, albeit more weakly in the heyday of oil prices. While scholars continue to debate the true nature of the causal connection between income and democracy, such a pattern is at least suggestive of omitted factors—other than religion—which may determine a country's economic and political outcomes.

To facilitate comparisons, we slice our sample into “Muslim majority” and “non Muslim majority” for the descriptive statistics in Table 1. The bimodal distribution of Islam evident in Figure 3 suggests that this is not unreasonable—there are relatively few countries with close to half the population Islamic. The table, which provides data for a larger sample of countries than previous studies we are aware of, suggest that Muslim countries differ markedly from non-Muslim countries on key variables of interest. More precisely, as a group, Muslim-majority countries tend to fare worse on almost every indicator which scholars have suggested are democracy-promoting.<sup>25</sup> Muslim countries are poorer, with a mean per capita income of \$8900 (2005 PPP) in 2007, compared to a mean of \$12400 in non-Muslim countries. They have a higher degree of ethnic fractionalization, as measured by Alesina et al. (2003). Muslim countries are likely to suffer violent interstate disputes, as measured by the number of fatal militarized disputes. They do not enjoy a histori-

---

<sup>25</sup>See Donno and Russett (2004) for a nice discussion of these factors.

cal legacy of democratic experience, are more likely to have non-democratic neighbors, and so on. Isolating natural resource abundance, which is often seen as indicative of a political resource curse, we see in Figure 7 that the median fuel export figure (as a percent of GDP) for Muslim-majority countries is at the 75th percentile for that of non-Muslim majority countries. OPEC membership is dominated by countries with large Muslim populations (Figure 8).

Taken together, the descriptive statistics suggest that, although Islam is negatively correlated with democracy, estimating the independent effect of Islam on regime type will be difficult. Although we can control for the fact that countries with large Islamic populations also score badly on a range of other variables thought to promote democracy, the fact that they are so different on these variables strongly suggests that they may also differ on other (potentially unobservable) omitted variables which may be driving both Islam and autocracy. We now turn to our research design, which attempts to credibly identify the effect of Islam on democracy in the face of these problems.

## **5.2 Instrumental Variable Estimation: Empirical Findings**

In this section we present the estimation results from the instrumental variables strategy described above utilizing cross-sectional data. In the following specifications, a country's great-circle distance from Mecca is used as an instrumental variable predicting Islam. For ease of exposition and comparison to existing OLS estimates, we generate two-stage least squares (2SLS) instrumental variables estimates of the effect of Islam on democracy by replicating Donno and Russett (2004) and Fish (2002) as closely as possible.<sup>26</sup>

### **5.2.1 IV Results Replicating Donno and Russett (2004)**

In our replications of Donno and Russett (2004), Freedom House scores of liberal democracy (measured 1-7, increasing in quality, with a standard deviation of around 2) are regressed on the fraction of the population that is Muslim, and a number of control variables. All specifications include as controls measures of economic development (log GDP per capita, measured in 1990); oil depen-

---

<sup>26</sup>More precisely, see Models 2-8 in Table 1 of Donno and Russett (2004) and Models 1-5 in Fish's Table 3.

dence (fuel exports as a fraction of GDP); previous experience of democracy (Polity scores, which are similar to Freedom House scores but with a longer time series); and democracy “contagion” effects (average level of democracy in contiguous neighbors). Still following Donno and Russett, we also include models with controls for Arab league membership; military violence (“MID involvement”: number of fatal militarized disputes in the country, 1960-2001); and variously specified measures of women’s empowerment (male to female literacy gap; male to female sex ratio; and women’s participation rates in government and in the national legislature). Finally, we reproduce all specifications, this time instrumenting Islamic population with distance from Mecca.

Results from our replication of Donno and Russett are given in Table 2, Columns 1-7. Overall, our findings match those in the original paper very closely, with slight differences that are probably attributable to rounding errors. We then reproduce each regression model using instrumental variables, so that column 8 reproduces column 1, column 9 reproduces column 2, and so on, with the only change being that the instrumental variables specifications are the second stage in a 2SLS estimate. Throughout, the top row is the one of interest—the coefficient on Islamic population.

There are four findings of note. First, even in the simplest specification, introducing an instrumental variable strategy substantially reduces the size of the coefficient on Islam. The coefficient on Muslim population in Column 8 is a third of the size of that in Column 1. Second, in all other specifications, the instrumental variables estimate actually flips sign, indicating that Islam actually has a positive effect on democracy. Third, in almost all 2SLS specifications, the point estimate of the positive effect of Islam is substantially larger than the negative effect of the “naive” OLS estimator. Taken together, these results suggest not only that omitted variables are likely problems with existing estimates of the effect of Islam on institutions, but also that the true relationship may be in the opposite direction from current estimates. Fourth, standard errors increase substantially in the instrumental variables regressions once the (largely geographical) Arab dummy is included, and indeed none of our second-stage estimates are statistically significant. While instrumental variables estimators often produce larger standard errors than OLS, we think that the fact that errors

increase only with the inclusion of the Arab dummy.<sup>27</sup> Another way to see this is in Table 3, which reports the first-stage—that is, the regression of Islam on the instrument and the other regressors. Again, the top row is of primary interest; here, we notice that the instrument is statistically significant throughout. Also, note that while the F-statistics on the excluded regressor do not indicate a severe weak instruments problem, the instrument weakens in strength when the Arab dummy is added.

To place these results in perspective, consider a country that, like 40% of those in our sample, has almost no Muslims in the population. Then, interpreting the OLS estimates in Columns 1-7 causally, replacing that country's inhabitants with all Muslims—but changing nothing else—would decrease the Freedom House index of democracy substantially. The lowest estimate, in Model 4, is a third of a standard deviation, and the highest, in Model 1, is a two-thirds of a standard deviation decrease in democracy. In contrast, interpreting the 2SLS estimates in Columns 8-14 causally, the same thought experiment yields dramatically different findings. Our only estimated negative effect of Islam is also in the specification corresponding to Model 1, but the effect is much smaller at a fifth of a standard deviation (see column 8). More strikingly, in every other specification, we find the opposite effect—that replacing a non-Muslim country's inhabitants with all Muslims actually increases the democracy index, with most specifications representing more than a standard deviation increase in the Freedom House score, with the largest estimate (in Column 6) indicating that replacing our imaginary country with all Muslims—but making no other changes—would increase its Freedom House score by a remarkable two standard deviations.

The results reported in Table 4 replicate the models from Table 2, but now include a measure of latitude. Including latitude is especially important in our setting because our instrumental variable strategy is geographically defined. We therefore want to be sure that the distance measure we are using is not accidentally proxying for latitude, which may itself independently affect democratic institutions. This possibility is of special concern because there is a large literature suggesting that latitude is a good predictor of income through its effect on disease and/or climate environments.

---

<sup>27</sup>This suggests the need to construct a higher quality historically valid measure of distance that better predicts Islam. The development of such a measure will be discussed below in the conclusion.



Once latitude is included in the regression equations, we see that the patterns established in Table 2 continue to hold. In the OLS models, the coefficient on Islam does not change substantially. In the IV models, the effect of Islam once again flips to having a strongly positive effect on democracy, although these results are not statistically significant. Moving to Table 5, we see that the inclusion of latitude as a regressor does also draw power away from our instrument. Comparing the F-statistics in Table 5 to those in Table 3, we see a weakening of the coefficients. In specifications 2 through 7 (still in Table 5), although the coefficient on Distance from Mecca continues to point in the same direction—it is associated with a decrease in Muslim population—the instrument remains weak. Thus, although the IV estimates reported in Table 4 imply a positive effect of Islam on democracy, the weakness of the instrument renders any conclusions necessarily tentative.

We turn now to Table 6, which again replicates the OLS and IV models from Tables 4, but which replaces Donno and Russett’s Freedom House democracy score from the late 1990s with an updated score (averaged over 2000 to 2008) as the dependent variable. Using this updated data, we see that the negative OLS coefficients on Islam are cut approximately in half, without an increase in standard errors; furthermore, they are no longer significant. This in itself is an interesting result, given the consistent negative associations between Islam and democracy found in the earlier OLS estimates. With respect to the IV models, the patterns established in Tables 2 and 4 continue to hold: the estimated effect of Islam flips direction, and the coefficients are substantively large. That said, as shown in Table 7, the first stage results are identical, so the same concerns about weak instruments hold here as well.

### **5.2.2 Robustness**

In this section, we approach the question of the causal impact of Islam on democracy using the same identification strategy, but check for the robustness of our previous results by using different data and different specifications. First, we expand the number of countries in our sample to 191, as opposed to the 156 used in previous studies. This represents the entire universe of Freedom House countries currently available. Second, we use updated versions of all the control variables. Third,

we follow Fish (2002) in using a dichotomous measure of the Islam variable, although we continue to prefer the continuous measure for the reasons explicated by Donno and Russett (2004).

In the following specifications, which follow those in Fish's Table 3, average Freedom House scores for 2000 to 2008 are regressed on a majority Muslim dummy and a number of control variables. These control variables include: economic development (log GDP per capita 2005), latitude, previous experience with democracy, a dummy for current or former membership in OPEC, level of ethnic fractionalization, and dummies for former British and Soviet colonization.<sup>28</sup>

The results reported in columns 1 through 5 of Table 7 are the OLS estimates, while the results reported in columns 6 through 10 report the IV estimates. As with the Donno and Russett specifications, in Table 7 we see that including latitude and previous experience with democracy cuts the estimated effect of Islam in half, even in the OLS. Whereas Fish's point estimates on Islam range from -1.68 to -1.24, ours range from -0.58 to -0.74. And, similar to the replication of Donno and Russett's models, we see that the IV strategy flips the sign of the estimated effects of Islam from negative to positive, although again the results are not statistically significant. When we examine the first stage in Table 8, we see that, as with the continuous measure of Islam, the dichotomous Muslim majority indicator is negatively associated with distance (ie, it is relevant). However, the F-statistic on the excluded instrument is once again low, and as with the Donno and Russett specifications, these regressions are therefore suspect due to the weak inference problem (although the instrument remains statistically significant in models 1 through 3).

### 5.3 Panel Estimation

We turn now to our second strategy, one which uses panel data to obtain estimates of the effects of Islam on democracy. Here, we broadly follow the strategy of Acemoglu et al. (2008), who in their study of the relationship between income and democracy utilize fixed effects models, as well

---

<sup>28</sup>Fish's original specifications did not include either latitude or previous experience with democracy. We include these regressors for the reasons explicated above: latitude helps establish the validity of our exclusion restriction (ie, that our distance measure is related to democracy only through the channel of Islam), and previous experience with democracy captures whether it is Islam or a general historical influence of autocracy operating to reduce the current level of democracy.

as a series of alternative estimation strategies aimed at addressing potential biases introduced by the presence of a lagged dependent variable. Tables 9 and 10 reports estimates of the effect of changes in Islamic population on democracy, in models which additionally include a five-year lag of democracy, GDP per capita, total population and natural resource rents. Table 9 reports results for Freedom House scores for 1975 to 2005, while Table 10 uses Polity scores for the same period. The models in this section use data from 1970 to 2010, with each observation corresponding to five-year intervals.

Starting with Table 9, in columns 1 and 2 we see the simple bivariate regression of democracy on Islam when the data are pooled as a cross-section time series. This OLS estimator produces positive but very small (nearly zero) effect of changes in Islam on changes in democracy, with a coefficient of .0006 for the Freedom House score. In contrast, when we control for time-invariant differences across countries by implementing country and year fixed effects in columns 3 and 4, we find a far stronger effect: an increase in percent Muslim is associated with a substantial and statistically significant increase in democracy scores. Following our thought experiment from earlier, if we took a country whose population was full of non-Muslims and replaced it with one that was 100 percent Muslim, in this fixed effects model, the Freedom House score would increase by more than percent.

Because democracy is highly persistent over time, in the pooled OLS and fixed effects models reported in columns 1 through 4, we included the lagged value of democracy as a regressor in our analysis. However, in fixed effects specifications, the difference of the lagged democracy variable is likely to be correlated with the difference of the error term, causing biased estimations of the impact of Islam. To address this problem, we follow Acemoglu et al. (2008) in estimating several additional models. First, we implement the instrumental variable technique developed by Anderson and Hsiao (1982). Here, we time difference the model specified in equation 2 to eliminate the problem of correlation between the lagged endogenous variable and the country-specific fixed effect, and then use differences as instruments for the other right-hand-side variables. Second, we use Arellano-Bond's generalized methods of moments (GMM) (Arellano and Bond, 1991). This

method takes first-differences to remove time-invariant country-specific effects, and then instruments the right-hand-side variables using levels of the series lagged multiple periods; the assumption here is that there is no serial correlation of time-varying disturbances in the original levels equations.<sup>29</sup> As with the fixed effects models, the coefficients using the Anderson-Hsiao and the Arellano-Bond procedures (reported in columns 5 through 8) both provide positive estimates of the relationship between changes in income and democracy.

We see a similar set of results in Table 10, which uses Polity rather than Freedom House measures of democracy. As with the FH results, the pooled OLS results suggest a nearly zero effect of changes in Islam on changes in democracy (the coefficient in column (2) is a mere .008). However, the fixed effect models reported in columns (3) and (4) suggest a strong and positive relationship between changes in the percent of muslims in a population and changes in democracy. These FE results are, moreover, buttressed by the Andersen-Hsiao and GMM estimates reported in columns (5) through (8).

Broadly speaking, then, the panel estimation results reflect the same pattern we have seen in the instrumental variables strategy, but yields stronger results. All of our estimates of the effect of Islam on democracy are positive, indicating that increases in a country's Muslim population are associated with increases in its democracy score.

## 6 Conclusion

Discovering whether, and the extent to which, a particular religion may be inherently antithetical to the development of liberal democratic institutions is of crucial consequence for the nature of American foreign policy, as well as for our understanding of the development of political institutions more broadly. Existing quantitative cross-country research has consistently found that Islam

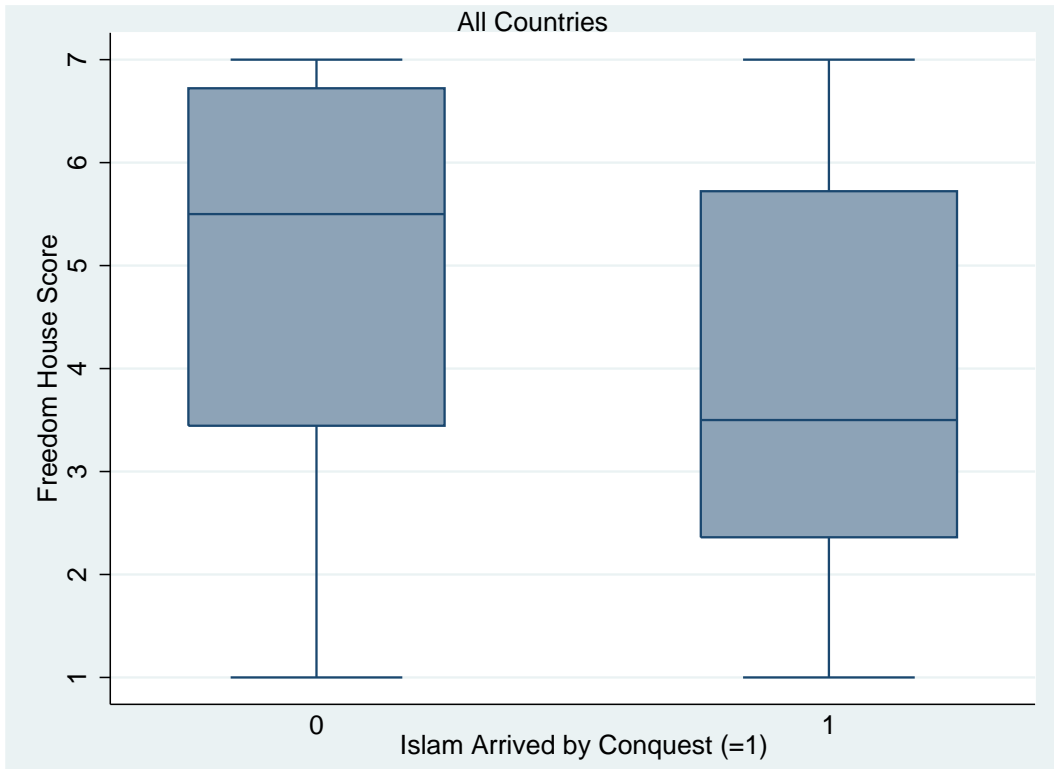
---

<sup>29</sup>Some recent studies on the relationship between income and democracy advocate using a system GMM estimator when the dependent variable is highly persistent over time, as is democracy. However, the system-GMM method is valid only if the time-differenced instruments are orthogonal to the country fixed effect, which is unlikely to be the case when including five-year growth rates in covariates such as income and oil rents. Moreover, recent econometric studies suggest that system GMM estimators also suffer from weak instrument problems in finite samples (Bun and Windmeijer, 2010; Bazzi and Clemens, 2013), and that it is preferable to use 'common' fixed effects (Sarafidis and Robertson, 2009). For these reasons, we do not include these additional instruments.

is strongly associated with authoritarian forms of governance. In this paper, in contrast, we find no support for this result. Instead, our positive point estimates for the coefficient on Islam across both the instrumental variables and panel fixed effects research designs suggest that omitted variables may be spuriously driving the observed relationship.

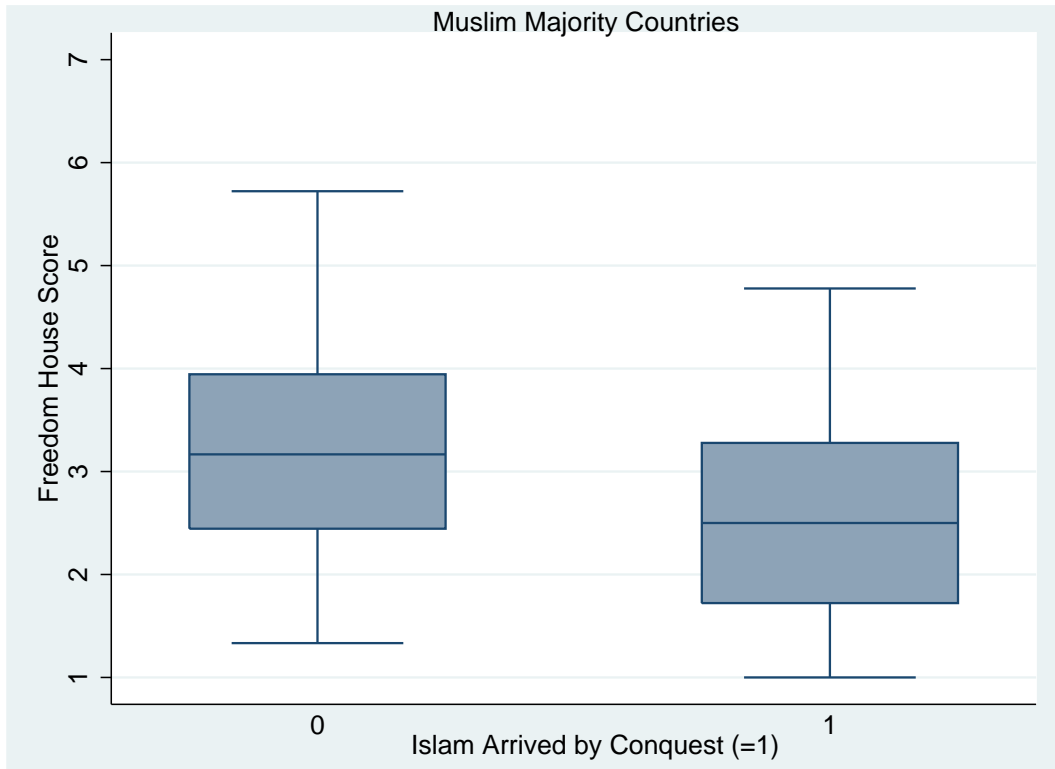
We are currently pursuing two further lines of investigation. First, we are in the process of expanding our panel dataset to include a wider range of years. The World Religion Database and Kettani (2010) both provide a wealth of historical data on religious adherence going back to the late 19th century. Although coverage of countries and years is uneven, assembling this data would enable us to investigate the relationship between Islam and democracy over a longer period through the implementation of an unbalanced panel analysis, insofar as our findings have indicated that increasing sample size changes the magnitude and even the direction of the estimated effect of Islam on democracy.

Second, we are currently constructing a higher quality measure of distance to predict Islam. While the measure we have already collected—the great circle distance—is plausible and empirically predicts the global distribution of Islam well, it does not incorporate differences in transport cost across terrain types. For instance, traveling across rugged terrain would have incurred a greater cost to ancient and medieval travelers (Nunn and Puga, 2009). Historically valid measures of travel costs are likely to produce improved predictors of the spread of Islam, which in turn would enable more credible estimation of Islam's effects. We are currently in the process of using historical GIS information on old world trade routes to generate new distance measures that incorporate the differences in travel costs of small-scale terrain irregularities in a way that reflects differences in efficiency of transport options in the time of the early spread of Islam.



Note: The vertical axis depicts the Freedom House score in each country in our sample, obtained by averaging figures from 2000, 2005 and 2010. The horizontal axis indicates whether Islam arrived via conquest or commercial ties. Sources: Freedom House (2010); World Religion Database (2010); own calculations.

Figure 1: Islam's Arrival and Contemporary Patterns of Democracy



Note: The vertical axis depicts the Freedom House score in each Muslim-majority country, obtained by averaging figures from 2000, 2005 and 2010. The horizontal axis indicates whether Islam arrived via conquest or commercial ties. Sources: Freedom House (2010); World Religion Database (2010); own calculations.

Figure 2: Islam's Arrival and Contemporary Patterns of Democracy: Muslim-Majority Countries

	Muslim Majority	Not Muslim Majority	Overall
	Mean	Mean	Mean
	(s.e.)	(s.e.)	(s.d.)
Fraction Muslim	0.84 (0.02)	.05*** (.01)	.24 (.35)
Miles from Mecca ('000s)	2.04 (.18)	4.41*** (.21)	3.86 (2.54)
Freedom House democracy score	2.86 (.17)	5.23*** (.15)	4.68 (1.93)
Polity democracy score	-2.22 (.86)	5.28*** (.51)	3.32 (6.43)
log GDP per capita (2005 \$PPP)	8.41 (.17)	8.80* (.10)	8.71 (1.21)
Fuel exports (fraction of GDP)	.16 (.03)	.03*** (.01)	.06 (.13)
Previous experience with democracy	2.55 (.14)	4.56*** (.15)	4.09 (1.85)
Fatal militarized disputes (MIDs)	.91 (.18)	.37*** (.07)	.51 (.92)
Democracy in neighborhood	3.24 (.17)	4.91*** (.12)	4.52 (1.52)
Ethnic fractionalization	.53 (.04)	.41*** (.02)	.44 (.26)
Arab League member (=1)	.44	0***	0.1
Latitude	24.18 (2.03)	17.47** (2.17)	19.04 (24.18)
Total population ('000s)	26537 (6832)	35802 (11791)	33642 (127481)
Obs.	45	148	193

Notes: Variables and their construction are described in Table 13. Statistics for comparing Muslim majority and non-Muslim majority countries come from two sample t-tests with unequal variances. Statistical significance: \* 10% ; \*\* 5% ; \*\*\* 1%.

Table 1: Summary Statistics



	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	IV Model 1	IV Model 2	IV Model 3	IV Model 4	IV Model 5	IV Model 6	IV Model 7
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Islamic population (%)	-1.24*** (.31)	-.93** (.37)	-.80** (.38)	-.62 (.39)	-.78** (.38)	-.76** (.39)	-.79** (.38)	-.37 (1.14)	.78 (1.89)	2.64 (2.49)	2.88 (2.48)	2.30 (2.25)	3.72 (2.77)	2.55 (2.48)
log per capita GDP <sub>1990</sub>	.77*** (.20)	.83*** (.20)	.84*** (.21)	.59** (.28)	.83*** (.22)	.82*** (.21)	.84*** (.21)	.76*** (.21)	.93*** (.22)	1.02*** (.27)	.55* (.31)	.99*** (.27)	1.05*** (.29)	.97*** (.26)
Fuel exports	-2.27** (.91)	-2.00** (.91)	-1.91** (.97)	-1.34 (.96)	-2.48** (1.19)	-1.80* (.96)	-1.91** (.97)	-2.65** (1.04)	-2.03** (.95)	-1.94* (1.16)	-1.09 (1.15)	-2.58* (1.49)	-1.82 (1.27)	-1.94* (1.17)
Democratic neighbors	.08*** (.03)	.08*** (.02)	.08*** (.02)	.08*** (.03)	.07*** (.03)	.06*** (.02)	.08*** (.02)	.11** (.05)	.13** (.05)	.16** (.07)	.15** (.06)	.15** (.06)	.17** (.07)	.16** (.06)
Past exp. with democracy	.14*** (.04)	.14*** (.04)	.13*** (.04)	.14*** (.04)	.14*** (.05)	.12*** (.04)	.13*** (.04)	.15*** (.04)	.14*** (.04)	.13** (.05)	.16*** (.05)	.14** (.05)	.11* (.06)	.13** (.05)
Arab League member (=1)		-.59* (.35)	-.67* (.34)	-.75** (.37)	-.59 (.37)	-.53 (.33)	-.67* (.35)		-1.61 (1.14)	-2.72* (1.54)	-2.81* (1.50)	-2.42* (1.37)	-3.17* (1.70)	-2.57* (1.50)
MID Involvement			-.22*** (.09)	-.27** (.11)	-.22** (.09)	-.20** (.08)	-.22*** (.08)			-.36*** (.14)	-.48*** (.19)	-.34*** (.12)	-.38** (.15)	-.34** (.13)
Gender literacy gap (%)				-.02 (.01)							-.04* (.02)			
Sex ratio					-.01 (.02)							-.01 (.03)		
Women in Govt. (%)						.04** (.02)							.05** (.02)	
Women in Parliament (%)							.0002 (.01)							.01 (.02)
Constant	1.50*** (.55)	1.29** (.56)	1.40** (.57)	2.33*** (.89)	2.55 (2.49)	1.13* (.58)	1.40** (.58)	1.21** (.61)	.56 (.90)	.03 (1.07)	1.90* (.99)	1.48 (2.87)	-.71 (1.23)	.05 (1.08)
Obs.	156	156	156	149	154	156	156	156	156	156	149	154	156	156
R <sup>2</sup>	.65	.65	.66	.66	.67	.68	.66	.63	.6	.47	.46	.5	.34	.48
F statistic	103.88	90.15	80.48	65.12	68.7	73.48	71.73	82.67	74.85	51.29	45.46	47.97	38.16	44.67

Notes: The dependent variable is liberal democracy, measured by the Freedom House score (1-7, increasing in quality). Columns 1-7 are OLS regressions replicating Models 2-8 from Table 1 in Donno and Russett (2004). Columns 8-14 reproduce the same specifications as the second stage in 2SLS, where percentage of the population that is Muslim is instrumented using distance from Mecca. All specifications report Huber-White robust standard errors. Statistical significance: \* 10% ; \*\* 5% ; \*\*\* 1%.

Table 2: Replication of Donno and Russett (2004) with IV

	IV Model 1	IV Model 2	IV Model 3	IV Model 4	IV Model 5	IV Model 6	IV Model 7
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Distance from Mecca (1000s mi.)	-.04*** (.008)	-.02*** (.007)	-.02*** (.006)	-.02*** (.006)	-.02*** (.007)	-.02*** (.007)	-.02*** (.006)
log per capita GDP <sub>1990</sub>	-.03 (.05)	-.08** (.04)	-.07* (.04)	-.006 (.05)	-.07* (.04)	-.07* (.04)	-.06 (.04)
Fuel exports	.48* (.26)	.07 (.19)	.05 (.19)	-.02 (.19)	.04 (.28)	.05 (.19)	.05 (.19)
Democratic neighbors	-.03*** (.006)	-.02*** (.006)	-.02*** (.006)	-.02*** (.006)	-.02*** (.006)	-.02*** (.006)	-.02*** (.006)
Past exp. with democracy	.001 (.008)	.006 (.007)	.005 (.007)	.001 (.007)	.004 (.008)	.005 (.007)	.007 (.008)
Arab League member (=1)		.56*** (.06)	.57*** (.06)	.56*** (.07)	.55*** (.07)	.57*** (.07)	.54*** (.07)
MID Involvement			.03 (.02)	.05** (.03)	.03 (.02)	.03 (.02)	.03 (.02)
Gender literacy gap (%)				.006* (.003)			
Sex ratio					.003 (.004)		
Women in Govt. (%)						-.0007 (.003)	
Women in Parliament (%)							-.004 (.003)
Constant	.55*** (.14)	.55*** (.12)	.51*** (.12)	.23 (.16)	.26 (.43)	.52*** (.12)	.52*** (.12)
Obs.	156	156	156	149	154	156	156
R <sup>2</sup>	.41	.58	.59	.6	.57	.59	.59
e(II)	26.09	13.01	11.08	11.78	10.57	9.38	10.67
F statistic	29.37	144.08	116.73	99.92	82.68	101.47	104.84

Notes: This is the first stage, corresponding to columns 8-14 of Table 2. The dependent variable is percentage of the population that is Muslim. All specifications report Huber-White robust standard errors. Statistical significance: \* 10% ; \*\* 5% ; \*\*\* 1%.

Table 3: Replication of Donno and Russett (2004): First Stage

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	IV Model 1	IV Model 2	IV Model 3	IV Model 4	IV Model 5	IV Model 6	IV Model 7
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Islamic Population (%)	-1.26*** (.32)	-.94** (.39)	-.86** (.39)	-.67* (.40)	-.84** (.40)	-.84** (.40)	-.87** (.39)	-.14 (1.67)	3.60 (5.60)	6.04 (7.56)	6.12 (7.14)	5.00 (6.03)	8.30 (9.24)	5.93 (7.52)
log per capita GDP <sub>1990</sub>	.72*** (.24)	.80*** (.25)	.75*** (.26)	.53* (.31)	.75*** (.27)	.70*** (.26)	.75*** (.26)	.78*** (.26)	1.36* (.73)	1.54* (.91)	.77* (.47)	1.42* (.75)	1.74 (1.10)	1.45* (.83)
Fuel exports	-2.18** (.95)	-1.95** (.95)	-1.76* (1.00)	-1.23 (.99)	-2.43** (1.20)	-1.61 (.99)	-1.76* (1.01)	-2.80** (1.36)	-2.57* (1.42)	-2.57 (1.74)	-1.36 (1.49)	-2.98 (2.01)	-2.65 (2.05)	-2.58 (1.76)
Democratic neighbors	.09*** (.03)	.09*** (.03)	.08*** (.02)	.08*** (.03)	.08*** (.03)	.07*** (.03)	.08*** (.03)	.13** (.06)	.19 (.14)	.24 (.18)	.20 (.14)	.20 (.14)	.27 (.21)	.23 (.17)
Past exp. with democracy	.14*** (.04)	.13*** (.04)	.14*** (.04)	.15*** (.04)	.14*** (.05)	.13*** (.04)	.14*** (.04)	.15*** (.04)	.11 (.07)	.10 (.08)	.15** (.07)	.12 (.07)	.07 (.09)	.09 (.09)
Arab League member (=1)		-.59* (.36)	-.63* (.35)	-.73* (.38)	-.58 (.37)	-.47 (.34)	-.64* (.36)		-3.29 (3.35)	-4.75 (4.54)	-4.69 (4.18)	-3.94 (3.49)	-5.89 (5.49)	-4.46 (4.29)
MID Involvement			-.23** (.10)	-.28*** (.11)	-.22** (.10)	-.21** (.10)	-.23** (.10)			-.40 (.26)	-.60* (.35)	-.36* (.20)	-.45 (.31)	-.37 (.24)
Gender literacy gap (%)				-.02 (.01)							-.06 (.05)			
Sex ratio					-.008 (.02)							-.03 (.04)		
Women in Govt. (%)						.04** (.02)							.05 (.03)	
Women in Parliament (%)							-.0009 (.01)							.03 (.04)
Latitude	.002 (.004)	.001 (.004)	.004 (.004)	.003 (.004)	.003 (.005)	.004 (.004)	.004 (.005)	-.0008 (.006)	-.01 (.02)	-.01 (.02)	-.01 (.02)	-.01 (.02)	-.02 (.02)	-.01 (.02)
Constant	1.63** (.63)	1.38** (.66)	1.61** (.68)	2.44*** (.94)	2.36 (2.51)	1.38** (.68)	1.61** (.69)	1.11 (.96)	-1.15 (3.16)	-2.03 (4.03)	1.06 (1.87)	1.12 (3.80)	-3.49 (5.04)	-2.05 (4.07)
Obs.	155	155	155	149	153	155	155	155	155	155	149	153	155	155
R <sup>2</sup>	.65	.66	.67	.66	.67	.68	.67	.62	.32	-.1	-.05	.11	-.67	-.06
F statistic	85.95	76.86	69.59	58.34	60.79	64.51	63.05	66.26	40.86	24.59	23.92	26.45	15.71	21.99

Notes: Identical to Table 2, except that latitude has been added as a regressor. All specifications report Huber-White robust standard errors. Statistical significance: \* 10% ; \*\* 5% ; \*\*\* 1%.

Table 4: Replication of Donno and Russett with IV and Latitude

	IV Model 1	IV Model 2	IV Model 3	IV Model 4	IV Model 5	IV Model 6	IV Model 7
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Distance from Mecca ('000s mi.)	-.03*** (.01)	-.01 (.008)	-.01 (.008)	-.01 (.008)	-.01 (.008)	-.009 (.008)	-.01 (.008)
log per capita GDP <sub>1990</sub>	-.06 (.05)	-.12*** (.04)	-.11*** (.04)	-.04 (.05)	-.11*** (.04)	-.11*** (.04)	-.10** (.04)
Fuel exports	.53** (.26)	.14 (.18)	.12 (.18)	.03 (.18)	.09 (.26)	.12 (.18)	.13 (.18)
Democratic neighbors	-.03*** (.006)	-.02*** (.006)	-.02*** (.006)	-.02*** (.006)	-.02*** (.006)	-.02*** (.006)	-.02*** (.006)
Past exp. with democracy	.002 (.008)	.007 (.007)	.007 (.008)	.002 (.007)	.005 (.008)	.007 (.007)	.008 (.008)
Arab League member (=1)		.58*** (.06)	.58*** (.06)	.57*** (.06)	.56*** (.07)	.58*** (.06)	.55*** (.06)
MID Involvement			.02 (.03)	.04* (.02)	.02 (.03)	.02 (.03)	.02 (.03)
Gender literacy gap (%)				.006* (.003)			
Sex ratio					.004 (.005)		
Women in Govt. (%)						-.0005 (.003)	
Women in Parliament (%)							-.004* (.003)
Latitude	.001 (.001)	.002*** (.0008)	.002*** (.0008)	.002** (.0009)	.002*** (.0009)	.002*** (.0008)	.002*** (.0008)
Constant	.57*** (.14)	.59*** (.12)	.56*** (.12)	.24 (.16)	.19 (.43)	.56*** (.12)	.57*** (.12)
Obs.	155	155	155	149	153	155	155
R <sup>2</sup>	.41	.59	.6	.61	.58	.6	.6
F statistic of excluded instruments	11.06	1.88	1.49	1.74	1.93	1.28	1.57
F statistic	24.2	117.04	100.31	90.41	71.69	88.67	93.65

Notes: Identical to Table 3, except that latitude has been added as a regressor. All specifications report Huber-White robust standard errors. Statistical significance: \* 10% ; \*\* 5% ; \*\*\* 1%.

Table 5: Replication of Donno and Russett with Latitude: First Stage

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	IV Model 1	IV Model 2	IV Model 3	IV Model 4	IV Model 5	IV Model 6	IV Model 7
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Islamic Population (%)	-91*** (.32)	-43 (.39)	-38 (.40)	-19 (.40)	-37 (.40)	-36 (.40)	-37 (.41)	.47 (1.78)	5.38 (6.35)	7.59 (8.42)	7.67 (7.88)	6.58 (6.81)	10.37 (10.60)	7.46 (8.32)
log per capita GDP <sub>1990</sub>	.84*** (.23)	.96*** (.23)	.92*** (.24)	.77** (.31)	.92*** (.25)	.87*** (.24)	.91*** (.25)	.91*** (.25)	1.67** (.80)	1.83* (1.00)	1.05** (.50)	1.72** (.83)	2.09* (1.25)	1.72* (.90)
Fuel exports	-2.68*** (.92)	-2.34*** (.89)	-2.21** (.93)	-1.71* (.92)	-2.82** (1.21)	-2.02** (.92)	-2.21** (.94)	-3.44** (1.39)	-3.14** (1.56)	-3.14* (1.87)	-1.86 (1.64)	-3.48 (2.34)	-3.23 (2.29)	-3.15* (1.89)
Democratic neighbors	.10*** (.02)	.09*** (.02)	.09*** (.02)	.09*** (.03)	.09*** (.03)	.07*** (.03)	.09*** (.02)	.14** (.07)	.23 (.16)	.27 (.21)	.24 (.16)	.24 (.16)	.32 (.25)	.26 (.20)
Past exp. with democracy	.12*** (.04)	.11*** (.04)	.11*** (.04)	.12*** (.04)	.11** (.04)	.09** (.04)	.11** (.04)	.12*** (.04)	.07 (.07)	.07 (.08)	.11 (.07)	.08 (.08)	.03 (.10)	.05 (.09)
Arab League member (=1)		-.87** (.37)	-.90** (.37)	-1.01*** (.39)	-.87** (.38)	-.70** (.36)	-.88** (.37)		-4.33 (3.81)	-5.65 (5.07)	-5.59 (4.61)	-4.86 (3.96)	-7.05 (6.30)	-5.28 (4.75)
MID Involvement			-.16 (.11)	-.23* (.12)	-.16 (.11)	-.15 (.11)	-.16 (.11)			-.37 (.28)	-.59 (.39)	-.33 (.23)	-.42 (.35)	-.32 (.26)
Gender literacy gap (%)				-.01 (.01)							-.06 (.06)			
Sex ratio					-.004 (.03)							-.03 (.04)		
Women in Govt. (%)						.05*** (.01)							.06 (.04)	
Women in Parliament (%)							.004 (.01)							.04 (.04)
Latitude	.0006 (.005)	-.0007 (.005)	.0009 (.005)	.0008 (.005)	.0006 (.005)	.002 (.005)	.0008 (.005)	-.003 (.007)	-.02 (.02)	-.02 (.02)	-.02 (.02)	-.02 (.02)	-.02 (.03)	-.02 (.02)
Constant	1.44** (.60)	1.08* (.62)	1.24* (.64)	1.81* (.95)	1.60 (2.58)	.97 (.64)	1.23* (.64)	.81 (.96)	-2.17 (3.53)	-2.96 (4.45)	.22 (2.04)	.13 (4.34)	-4.75 (5.77)	-2.99 (4.46)
Obs.	155	155	155	149	153	155	155	155	155	155	149	153	155	155
R <sup>2</sup>	.62	.63	.64	.63	.64	.66	.64	.58	.08	-.4	-.33	-.16	-1.22	-.34
F statistic	76.98	73.57	65.38	56.11	55.34	56.89	59.21	62.23	30.96	19.75	19.36	20.52	11.73	17.68

Notes: Identical to Table 4, except that the dependent variable is the updated Freedom House score (average of Political Rights and Civil Liberties from 2000 to 2008). All specifications report Huber-White robust standard errors. Statistical significance: \* 10% ; \*\* 5% ; \*\*\* 1%.

Table 6: Replication of Donno and Russett with Updated Democracy Score

	Model 1	Model 2	Model 3	Model 4	Model 5	IV Model 1	IV Model 2	IV Model 3	IV Model 4	IV Model 5
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Majority Muslim (=1)	-.74*** (.23)	-.68*** (.23)	-.64*** (.23)	-.58** (.23)	-.58** (.23)	.04 (1.23)	.19 (1.31)	.11 (1.59)	.82 (1.94)	.67 (1.89)
Log GDP per capita (2005 USD PPP)	.04 (.08)	.08 (.09)	.10 (.09)	.10 (.09)	.10 (.09)	.009 (.11)	.07 (.10)	.08 (.11)	.06 (.11)	.07 (.11)
Latitude	-.001 (.004)	-.002 (.004)	-.002 (.004)	-.004 (.004)	-.006 (.004)	-.004 (.006)	-.005 (.006)	-.005 (.007)	-.01 (.009)	-.01 (.009)
Previous exp. with democracy	.80*** (.06)	.78*** (.07)	.79*** (.07)	.81*** (.07)	.82*** (.07)	.90*** (.17)	.88*** (.16)	.87*** (.19)	.98*** (.23)	.97*** (.23)
Current or former member of OPEC		-.50* (.28)	-.54* (.28)	-.51* (.29)	-.47 (.29)		-.73 (.45)	-.74 (.50)	-.86 (.56)	-.77 (.54)
Ethnic fractionalization			.21 (.29)	.24 (.28)	.25 (.28)			.17 (.32)	.17 (.35)	.20 (.33)
Former British colony (=1)				-.28* (.15)	-.25* (.15)				-.46* (.26)	-.41 (.26)
Post-communist (=1)					.28 (.29)					.31 (.32)
Constant	1.23** (.57)	1.01* (.58)	.73 (.65)	.75 (.64)	.67 (.65)	.97 (.66)	.62 (.75)	.46 (.76)	.28 (.83)	.25 (.82)
Obs.	191	191	186	186	186	191	191	186	186	186
R <sup>2</sup>	.74	.75	.75	.75	.75	.72	.72	.73	.69	.7
F statistic	226.8	191.8	154.9	140.02	124.65	225.38	191.16	156.54	125.49	115.31

Notes: The dependent variable is liberal democracy, measured by the Freedom House score (1-7, increasing in quality). Columns 1-5 are OLS regressions following Table 3 in Fish (2002), with updated data and including latitude and previous experience with democracy. Columns 6-10 reproduce the same specifications as the second stage in 2SLS, where the dummy variable indicating majority Muslim is instrumented using distance from Mecca. All specifications report Huber-White robust standard errors. Statistical significance: \* 10% ; \*\* 5% ; \*\*\* 1%.

Table 7: Robustness IV Results

	IV Model 1	IV Model 2	IV Model 3	IV Model 4	IV Model 5
	(1)	(2)	(3)	(4)	(5)
Distance from Mecca ('000s mi.)	-.03** (.01)	-.03** (.01)	-.02* (.01)	-.02 (.01)	-.02 (.01)
Log GDP per capita (2005 USD PPP)	.04 (.03)	.02 (.03)	.02 (.04)	.02 (.03)	.02 (.03)
Latitude	.002 (.001)	.002* (.001)	.002* (.001)	.003** (.001)	.003** (.001)
Previous exp. with democracy	-.11*** (.02)	-.10*** (.02)	-.10*** (.02)	-.10*** (.02)	-.11*** (.02)
Constant	.42* (.25)	.52** (.25)	.46 (.29)	.42 (.29)	.43 (.30)
Obs.	191	191	186	186	186
$R^2$	.29	.31	.31	.32	.32
$F$ statistic of excluded instruments	5.36	5.14	3.54	2.21	2.21
$F$ statistic	21.69	21.44	17.13	17.12	15.07

Notes: This is the first stage, corresponding to columns 6-10 of Table 7. The dependent variable is percentage of the population that is Muslim. All specifications report Huber-White robust standard errors. Statistical significance: \* 10% ; \*\* 5% ; \*\*\* 1%.

Table 8: Robustness IV Results: First Stage

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Pooled OLS	Pooled OLS	FE	FE	AH IV	AH IV	GMM	GMM
Islamic population <sub><i>t</i>-1</sub>	0.00 (0.00)	0.00 (0.00)	0.62** (0.24)	0.88*** (0.22)	1.22* (0.72)	4.88* (2.91)	0.92*** (0.31)	3.98** (1.67)
Democracy <sub><i>t</i>-1</sub>	0.84*** (0.02)	0.83*** (0.02)	0.49*** (0.04)	0.52*** (0.05)	0.24 (0.31)	0.19 (0.14)	0.35*** (0.13)	0.20* (0.12)
Log GDP <sub><i>t</i>-1</sub>	0.14*** (0.04)	0.17*** (0.04)	0.01 (0.10)	-0.06 (0.10)	-3.50 (2.60)	-1.73 (1.51)	-2.02*** (0.69)	-0.04 (0.76)
Log population <sub><i>t</i>-1</sub>		0.03* (0.02)		-0.27* (0.15)		-1.38 (1.16)		-0.82 (0.54)
Natural resource rents <sub><i>t</i>-1</sub>		-0.00*** (0.00)		0.00 (0.00)		0.00 (0.00)		0.00 (0.00)
Hansen <i>J</i> Test							[.02]	[.14]
AR(2) Test							[.59]	[.74]
Countries	157	152	157	152	156	152	156	152
Observations	954	792	954	792	796	514	795	513
<i>R</i> <sup>2</sup>	0.798	0.805	0.377	0.414	.	.	.	.

Table 10: Fixed Effects Results Using Freedom House Measure of Democracy

Note: Dependent variable is the Freedom House measure of democracy (1-7, increasing in quality). Columns 1 and 2 contain results from pooled cross-sectional OLS models, with robust standard errors clustered by country. Columns 3 and 4 report fixed effects OLS regressions with country dummies and robust standard errors clustered by country. Columns 5 and 6 use the instrumental variable method proposed by Andersen and Hsiao (1982) with clustered standard errors, while columns 7 and 8 use Arellano and Bond's GMM method with robust standard errors; in the GMM estimates we use the small-sample adjustment. All estimates are based on a balanced panel from 1970 through 2010. For details of variables, see Data Appendix.



	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Pooled OLS	Pooled OLS	FE	FE	AH IV	AH IV	GMM	GMM
Islamic population <sub><i>t</i>-1</sub>	0.00 (0.00)	0.01** (0.00)	2.95*** (0.55)	2.86*** (0.56)	4.26* (2.31)	4.76*** (1.70)	2.68*** (0.58)	4.77*** (0.77)
Democracy <sub><i>t</i>-1</sub>	0.84*** (0.02)	0.83*** (0.03)	0.48*** (0.05)	0.50*** (0.06)	0.51*** (0.17)	0.27** (0.11)	0.55*** (0.08)	0.25*** (0.09)
Log GDP <sub><i>t</i>-1</sub>	0.29** (0.13)	0.34*** (0.12)	-0.48 (0.42)	-0.53 (0.46)	-13.61 (8.89)	-0.14 (7.59)	-6.06*** (1.37)	1.04 (1.70)
Log population <sub><i>t</i>-1</sub>		0.10 (0.07)		0.16 (0.42)		0.66 (2.50)		0.99 (1.60)
Natural resource rents <sub><i>t</i>-1</sub>		-0.00*** (0.00)		0.00* (0.00)		-0.00 (0.00)		-0.00 (0.00)
Hansen <i>J</i> Test							[.01]	[.33]
AR(2) Test							[.79]	[.88]
Countries	146	145	146	145	146	145	146	145
Observations	1031	895	1031	895	882	628	882	628
<i>R</i> <sup>2</sup>	0.770	0.779	0.487	0.513	.	.	.	.

Table 12: Fixed Effects Results Using Polity Measure of Democracy

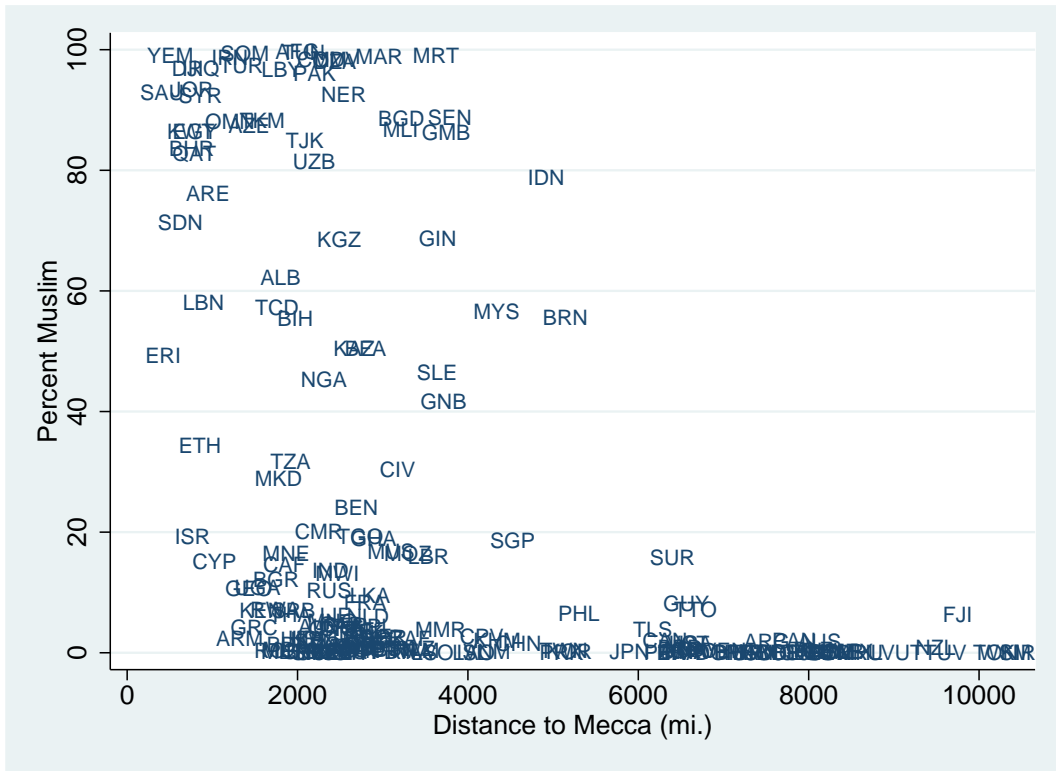
Note: Dependent variable is the Polity Measure of Democracy (-10 to 10, increasing in quality). Columns 1 and 2 contain results from pooled cross-sectional OLS models, with robust standard errors clustered by country. Columns 3 and 4 report fixed effects OLS regressions with country dummies and robust standard errors clustered by country. Columns 5 and 6 use the instrumental variable method proposed by Andersen and Hsiao (1982) with clustered standard errors, while columns 7 and 8 use Arellano and Bond's GMM method with robust standard errors; in the GMM estimates we use the small-sample adjustment. All estimates are based on a balanced panel from 1970 through 2010. For details of variables, see Data Appendix.

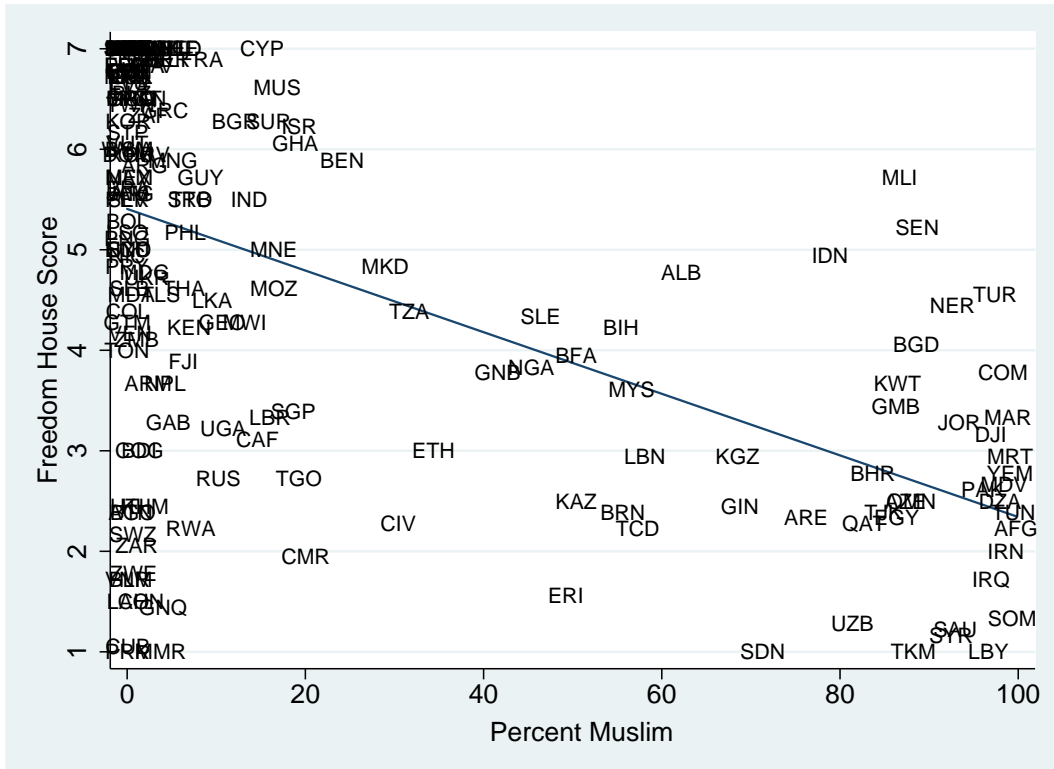
Table 13: Variables Used In Analysis

Variable	Description	Source
Freedom House Democracy Score	Average Freedom House composite score (average of political rights and civil liberties score), where scores are inverted so that 7 corresponds to highest level of democracy and 1 to autocracy. We use the mean of all non-missing democracy scores between 2000 and 2008.	Freedom House (2010). Bollen data from Acemoglu et al. (2008).
Polity Composite Democracy Index	Democracy score minus the autocracy score, averaged over 2000-2009. Range is -10 through 10, where -10 is the highest level of autocracy and 10 is the highest level of democracy.	Marshall and Jagers (2009)
Islamic Population	Adherents to Islamic faith as a percentage of population.	Data for 1975, 1980, 1990, and 1995 from Barrett (1982) and Barrett, Kurian and Johnson (2001); 1950, 1970, 2000, 2005, and 2010 data from Johnson and Grim (2010). Data for 1960 from Kettani (2010).
Muslim-Majority Country	Dummy variable indicating countries whose population was predominantly Islamic in 2010.	Johnson and Grim (2010)
Distance from Mecca	Great circle distance (miles) between Mecca and capital city of each country.	Online distance calculators found at <a href="http://www.infoplease.com">http://www.infoplease.com</a> (accessed February 2009); and <a href="http://timeanddate.com">http://timeanddate.com</a> (accessed July 2010).
Economic Development	Log of GDP per capita in 2005 U.S. dollars (PPP-adjusted).	Heston, Summers and Aten (2009)
Resource Dependence	Fuel exports (SITC class 3 mineral fuels) as a percentage of GDP.	World Bank (2010)
Previous Experience with Democracy	Average Freedom House composite score for 1972-1999, where scores are inverted so that 7 corresponds to highest level of democracy and 1 to autocracy.	Freedom House (2010)
Fractionalization	Measures of ethnic, religious and linguistic fractionalization. Computed as one minus the Herfindahl index of ethnic/religious/linguistic group shares.	Alesina et al. (2003)
Colonial Legacies	Dummy variables describing whether a country was colonized by the Ottomans, British, French, Spanish, Portuguese, Belgians, Dutch, Soviet Union, or other.	Norris (2008)
Fatal Militarized Disputes	Number of fatal militarized disputes that a country was involved in. Calculated for the 1990s and 2000s.	Ghosn, Palmer and Bremer (2004)
Degree of Democracy in Neighborhood	Average Democracy Score of contiguous states for 2000 to 2008. Contiguity is defined according to Correlates of War categories 1-4—countries that are either directly contiguous by land or contiguous by sea within 150 miles. Calculated with both FH and Polity scores.	Marshall and Jagers (2009), Freedom House (2010), and Stinnett et al. (2002)

Table 13: (cont.)

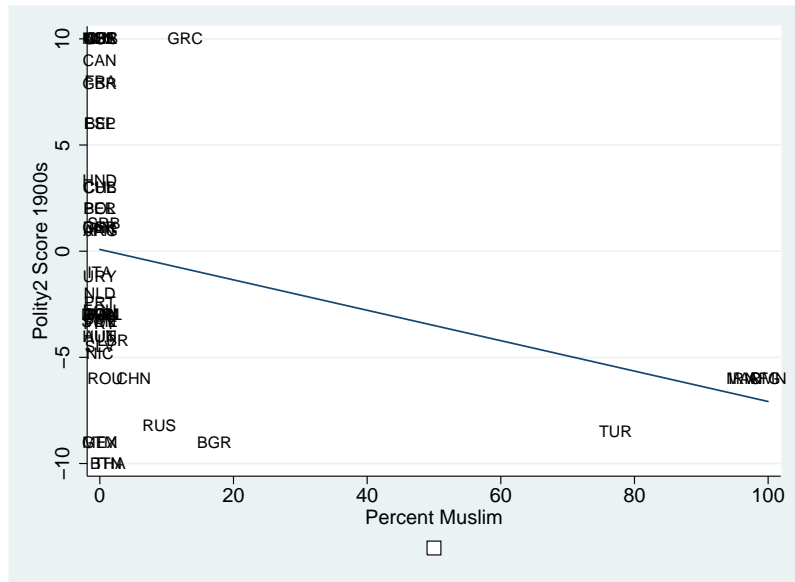
Variable	Description	Source
Arab League	Dummy variable for the twenty-one member states of the Arab League: Algeria, Bahrain, Comoros, Djibuti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, UAE, and Yemen.	Donno and Russett (2004)
Latitude	Latitude of the country centroid. For countries where the centroid falls in the ocean, it is moved to within the nearest land boundary.	Gallup, Sachs and Mellinger (1999). For missing countries, we use the latitude of the capital city, as provided by <a href="http://worldcaps.com">http://worldcaps.com</a> (accessed August 2010).
Other	Merging data from various sources was often complicated by the fact that nearly every cross-national dataset uses distinct country identifiers. We found Rafal Raciborski's <code>-kountry-</code> ado to be very helpful in the merging process.	Raciborski (2008)



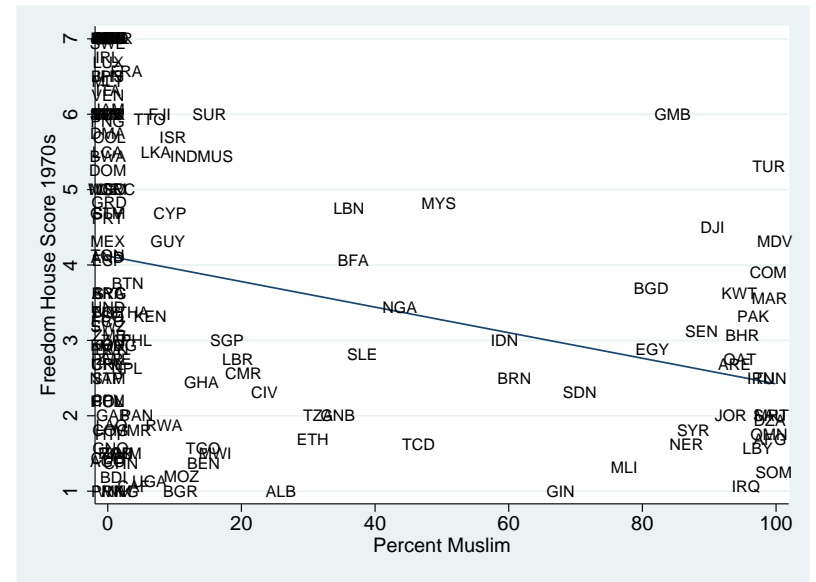


Note: The vertical axis depicts the composite Freedom House Score (political rights and civil liberties) averaged over 2000-2007. The score ranges from 1 (most unfree) to 7 (most free). Percentage of population that is Muslim in each country is averaged over 2000, 2005 and 2010. The regression line is from a bivariate fit. Sources: Freedom House (2010); World Religion Database (2010).

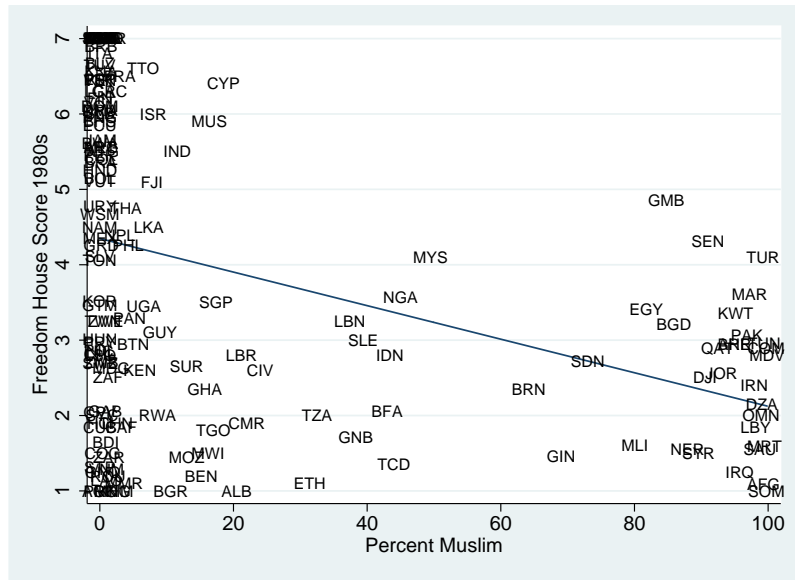
Figure 4: Islam and Democracy Score, 2000s



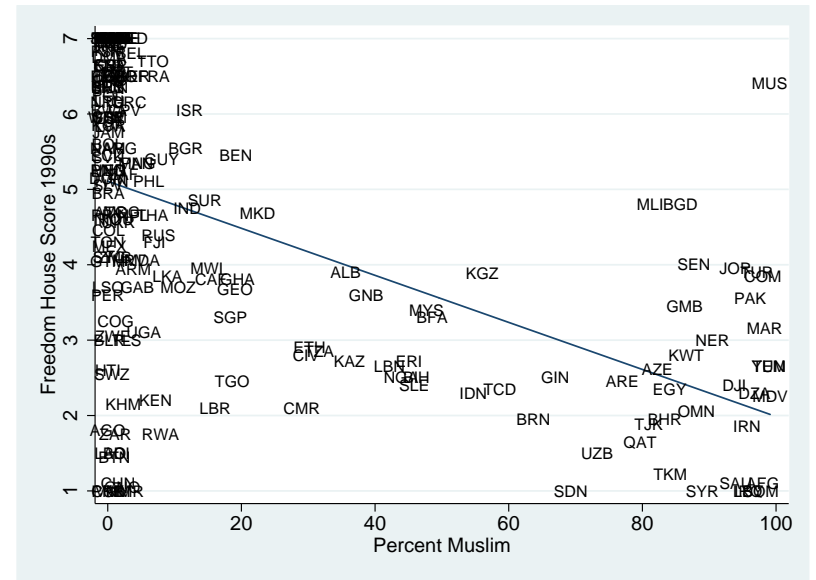
1900s



1970s

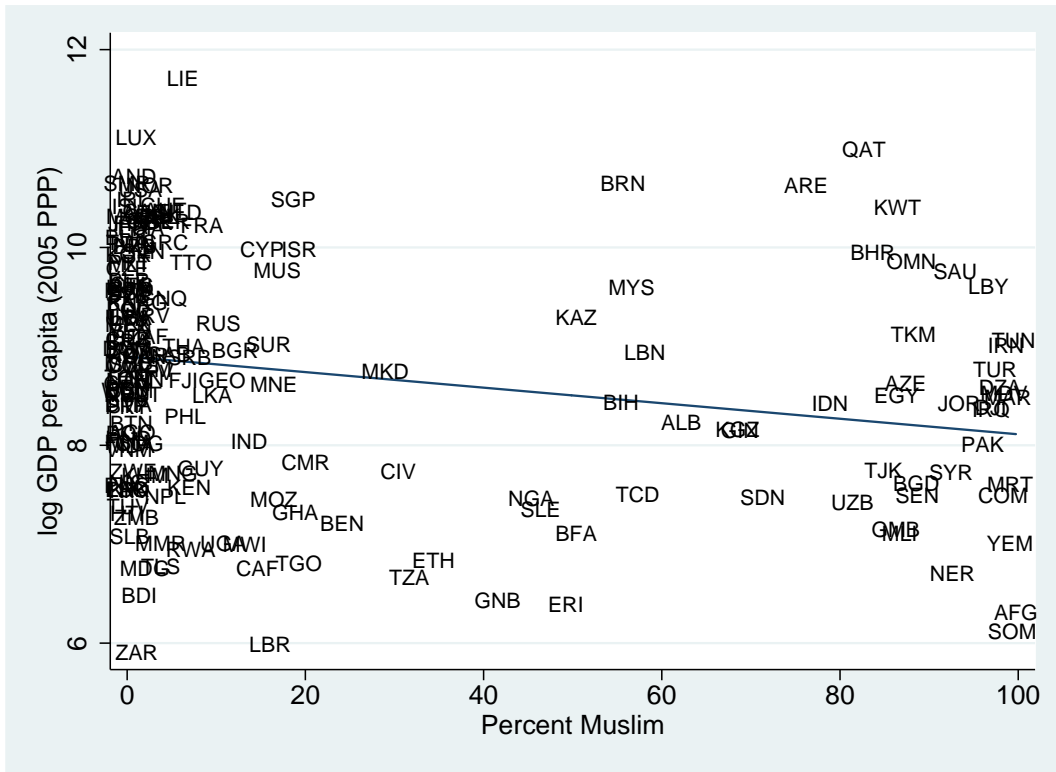


1980s



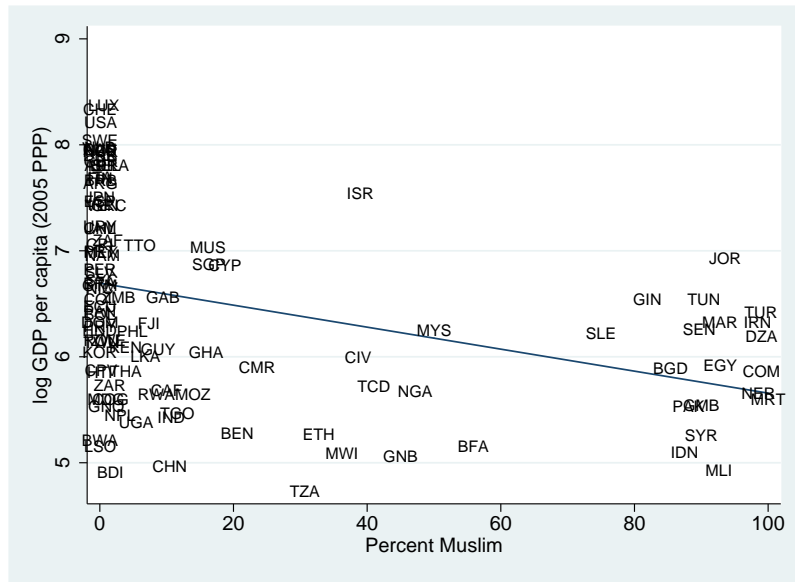
1990s

Figure 5: Historical Relationship Between Islam and Democracy

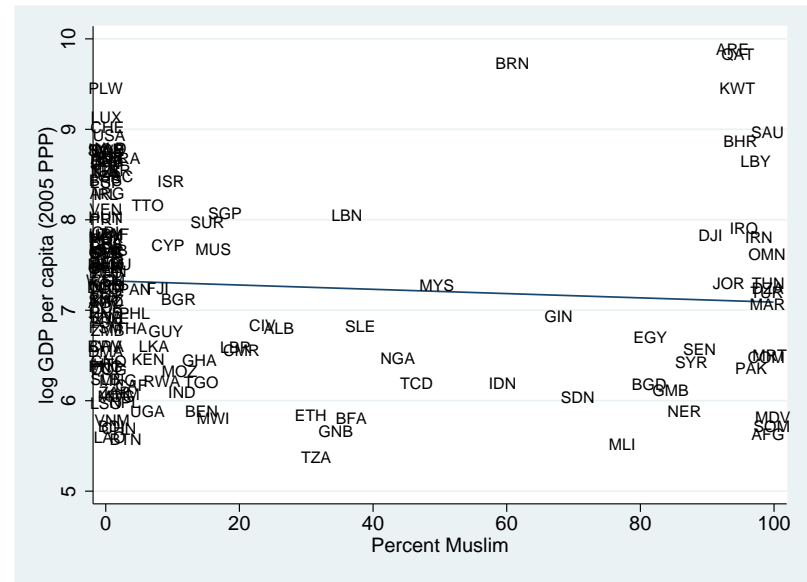


Note: The vertical axis depicts log of the average GDP per capita for 2002-2007. Percentage of population that is Muslim in each country, averaged over 2000, 2005 and 2010. Sources: Penn World Tables 6.3; World Religion Database (2010).

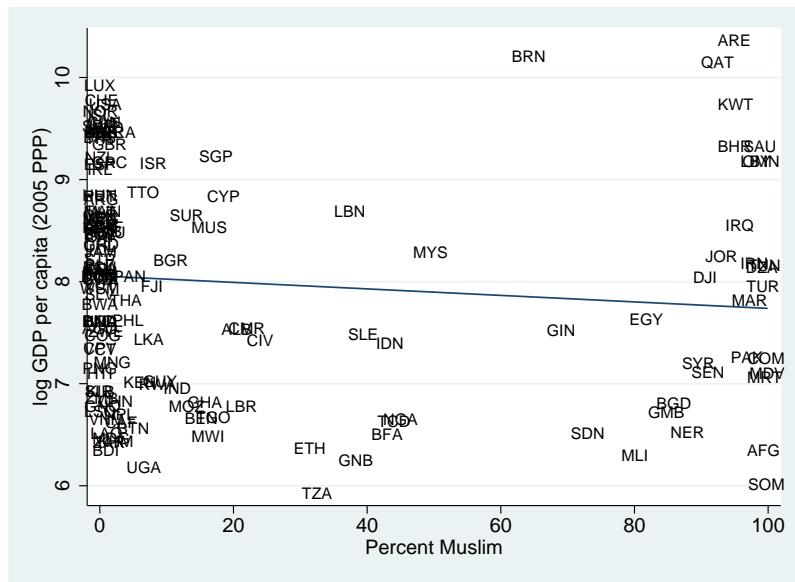
Figure 6: Islam and Economic Development, 2000s



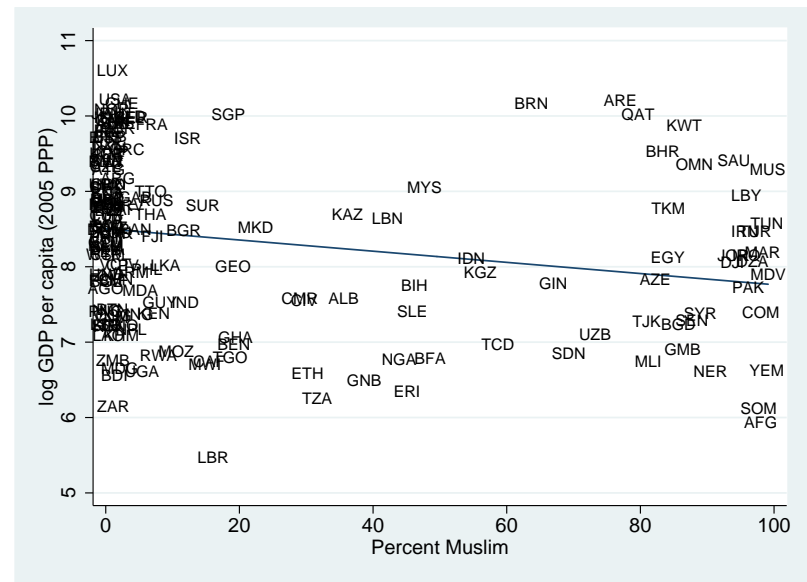
1960s



1970s



1980s



1990s

Figure 7: Historical Relationship Between Islam and Economic Development



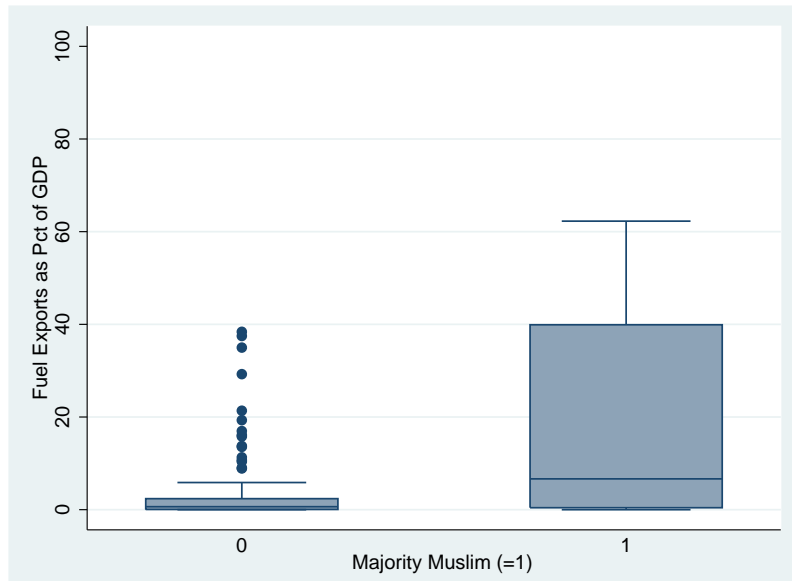


Figure 8: The vertical axis depicts fuel exports as a percent of GDP (2008 dollars). Muslim majority is a simple majority, where the population data is drawn from the World Religion Database. Sources: World Bank Development Indicators (2010); World Religion Database (2010).

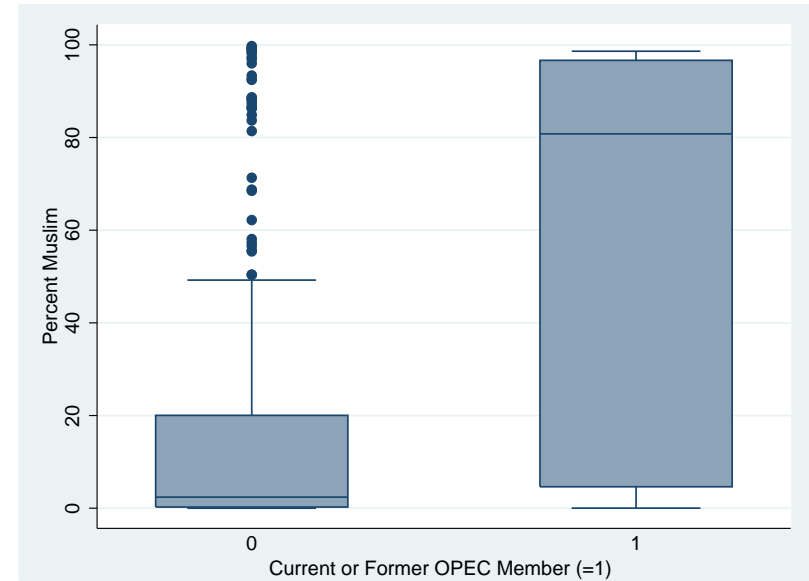


Figure 9: Vertical axis depicts percentage of population that is Muslim in each country, using average of 2000, 2005 and 2010 figures. Horizontal axis represents OPEC and non-OPEC members. Source: World Religion Database (2010).

## References

- Abootalebi, Ali R. 1999. "Islam, Islamists, and Democracy." *Middle East Review of International Affairs* 3(1).
- Acemoglu, Daron and James A. Robinson. 2006. *Economic Origins of Dictatorship and Democracy*. New York: Cambridge University Press.
- Acemoglu, Daron, Simon Johnson and James A. Robinson. 2001. "The Colonial Origins of Comparative Development: An Empirical Investigation." *American Economic Review* 91(5): 1369–1401.
- Acemoglu, Daron, Simon Johnson and James A. Robinson. 2002. "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution." *Quarterly Journal of Economics* 118: 1231–1294.
- Acemoglu, Daron, Simon Johnson and James A. Robinson. 2005. "The Rise of Europe: Atlantic Trade, Institutional Change and Growth." *American Economic Review* 95: 546–579.
- Acemoglu, Daron, Simon Johnson, James A. Robinson and Pierre Yared. 2008. "Income and Democracy." *American Economic Review* 98(3).
- Acemoglu, Daron, Tarek A. Hassan and James A. Robinson. forthcoming. "Social Structure and Development: A Legacy of the Holocaust in Russia." *Quarterly Journal of Economics*.
- Aghion, Philippe, Alberto Alesina and Francesco Trebbi. 2004. "Endogenous Political Institutions." *Quarterly Journal of Economics* 119(2): 565–611.
- al Braizat, Fares. 2002. "Muslims and Democracy: An Empirical Critique of Fukuyamas Culturalist Approach." *International Journal of Comparative Sociology* 43(3-5): 269–299.
- Alesina, Alberto, Arnaud Devleeschauwer, William Easterly, Sergio Kurlat and Romain Wacziarg. 2003. "Fractionalization." *Journal of Economic Growth* 8(June): 155–194.
- Almond, Gabriel and Sidney Verba. 1963. *The Civic Culture: Political Attitudes and Democracy in Five Nations*. Princeton, NJ: Princeton University Press.
- An-Na'im, Abdullahi Ahmed. 1990. *Toward an Islamic Reformation: Civil Liberties, Human Rights, and International Law*. Syracuse, NY: Syracuse University Press.
- Anderson, John. 2007. *Religion, Democracy and Democratization*. London: Routledge.
- Anderson, Theodore and Cheng Hsiao. 1982. "Formulation and Estimation of Dynamic Models Using Panel Data." *Journal of Econometrics* 18: 47–82.
- Arellano, Manuel and Stephen Bond. 1991. "Some Tests of Specifications for Panel Data: Monte Carlo Evidence and an Application to Employment Equations." *Review of Economic Studies* 58: 277–297.
- Banfield, Edward C. 1958. *The Moral Basis of a Backward Society*. New York: Free Press.
- Barrett, David B. 1982. *World Christian Encyclopedia: A Comparative Survey of Churches and Religions in the Modern World*. New York: Oxford University Press.
- Barrett, David B., George T. Kurian and Todd M. Johnson. 2001. *World Christian Encyclopedia: A Comparative Survey of Churches and Religions in the Modern World, AD 1900-2000*. New York: Oxford University Press.
- Barro, Robert J. 1999. "Determinants of Democracy." *Journal of Political Economy* 107(6): 158–183.
- Barro, Robert and Rachel M. McCleary. 2003. "Religion and Economic Growth." NBER Working Paper 9682.
- Bazzi, Samuel and Michael A. Clemens. 2013. "Blunt Instruments: Avoiding Common Pitfalls in

- Identifying the Causes of Economic Growth.” *American Economic Journal: Macroeconomics* 5(2): 152–86.
- Bellin, Eva. 2004. “The Robustness of Authoritarianism in the Middle East: Exceptionalism in Comparative Perspective.” *Comparative Politics* 36(2): 139–157.
- Bollen, Kenneth A. 1979. “Political Democracy and the Timing of Development.” *American Sociological Review* 44(4): 572–587.
- Boone, Catherine. 2003. *Political Topographies of the African State: Territorial Authority and Institutional Choice*. New York: Cambridge University Press.
- Bulliet, Richard W. 1979. *Conversion to Islam in the Medieval Period: An Essay in Quantitative History*. Cambridge, MA: Harvard University Press.
- Bun, M.J.G. and F. Windmeijer. 2010. “The Weak Instruments Problem of the System GMM Estimator in Dynamic Panel Data Models.” *Econometrics Journal* 13: 95–126.
- Cahen, Claude. 1970. “Economy, Society and Institutions.” In *Cambridge History of Islam: Islamic Society and Civilization*, ed. P. M. Holt, Ann K. S. Lambton and Bernard Lewis. Vol. 3 London: Cambridge University Press pp. 511–538.
- Chateaubriand, Francois-Rene de. 1969. *Oeuvres romanesques et voyages*. Paris: Gallimard.
- Cochran, Thomas C. 1960. “Cultural Factors in Economic Growth.” *The Journal of Economic History* 20(4): 515–530.
- Dahl, Robert. 1971. *Polyarchy: Participation and Opposition*. New Haven: Yale University Press.
- Deutsch, Karl. 1953. *Nationalism and Social Communication*. Cambridge, MA: MIT Press.
- Deutsch, Karl. 1961. “Social Mobilization and Political Development.” *American Political Science Review* 55: 634–647.
- Donner, Fred McGraw. 1981. *The Early Islamic Conquests*. Princeton, NJ: Princeton University Press.
- Donno, Daniela and Bruce Russett. 2004. “Islam, Authoritarianism and Empowerment: What Are the Linkages?” *World Politics* 56(4): 582–607.
- Dube, Arindrajit, T. William Lester and Barry Eidlin. 2007. “Firm Entry and Wages: Impact of Wal-Mart Growth on Earnings Throughout the Retail Sector.” Working Paper, University of California, Berkeley.
- Dunning, Thad. 2008. “Improving Causal Inference: Strengths and Limitations of Natural Experiments.” *Political Research Quarterly* 61(2): 282.
- Ehteshami, Anoushiravan. 2004. “Islam, Muslim Politics and Democracy.” *Democratization* 11(4): 90–110.
- Enayat, Hamid. 1982. *Modern Islamic Political Thought*. Austin, TX: University of Texas Press.
- Englebort, Pierre. 2000. “Pre-Colonial Institutions, Post-Colonial States, and Economic Development in Tropical Africa.” *Political Research Quarterly* 53(1): 7–36.
- Esposito, John L. and John O. Voll. 1996. *Islam and Democracy*. New York: Oxford University Press.
- Fakhry, Majid. 1954. “The Theocratic Idea of the Islamic State in Recent Controversies.” *International Affairs (Royal Institute of International Affairs)* 30(4): 450–462.
- Fearon, James D. and David D. Laitin. 2003. “Ethnicity, Insurgency and Civil War.” *American Political Science Review* 97(1): 75–90.
- Fish, M. Steven. 2002. “Islam and Authoritarianism.” *World Politics* 55(1): 4–37.
- Fish, M. Steven. N.d. *Are Muslims Distinctive?* New York: Oxford University Press.
- Fish, M. Steven and Matthew Kroenig. 2006. “Diversity, Conflict and Democracy.” *Democratiza-*

- tion 13(5): 828–842.
- Fish, M. Steven and Robin Brooks. 2004. “Does Diversity Hurt Democracy?” *Journal of Democracy* 15(1): 154–166.
- Freedom House. 2010. *Freedom in the World 2010*. Washington, DC: Freedom House, Inc. Computer file, available at <http://freedomhouse.org>, accessed July 2010.
- Fukuyama, Francis. 1989. “The End of History?” *National Interest* .
- Fukuyama, Francis. 1992. *The End of History and the Last Man*. Free Press.
- Fukuyama, Francis. 1995. *Trust: The Social Virtues and and the Creation of Prosperity*. New York: Free Press.
- Gallup, John Luke, Jeffrey D. Sachs and Andrew Mellinger. 1999. “Geography and Economic Development.” In *World Bank Annual Conference on Development Economics 1998*, ed. Boris Pleskovic and Joseph E. Stiglitz. Washington, DC: The World Bank pp. 127–178.
- Gennaioli, Nicola and Ilia Rainier. 2006. “Precolonial Centralization and Institutional Quality in Africa.” In *Institutions and Norms in Economic Development*, ed. Mark Gradstein and Kai Konrad. Cambridge, MA: MIT Press.
- Gennaioli, Nicola and Ilia Rainier. 2007. “The Modern Impact of Precolonial Centralization in Africa.” *Journal of Economic Growth* 12(3): 185–234.
- Ghosn, Faten, Glenn Palmer and Stuart Bremer. 2004. “The MID3 Data Set, 1993–2001: Procedures, Coding Rules, and Description.” *Conflict Management and Peace Science* 21: 133–154. Dataset available at <http://www.correlatesofwar.org/>, accessed August 2010.
- Gill, Anthony. 1998. *Rendering Unto Caesar: The Catholic Church and the State in Latin America*. Chicago: University of Chicago Press.
- Gleditsch, Kristian Skrede. 2002. *All International Politics Is Local: The Diffusion of Conflict, Integration, and Democratization*. Ann Arbor: University of Michigan Press.
- Gleditsch, Kristian Skrede and Michael D. Ward. 2007. “Diffusion and the Spread of Democratic Institutions.” In *The Global Diffusion of Markets and Democracy*, ed. Beth Simmons, Frank Dobbins and Geoffrey Garrett. New York: Cambridge University Press pp. 261–302.
- Greif, Avner. 1994. “Cultural Beliefs and the Organization of Society: A Historical and Theoretical Reflection on Collectivist and Individual Societies.” *Journal of Political Economy* 102: 912–950.
- Haber, Stephen and Victor Menaldo. 2008. “Do Natural Resources Fuel Authoritarianism?” Working Paper, Stanford University Department of Political Science.
- Hashemi, Nader. 2009. *Islam, Secularism and Liberal Democracy*. New York: Oxford University Press.
- Herbst, Jeffrey. 2000. *States and Power in Africa: Comparative Lessons in Authority and Control*. Princeton, NJ: Princeton UP.
- Heston, Alan, Robert Summers and Bettina Aten. 2009. *Penn World Table Version 6.3*. Philadelphia, PA: Center for International Comparisons of Production, Income and Prices, University of Pennsylvania. Dataset available at [urlhttp://pwt.econ.upenn.edu/](http://pwt.econ.upenn.edu/); accessed July 2010.
- Hoffman, Steven Ryan. 2004. “Islam and Democracy: Micro-Level Indications of Compatibility.” *Comparative Political Studies* 37(6): 652–676.
- Holt, Peter M., Ann K. S. Lambton and Bernard Lewis. 1970. *The Cambridge History of Islam: The central Islamic lands from pre-Islamic times to the First World War*. Vol. 1 London: Cambridge University Press.
- Horowitz, Donald. 1994. “Democracy in Divided Societies: the Challenge of Ethnic Conflict.” *Journal of Democracy* 4(4): 18–38.

- Hsu, Becky, Amy Reynolds, James Gibbon and Conrad Hackett. 2008. "Estimating the Religious Composition of All Nations: An Empirical Assessment of the World Christian Database." *Journal for the Scientific Study of Religion* 47(4): 678–693.
- Huntington, Samuel P. 1968. *Political Order in Changing Societies*. New Haven, CT: Yale University Press.
- Huntington, Samuel P. 1991. *The Third Wave: Democratization in the Late Twentieth Century*. University of Oklahoma Press.
- Huntington, Samuel P. 1993. "The Clash of Civilizations?" *Foreign Affairs* .
- Huntington, Samuel P. 1996. *The Clash of Civilizations and the Remaking of World Order*. Simon & Schuster.
- Inglehart, Ronald. 1997. *Modernization and Postmodernization*. Princeton, NJ: Princeton University Press.
- Inglehart, Ronald. 2000. "Culture and Democracy." In *Culture Matters: How Values Shape Human Progress*, ed. Lawrence E. Harrison and Samuel P. Huntington. New York: Basic Books pp. 80–97.
- Issawi, Charles. 1956. "Economic and Social Foundations of Democracy in the Middle East." *International Affairs (Royal Institute of International Affairs 1944-)* 32(1): 27–42.
- Jamal, Amaney A. and Mark A. Tessler. 2008. "The Democracy Barometers: Attitudes in the Arab World." *Journal of Democracy* 19(1): 97–110.
- Johnson, Todd M. and Brian J. Grim. 2010. *World Religion Database*. Leiden: Brill Academic Publishing. Computer file, available at <http://www.worldreligiondatabase.org>, accessed December 2009 and July 2010.
- Jones, R. 1979. "Ten Conversion Myths From Indonesia." In *Conversion to Islam*, ed. Nehemia Levtzion. New York: Holmes and Meier Publishers pp. 129–158.
- Karatnycky, Adrian. 2002. "Muslim Countries and the Democracy Gap." *Journal of Democracy* 13(1): 99–112.
- Kedourie, Elie. 1992. *Democracy and Arab Political Culture*. Washington Institute for Near East Policy.
- Kettani, Houssain. 2010. "World Muslim Population: 1950-2020." *International Journal of Environmental Science and Development* 1(2).
- La Porta, Rafael, Florencio Lopez-de Silanes, Andrei Shleifer and Robert W. Vishny. 1999. "The Quality of Government." *Journal of Law, Economics, and Organization* 15(1): 222–279.
- Lakoff, Sanford. 2004. "The Reality of Muslim Exceptionalism." *Journal of Democracy* 15(4): 133–139.
- Landes, David. 1998. *The Wealth and Poverty of Nations*. New York: W.W. Norton & Co.
- Landes, David. 2000. "Culture Makes All the Difference." In *Culture Matters: How Values Shape Human Progress*, ed. Lawrence E. Harrison and Samuel P. Huntington. New York: Basic Books pp. 2–13.
- Lange, Fabian, Alan L. Olmstead and Paul W. Rhode. 2009. "The Impact of the Boll-Weevil, 1892-1940." *Journal of Economic History* 69(3): 685–718.
- Lapidus, Ira. 2002. *A History of Islamic Societies*. New York: Cambridge University Press.
- Lerner, Daniel. 1958. *The Passing of Traditional Society: Modernizing the Middle East*. New York: The Free Press.
- Levtzion, Nehemia, ed. 1979. *Conversion to Islam*. New York: Holmes & Meier.
- Lewis, Bernard. 1954. "Communism and Islam." *International Affairs (Royal Institute of Interna-*

- tional Affairs 1944-*) 30(1): 1–12.
- Lewis, Bernard. 1996. “Islam and Liberal Democracy: A Historical Overview.” *Journal of Democracy* 7: 52–63.
- Linz, Juan and Alfred Stepan. 1996. *Problems of Democratic Transition and Consolidation: Southern Europe, South America and Post-Communist Europe*. Baltimore, MD: Johns Hopkins University Press.
- Lipset, Seymour Martin. 1959. “Some Social Requisites of Democracy.” *American Political Science Review* 53(1): 69–105.
- Lipset, Seymour Martin. 1960. *Political Man: The Social Bases of Politics*. Garden City, NY: Doubleday and Sons.
- Lipset, Seymour Martin. 1963. “The Value Patterns of Democracy: A Case Study in Comparative Analysis.” *American Sociological Review* 28(4): 515–531.
- Lipset, Seymour Martin. 1967. “Values, Education and Entrepreneurship.” In *Elites in Latin America*, ed. S.M. Lipset and Aldo Solari. New York: Oxford University Press pp. 3–60.
- Lipset, Seymour Martin. 1970. *Revolution and Counter-Revolution: Change and Persistence in Social Structures*. New Brunswick, NJ: Transaction Press.
- Marshall, Monty G. and Keith Jagers. 2009. *Polity IV Project: Political Regime Characteristics and Transitions, 1800-2009*. College Park, MD: Center for International Development and Conflict Management, University of Maryland. Computer file, available at <http://www.cidcm.umd.edu/inscr/polity>, accessed July 2010.
- Mawdūdī, Abū-l-Alā’. 1976. “Political Theory of Islam.” In *Islam: Its Meaning and Message*, ed. Khurshid Ahmad. London: Islamic Foundation.
- McClelland, David C. 1961. *The Achieving Society*. New York: The Free Press.
- Meyer, Katherine, Daniel Tope and Anne M. Price. 2008. “Religion and Support for Democracy: A Cross-National Examination.” *Sociological Spectrum* 26(5): 625–653.
- Midlarsky, Manus I. 1998. “Democracy and Islam: Implications for Civilizational Conflict and the Democratic Peace.” *International Studies Quarterly* 42(3): 485–511.
- Mobarak, Ahmed Mushfiq. 2005. “Democracy, Volatility, and Economic Development.” *Review of Economics and Statistics* 87(2): 348–361.
- Moore, Jr., Barrington. 1966. *Social Origins of Dictatorship and Democracy: Lord and Peasant in the Making of the Modern World*. Boston: Beacon Press.
- Murphy, Kevin J., Robert W. Vishny and Andrei Shleifer. 1989. “Income Distribution, Market Size and Industrialization.” *Quarterly Journal of Economics* 104: 537–564.
- Najjar, Fauzi M. 1958. “Islam and Modern Democracy.” *The Review of Politics* 20(2): 164–180.
- Najjar, Fauzi M. 1980. “Democracy in Islamic Political Philosophy.” *Studia Islamica* pp. 107–122.
- Neumark, David, Junfu Zhang and Stephen Ciccarella. 2008. “The Effects of Wal-Mart on Local Labor Markets.” *Journal of Urban Economics* 63: 405–430.
- Norris, Pippa. 2008. *Driving Democracy: Do Power-Sharing Institutions Work?* New York: Cambridge University Press.
- Norris, Pippa and Ron Inglehart. 2004. *Sacred and Secular: Religion and Politics Worldwide*. New York: Cambridge University Press.
- North, Douglass. 1990. *Institutions, Institutional Change and Economic Performance*. New York: Cambridge University Press.
- Nunn, Nathan and Diego Puga. 2009. “Ruggedness: The Blessing of Bad Geography in Africa.” NBER Working Paper 14918.

- Oster, Emily. 2009. "HIV and Sexual Behavior Change: Why not Africa?" Working Paper, University of Chicago.
- Pevehouse, Jon. 2004. *Democracy from Above? Regional Organizations and Democratization*. New York: Cambridge University Press.
- Philpott, Daniel. 2005. "The Catholic Wave." In *World Religions and Democracy*, ed. Larry Diamond, Marc F. Plattner and Philip J. Costopolous. Baltimore: The Johns Hopkins University Press pp. 102–116.
- Pipes, Daniel. 1983. *In the Path of God: Islam and Political Power*. New York: Basic Books.
- Powell, G. Bingham. 1982. *Contemporary Democracies: Participation, Stability and Violence*. New York: Cambridge University Press.
- Pridham, Geoffrey. 2000. *Dynamics of Democratization: A Comparative Approach*. London: Continuum.
- Pryor, Frederic L. 2007. "Are Muslim Countries Less Democratic?" *Middle East Quarterly* 14(4): 53–58.
- Putnam, Robert D. 1993. *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton, NJ: Princeton University Press.
- Pye, Lucian. 1962. *Politics, Personality and Nation-Building*. New Haven: Yale University Press.
- Pye, Lucian. 2000. "Asian Values: From Dynamoes to Dominoes?" In *Culture Matters: How Values Shape Human Progress*, ed. Lawrence E. Harrison and Samuel P. Huntington. New York: Basic Books pp. 244–255.
- Raciborski, Rafal. 2008. "kountry: A Stata utility for merging cross-country data from multiple sources." *Stata Journal* 8: 390–400.
- Reid, Anthony. 1988. *Southeast Asia in the Age of Commerce 1450-1680*. New Haven: Yale University Press.
- Ricklefs, Merle. 2008. *A History of Modern Indonesia since c. 1200*. 4th ed. Palo Alto: Stanford University Press.
- Rose, Richard. 2002. "How Muslims View Democracy: Evidence from Central Asia." *Journal of Democracy* 13(4).
- Ross, Michael. 2001. "Does Oil Hinder Democracy?" *World Politics* 53: 325–361.
- Ross, Michael. 2009. "Oil and Democracy Revisited." Working Paper, UCLA Department of Political Science.
- Rowley, Charles K. and Nathanael Smith. 2009. "Islam's Democracy Paradox: Muslims Claim to Like Democracy, So Why Do They Have So Little?" *Public Choice* 139: 273–299.
- Said, Edward. 1978. *Orientalism*. New York: Vintage Books.
- Sarafidis, Vasilis and Donald Robertson. 2009. "On the impact of error cross-sectional dependence in short dynamic panel estimation." *Econometrics Journal* 12(1): 62–81.
- Schlumberger, Oliver, ed. 2009. *Debating Arab Authoritarianism: Dynamics and Durability in Nondemocratic Regimes*. Palo Alto: Stanford University Press.
- Smith, David H. and Alex Inkeles. 1966. "The OM scale: a comparative socio-psychological measure of individual modernity." *Sociometry* 29: 353–377.
- Sovey, Allison J. and Donald P. Green. 2009. "Instrumental Variables Estimation in Political Science: A Readers' Guide." Working Paper, Yale University.
- Stepan, Alfred. 2000. "Religion, Democracy, and the "Twin Tolerations"." *Journal of Democracy* 11(4): 37–57.
- Stepan, Alfred and Graeme B. Robertson. 2003. "An "Arab" More Than "Muslim" Electoral Gap."

- Journal of Democracy* 14(3): 30–44.
- Stijns, Jean-Philippe C. 2005. “Natural Resource Abundance and Economic Growth Revisited.” *Resource Policy* 30: 107–130.
- Stinnett, Douglas M., Jaroslav Tir, Philip Schafer, Paul F. Diehl and Charles Gochman. 2002. “The Correlates of War Project Direct Contiguity Data, Version 3.” *Conflict Management and Peace Science* 19(2): 58–66. Dataset available at <http://www.correlatesofwar.org/>, accessed August 2010.
- Syed, J.W. 1954. *Islam and Secular Democracy*. Karachi: Saad Publications.
- Tabellini, Guido. 2010. “Culture and Institutions: Economic Development in the Regions of Europe.” *Journal of the European Economic Association* 8(4): 677–716.
- Tessler, Mark. 2002. “Islam and Democracy in the Middle East: The Impact of Religious Orientations on Attitudes toward Democracy in Four Arab Countries.” *Comparative Politics* 34(3): 337–354.
- Tessler, Mark. 2003. “Do Islamic Orientations Influence Attitudes toward Democracy in the Arab World?” *International Journal of Comparative Sociology* 43(5): 229–249.
- Tessler, Mark and Eleanor Gao. 2005. “Gauging Arab Support for Democracy.” *Journal of Democracy* 16(3): 83–97.
- Tocqueville, Alexis de. 1966 [1832]. *Democracy in America*. New York: Harper and Row.
- Trimingham, J. Spencer. 1964. *Islam in East Africa*. Oxford: Clarendon Press.
- Voll, John. 1998. “Islam.” In *Encyclopedia of Politics and Religion*, ed. Robert Wuthnow. Washington, DC: Congressional Quarterly, Inc. pp. 383–393.
- von Grunebaum, Gustave E. 1966/2008. “The First Expansion of Islam: Factors of Thrust and Containment.” In *The Expansion of the Early Islamic State*, ed. Fred M. Donner. Burlington, VT: Ashgate Varorium pp. 81–90.
- Vryonis, Speros. 1971. *The Decline of Medieval Hellenism in Asia Minor and the Process of Islamization from the 11th through the 15th Century*. Berkeley: University of California Press.
- Watt, Montgomery W. 1970. “Muhammad.” In *Cambridge History of Islam: The central Islamic lands from pre-Islamic times to the First World War*, ed. P. M. Holt, Ann K. S. Lambton and Bernard Lewis. London: Cambridge University Press pp. 30–56.
- Weber, Max. 1935 [1905]. *The Protestant Ethic and the Spirit of Capitalism*. New York: Scribners.
- Woodberry, Robert D. and Timothy S. Shah. 2005. “The Pioneering Protestants.” In *World Religions and Democracy*, ed. Larry Diamond, Marc F. Plattner and Philip J. Costopolous. Baltimore: The Johns Hopkins University Press pp. 117–131.
- World Bank. 2010. *World Bank Development Indicators*. Washington, DC: The World Bank. Dataset available at <http://data.worldbank.org/indicator>, accessed July 2010.