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Islam and Economic Performance: Historical and Contemporary Links

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Abstract. This essay critically evaluates the analytic literature concerned with causal connections between Islam and economic performance. It focuses on works since 1997, when this literature was last surveyed. Among the findings are the following: Ramadan fasting by pregnant women harms prenatal development; Islamic charities mainly benefit the middle class; Islam affects educational outcomes less through Islamic schooling than through structural factors that handicap learning as a whole; Islamic finance hardly affects Muslim financial behavior; and low generalized trust depresses Muslim trade. The last feature reflects the Muslim world's delay in transitioning from personal to impersonal exchange. The delay resulted from the persistent simplicity of the private enterprises formed under Islamic law. Weak property rights reinforced the private sector's stagnation by driving capital out of commerce and into rigid waqfs. Waqfs limited economic development through their inflexibility and democratization by restraining the development of civil society. Parts of the Muslim world conquered by Arab armies are especially undemocratic, which suggests that early Islamic institutions, including slave-based armies, were particularly critical to the persistence of authoritarian patterns of governance. States have contributed themselves to the persistence of authoritarianism by treating Islam as an instrument of governance. As the world started to industrialize, non-Muslim subjects of Muslim-governed states pulled ahead of their Muslim neighbors by exercising the choice of law they enjoyed under Islamic law in favor of a Western legal system.

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1. Introduction

Ever since the economic rise of the West, the question of whether non-Western religions are ill-suited to economic efficiency and growth has attracted academic scrutiny. Special attention has been paid to the economic effects of Islam, the world's second largest religion after Christianity. Many negative claims are found in scholarly works. One reads, for instance, that Islam instills in its adherents beliefs harmful to economic advancement. It is said also that Islam discourages human capital formation, limits experimentation and innovation, promotes hostility to commerce, and distorts markets by facilitating authoritarian governance. A very common view is that Islam's financial rules are incompatible with modern economic life.

These are huge generalizations. The world's Muslim-majority countries are spread across three continents, and substantial Muslim minorities exist in other parts of the world. Surely the practice of Islam varies geographically, depending on local circumstances and influences. The promoters of the generalizations are certainly aware of the variations. They know, for instance, that the world's top-notch scientists include Muslims. But exceptions alone do not invalidate a generalization. In scholarship, as opposed to polemical literatures of no concern here, a generalization's validity depends on the existence of an identifiable social mechanism that explains a common pattern.

The question of whether Islam affects economic performance is important for several reasons. Muslim-majority countries are appreciably poorer than the world's economically advanced countries, even the rest of the world. The average per capita income at purchasing power parity of the 57-member Organization of Islamic Cooperation was $10,015 in 2014; it was $17,500 for the world's remaining countries, and (excepting its one Muslim-majority member) $42,216 for the OECD, the club of economically advanced countries. Muslim-majority countries lag also in terms of other basic indices of economic performance, such as life expectancy and adult literacy (Table 1). Within particular regions, too, Muslim-majority countries lag behind those where Muslims are outnumbered. The Balkans, non-Arab Africa, and the Indian subcontinent offer cases in point. Yet, the world's poor countries include many that are overwhelmingly non-Muslim. That alone calls for care in attributing any economic outcome, whether favorable or unfavorable, to religion. Another reason is that within multi-religious countries with a substantial Muslim share Muslims tend to be relatively poor. Moreover, this underperformance is observed regardless of whether Muslims are in the majority or minority.

Understanding the sources of the Muslim world's poor economic performance is not merely of academic interest. There are pressing policy reasons to explore both aggregate patterns and variations among specific Muslim communities. Persistent inter-group differences sow resentment, open conflict, even violence. The inequalities captured in Table 1 feed the violent strains of Islam that make headlines regularly. Although economic inequalities are not the only source of violence carried out in the name of Islam, perhaps not even the main factor, at the very least they create sympathetic constituencies and supply reservoirs of potential recruits.

Until the late 1990s, an overwhelming share of the commentary on the links between Islam and economic performance belonged to non-economists. Much of the relevant scholarship was based on religious texts, principally the Quran, Islam's holy book. Some scholars invoked ethnographically identified norms and beliefs, such as fatalism and conservatism. Researchers paid scant attention to incentives, equilibria, or social mechanisms. In explaining observed patterns, they did not account for the individual motives that enabled collective action. Insofar as they identified variations across space or time, they did not use these to test hypotheses or generate theoretical clues. In the first comprehensive literature survey on Islam and economic development (Kuran 1997), three-fifths of the references were to works produced outside the economics discipline, without using economic techniques of analysis. A few were to works produced in the late 19th century, which is when Muslim economic backwardness became a pervasive pattern and attributing the underperformance to Islam turned into conventional wisdom among the world's elites. The 1997 survey references the most influential works.

A few economists, notably Adelman and Morris (1973), had used opinion surveys to explore how religion shapes the modernization of economic attitudes. But the leading Middle East economic historians of the era, Issawi (1982) and Owen (1981), practically ignored religion. Issawi stressed that in the 18th and 19th centuries Christian and Jewish minorities served as the Middle East's engine of growth. They were quicker to adopt Western lifestyles and learn Western languages, he observed. But he did not explore whether differences among religions, or among religious institutions, contributed to the observed cross-faith differences.

Table 1. Population-weighted Comparative Indicators of Economic Performance (2014)

Region, Country, or Country Grouping	Population (millions)	Human Development Index (0-1)	Life expectancy at birth (years)	Adult literacy rate (%)[a]	Gross Domestic Product Per Capita (US$, PPP)[b]
Afghanistan	31	0.47	60.4	38.2	1,934
Arab League[c]	378	0.66	70.5	77.9	17,428
ASEAN, Muslim-maj.[d]	283	0.69	69.5	95.4	12,809
Balkans, Muslim-maj.[e]	9	0.73	75.8	98.1	10,636
Bangladesh	159	0.57	71.6	61.5	3,332
Ex-USSR, Muslim-maj.[f]	75	0.70	69.0	99.8	12,099
Iran	79	0.76	75.4	84.6	17,365
Non-Arab Africa, Muslim-maj.[g]	96	0.39	55.8	54.8	3,604
Pakistan	185	0.54	66.2	55.6	5,041
Turkey	76	0.76	75.3	95.4	19,618
OIC[h]	1,678	0.61	66.5	73.3	10,015
World	7,347	0.71	71.4	85.2	15,740
Non-OIC	5,669	0.74	72.8	88.9	17,500
ASEAN, Muslim-min.[i]	274	0.64	70.6	93.8	8,417
Balkans, Muslim-min.[j]	59	0.81	76.3	98.0	20,693
China	1,371	0.73	75.8	95.1	14,238
Ex-USSR, Muslim-min.[k]	71	0.76	71.8	99.7	10,832
India	1,311	0.61	68.0	69.3	6,088
Latin America[l]	633	0.75	75.0	92.6	15,581
Non-Arab Africa, Muslim-min.[m]	859	0.52	58.7	65.3	3,907
OECD (except Turkey)[n]	1,204	0.88	80.8	99.8	42,216
Russia	143	0.80	70.1	99.7	24,451

Notes: [a] Individuals above 15 years of age. For some countries, the latest available figures are from before 2014. [b] GDP is measured at purchasing power parity in 2015 dollars. Except for Iran, data are for 2015. [c] As of 2016, the Arab League had 22 members, including temporarily suspended Syria. [d] Brunei, Indonesia, and Malaysia. [e] Albania, Bosnia and Herzegovina, and Kosovo. Kosovo is included only in life expectancy and GDP calculations. [f] Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan. Prior to 1991, all belonged to the Union of Soviet Socialist Republics. [g] African Union's 15 Muslim-majority members that do not belong to Arab League. [h] Organization of Islamic Cooperation has 57 members, including all 22 members of the Arab League. [i] Cambodia, Lao PDR, Myanmar, Philippines, Singapore, Thailand, Vietnam. [j] Bulgaria, Croatia, Greece, Macedonia, Montenegro, Romania, Slovenia, Serbia. [k] Armenia, Belarus, Estonia, Georgia, Latvia, Lithuania, Moldova, Ukraine. [l] Includes the Caribbean. [m] African Union's 33 members with a Muslim minority. [n] The Organization for Economic Co-operation and Development comprises 30 of the world's industrialized countries, including majority-Muslim Turkey. The figures are for the remaining 29 members.

Sources: United Nations Development Programme, *Human Development Report 2015*, Table 1. World Bank, *World Development Indicators 2016*, Tables 1.1 and 2.13 in online data bank.

Since the 1990s a huge literature has emerged within economics on the connections between Islam and economic performance. Certain contributions generate fresh insights from data collected by other scholars. Others use economic perspectives to reinterpret institutions identified in old sources. Still others use new methodologies to reconsider old questions or answer new ones. A new generation of economists has also produced new data sets to probe issues that could not be tackled previously. A growing number of non-economists, mainly political scientists and legal scholars, but also sociologists and anthropologists, are contributing to the new literature, generally using methods developed in economics. What follows is a critical survey of the rapidly expanding analytic literature, with a focus on contributions of the past two decades. The substantive goals are to summarize and evaluate the main empirical findings and theoretical developments, highlight puzzles awaiting resolution, and draw attention to controversies, inconsistencies, and limitations of the research to date.

The analytic literature covered here is distinct from the sprawling and collectively much larger literatures that address economic issues related to Islam within the "area studies" research tradition, typically under a rubric such as "Islamic Studies," "Middle East Studies," or "South Asian Studies." The hallmark of area studies is sensitivity to cultural particularities and meanings. In sharp contrast to modern social scientists, its contributors tend to avoid generalizations and interspatial comparisons, especially those that show the area of study in a negative light. Drawing heavily on humanistic disciplines and on "interpretive" segments of the social sciences, they tend to neglect the analytic social sciences, both their heavily quantitative fields and those focused on refining causal analysis through analytic narratives that blend quantitative and qualitative techniques. Area studies essentially ignore highly relevant research programs in institutional economics, law and economics, behavioral economics, public choice, political economy, analytical political science, and applied econometrics. In the course of this survey, I shall draw contrasts between the approaches and findings of the analytic literature that concerns us here and literatures committed to the area studies tradition. At the end, I shall point to potential synergies from placing the two literatures in dialogue with one another.

Four sub-components of the analytic literature may be distinguished, and each admits further divisions. The first sub-literature consists of studies that explore whether Islam affects economic development rates and patterns in the present. It includes cross-country empirical analyses, analyses of Islamic institutions, works on attitudes that shape economic behaviors, studies of Islamic economies, and inquiries of Islamic networks. The second sub-literature is composed of historical investigations on whether Islam affected the economic trajectories of predominantly Muslim societies. These investigations include studies focused on productive, commercial, financial, and judicial institutions, analyses of urban development and public goods, studies of Islamic courts, works on scientific decline, within-country comparisons between Muslims and non-Muslims, and investigations into the historical effects of Islam on Europe. The third sub-literature focuses on Islam's contemporary political effects, with attention to the economic sources of political patterns. It deals with anti-democratic attitudes and the rule of law, both of which affect economic outcomes. The final sub-literature studies the historical sources of authoritarian governance. It deals with effects rooted in early Arab conquests, slave armies, Islamic trusts known as waqfs, tax farming, and the political instrumentalization of Islam. The last section of the survey draws general conclusions, identifies key controversies, and highlights unaddressed challenges.

No sub-literature of the surveyed field covers the Muslim world evenly. Most works focus on particular countries or regions. Hence, all generalizations are tentative. They are subject to refinement as the Muslim world is analyzed comprehensively and comparisons performed.

Conspicuously absent from the field's four main components is a sub-literature focused on explaining the administration of mosques, the divisions within Islam, and the organization of Muslim congregations in the spirit of the "new economics and religion," which has been surveyed by Iannaccone (1998) and, two decades later, Iyer (2016). Insofar as such questions have been addressed at all, this has been within the context of the main pursuits identified here. Thus, the financing and administration of mosques is typically covered in works on waqfs; and conversions receive attention in studies concerning religious freedoms and taxation. Where a contribution speaks to issues central to the new economics of religion, the pertinent connections are mentioned.

2. Modern Economic Development

The sub-literature on modern economic development is composed of four strands. There are cross-country empirical analyses that investigate the effects of religious variables on economic performance. They use differences in religious composition across countries to isolate Islam's economic effects. Another strand, the largest in terms of publications, focuses on Islamic economic institutions. The typical contribution analyzes a single country or region. A third strand of the sub-literature investigates attitudes that shape economic behaviors. And the last strand concerns attempts to restructure entire economies according to Islamic teachings.

2.1 Cross-Country Growth Comparisons

Cross-country works on whether religion affects economic outcomes invariably probe whether Islam fits the general pattern. Thus, studies that use cross-country data to measure the economic effects of religious participation and religious beliefs find that, controlling for other growth determinants, the Muslim share of the population has a significantly negative independent effect on growth (Barro and McCleary 2003; McCleary and Barro 2006). One core result of these studies, which cover the period 1981-99, is that religious beliefs, notably belief in hell, favor growth. Another is that religious participation, measured by attendance at communal services, harms growth. Although these core results vanish under alternative econometric specifications (Durlauf, Kourtellos, and Tan 2012), the negative effect of Muslim population share survives under classical estimation techniques.

McCleary and Barro (2006) believe that Islam's growth-retarding influences stem from legal and regulatory systems harmful to economic activity. But their conjecture has not been validated empirically, for lack of appropriate data. In subsequent work, McCleary (2008) proposes that the explanation may lie in Islam's communalist approach to religious fulfillment. She observes that in contrast to Protestantism, which encourages a personal relationship with God, Islam stresses outward and communally-controlled expressions of religiosity.

Examining a much longer period, 1913-98, Noland (2005) finds, in contrast to the aforementioned works, that predominantly Muslim countries did not underperform other underdeveloped countries. They grew more slowly than East Asia but outperformed sub-Saharan Africa and matched the records of South Asia and Latin America.

On the whole, then, cross-country research on whether Islam harms growth is inconclusive. Although most contributions suggest that Muslim-majority countries have underperformed in recent decades, over a longer time span their records appear to match the global average. In any case, worldwide cross-country regressions cannot control adequately for country-specific institutional factors. For this reason alone, they are poorly suited to identifying the mechanisms responsible for Islam's effects on economic growth.

Bénabou, Ticchi, and Vindigni (2015) suggest that religiosity, regardless of its specifics, works at cross-purposes with creativity and innovations, as measured by patents per capita. So the findings on Islam based on cross-country growth comparisons could be driven by relatively high religiosity in majority-Muslim countries, as opposed to the effects of Islam per se.

2.2 Scripture-Based Islamic Economic Institutions

Another approach has been to study Islam's economic institutions to identify mechanisms through which they affect economic performance. These studies focus on institutions that make Muslims engage in distinct behaviors. There is a consensus that they include the pilgrimage (*hajj*) duty for those who can afford it, the requirement to fast during the month of Ramadan, and the duty to pay the zakat tax once a year. Prescribed in the Quran, each of these duties is considered among Islam's five pillars. In addition to these institutions that date from the religion's birth in the 7th century, there are Islamic institutions developed in later times. They are taken up in the following subsection.

2.2.1 *Islamic Pilgrimage*

In a pioneering study, Clingingsmith, Khwaja, and Kremer (2009) study the impact of the Islamic pilgrimage to Mecca by comparing the attitudes of successful and unsuccessful applicants in the lottery through which Pakistan allocates the necessary travel visas. They find that pilgrims acquire various attitudes that are favorable to economic growth. These include beliefs in equality and harmony among ethnic groups, greater acceptance of female education and employment, and higher tolerance toward non-Muslims. These changes appear to stem from having a shared experience with male and female pilgrims from around the world, in an atmosphere of shared devotion. The article does not address whether the acquired attitudinal changes persist.

Might other international travel yield benefits analogous to the identified positive effects? If randomly selected Pakistanis were sent, say, for two weeks to Tanzania, would they become more accepting of female education? Insofar as the effects differed, one would want to explore what aspects of the Islamic pilgrimage produce the benefits that other foreign travel cannot replicate. Is it the sharing of an unforgettable experience with people from all corners of the world? Or do cross-national interactions alter the worldviews of pilgrims? The latter is unlikely, because at pilgrimage sites pilgrims interact almost exclusively with co-nationals.

2.2.2 *Ramadan Fast*

The economic effects of fasting during the month of Ramadan have received somewhat more attention. The timing of Ramadan is based on the lunar cycles rather than the solar year. Because lunar months are shorter than solar months, it mover about ten days backwards every year, relative to the solar-based Gregorian calendar. The length of the daily dawn-to-dusk fast also varies, in this case because of interactions between latitude and the time of year when Ramadan falls. Exploiting the variations in time of year and length of fast, researchers have identified both immediate and long-term negative effects on growth.

Based on cross-country comparisons, Campante and Yanagizawa-Drott (2015) find that longer fasting depresses production and thus economic growth. Several other studies (Almond and Mazumder 2011; Van Ewijk 2011; Majid 2013; Almond, Mazumder, and van Ewijk 2015) use inter-temporal variations in particular countries to identify how fasting during early pregnancy affects the offspring's prenatal development, physical attributes, educational achievement, and economic success. Their analyses show that individuals whose mothers fasted while they were in utero have shorter lives, worse health, less mental acuity, lower educational achievement, and weaker performance in the labor market. The magnitudes in question are substantial. Majid's study shows that adults exposed to the fast while in utero work 4.5 fewer hours per week. The Almond and Mazumder study finds that mental disabilities stemming from exposure to the fast during month-one in utero accounts for 15 percent of all mental disabilities among Muslims. The evidence is overwhelming that the fasting ritual, as currently practiced, depresses the global economic competitiveness of largely Muslim societies.

Islam's fasting requirement appears in the Quran: "Believers, fasting is decreed for you as it was decreed for those before you" (2:183). This instruction is followed by a qualifier: "If any one of you is ill or on a journey, let him fast a similar number of days later on. And for those that can afford it there is a ransom: the feeding of a poor man. … Allah desires your well-being, not your discomfort" (2:184-85). The latter verses say nothing about pregnancy. But they can be interpreted as allowing pregnant women to postpone fasting until after delivery. A case can be made, in fact, that the Quran bars pregnant Muslim women from fasting, lest they harm both their offspring and themselves. At least some of the fast's physical and economic harm is avoidable, then, within the confines of strict adherence to the Quran.

For all their negative effects, current fasting practices have redeeming benefits. Campante and Yanagizawa-Drott (2015) find that longer fasting increases subjective well-being, or happiness, among Muslims. Their explanation relies on Iannaccone's (1992) theory of costly religious practices. As fasting becomes harder, they suggest, relatively uncommitted Muslims opt out of the practice, even as highly committed Muslims participate more strictly. Al-Ississ (2015) identifies another redeeming benefit: rising stock returns. Among the underlying mechanisms is that Ramadan makes stock buyers more optimistic. This interpretation makes one expect stock returns to fall on days when people feel bad. The article documents also that on Ashoura, a holy day of mourning for Shiite Muslims, stock returns decline in heavily Shiite countries.

The last two articles remind us that economic growth is not an end in itself. Insofar as fasting enhances happiness, its adverse effects should be weighed against the satisfaction it brings to practitioners. Evidently, the non-pecuniary benefits of more intense fasting can swamp the losses in material consumption. For that reason alone, practicing Muslims might willingly incur the material costs of the Ramadan fast.

But the cost-benefit calculations of potential fasters are based on what they know. Because the connections between fasting and future productivity are poorly understood, it is almost certain that some pregnant women fast simply out of ignorance. If the lasting damage of fasting to offspring, future Muslim cohorts, and the economic competitiveness of Muslim communities were widely understood, fasting by pregnant women might well be considered un-Islamic. The day may come when Muslims treat pregnant fasters with contempt by her co-religionists, much as pregnant smokers are now treated all over the world, at least in educated circles.

2.2.3 *Zakat*

The third institution rooted in the Quran is the tax called zakat. At the founding of Islam in the 7th century individuals fulfilled this annual requirement by paying to the state a fixed share of their agricultural output and also fixed shares of certain assets, including precious metals and animal herds. The proceeds financed expenses that the Quran groups in eight categories. These include governance, collective defense, spreading Islam, and what we now call social security. Within a few decades, the growing economic complexity of the expanding Islamic Empire and exemptions benefiting powerful groups made the rates and form of zakat seem too restrictive. Rulers responded by instituting various new taxes. In the process, zakat lost significance as a major source of state revenue. Before long, states stopped collecting it altogether (Kuran 2003b).

This lack of state involvement continued until the second half of the 20th century, when certain governments, including those of Pakistan, Malaysia, Saudi Arabia, Sudan, and Yemen, resumed the collection of zakat, in each case through a system modeled, according to its promoters, after the system practiced in early Islam. But the national zakat systems of these countries differ among themselves in many respects. There are huge variations in rates, exemptions, procedures, and enforcement, and also in the disposition of the collected revenue. The key commonality is that zakat has been reconceived as a transfer program to alleviate poverty; its other functions in antiquity, such as financing collective defense and the manumission of slaves, are now treated as secondary or obsolete (Kuran 2004a, 19-28).

A comprehensive and systematic study of the established modern zakat systems remains to be conducted. But there exists a sizable, if patchy, literature on their economic effects. No evidence has emerged with respect to any modern zakat system of a reduction in either national inequality or the national poverty rate. One reason is that even in an underdeveloped modern economy most wealth lies in assets generally exempted from the zakat requirement: housing, industrial capital, transport vehicles, stocks and bonds. Another is that most income is earned outside of agriculture. Third, the 2.5% flat annual levy on "zakatable" assets, which modern interpreters of the zakat requirement usually treat as canonical, yields less revenue than a broader-based and progressive tax system. Finally, all modern zakat systems suffer from a perception, in some cases validated through investigations, of substantial corruption as well as interference from politicians, who view zakat collections as a source of patronage (Arif 2006, 30-38).

These experiences have generated rethinking among scholars committed to economic Islamization. Already in the 1990s, support was growing for initiatives considered heretical just a few decades earlier. There are now calls for adjusting the revenue sources of zakat to include assets, occupations, and commodities unknown in early Islam, and for updating rates and distribution criteria to suit modern conditions and priorities. Another idea gaining popularity is to conduct zakat redistribution across the global community of Muslims rather than within the boundaries of nation-states. Its proponents hold that this would alleviate Muslim inequalities more effectively than the national programs in existence. Indeed, it would generate transfers mainly from oil-rich countries to the world's poorest Muslim communities, most of which are located in resource-poor areas. The political economy of the unfolding conflict has not yet been analyzed seriously.

2.3 Innovation-Based Islamic Economic Institutions

Many scholars consider an institution indisputably Islamic if it has a basis in teachings of the Quran. This convention is shared by Islamists who claim that the fundamental sources of Islam contain effective solutions to modern problems (Kuran 2010). It is shared also by anti-Muslim activists who consider Islam out-of-date. In fact, practices characterized as Islamic have always been in flux. Quranic verses were reinterpreted even in the religion's first few decades; and in later times Muslims developed diverse new institutions that acquired an association with Islam simply by virtue of their presence in Muslim societies.

2.3.1 *Islamic Charities*

The Quran is replete with verses that instruct believers to care for the poor and the disadvantaged. These have always been interpreted as requiring Muslims of means to participate in charitable activities over and beyond their contributions through obligatory zakat payments. However, beyond alms (*sadaka*), the Quran does not specify the means of delivering voluntary charity. Under the circumstances, Muslim communities have used institutions without any structural basis in the Quran even in providing aid meant to fulfill a religious duty. Some of these are classified as Islamic because they were established to promote an Islamic agenda or because they are under an Islamist group's control. Thus, the Omranniyya Hospital in Cairo, which was founded by Egypt's Muslim Brotherhood, is an Islamic charity. By contrast, the nearby Gohar Charitable Hospital, is considered a secular charity because its objectives lack a religious dimension.

Irrespective of whether Islamic charities are Islamic in any meaningful sense, one may wonder whether they differ in any other respect from their secular counterparts. Do they stand out in regard to organization, efficiency, or distributional impact? Although ethnographic works on specific charities are common, they consist mostly of geographically focused studies that defy generalization. But a few comparative analyses exist.

Sciortino, Ridareni, and Marjadi (2010) evaluate the charitable health services of the Association of the Followers of Muhammad (Muhammadiyah), whose estimated 29 million members form Indonesia's second largest Islamic organization. With regard to health, Muhammadiyah's mandate is to establish hospitals for the poor, while imparting Islamic teachings to those who request treatment. In practice, though, most of their patients belong to the urban middle-class, and at most 30% are poor. This mismatch between the intended and actual patient profile is due to inadequate charitable donations from the Muhammadiyah membership. Forced to rely on patient fees to run its hospitals, the Muhammadiyah leadership has placed most of its hospitals in relatively affluent areas. Like other Indonesian private healthcare providers, it has also taken to prescribing medically unnecessary procedures in search of higher revenue. These include caesarean section deliveries, which Indonesian obstetricians perform at double the rate that the World Health Organization considers medically optimal. The study thus underscores that many Islamic charities felt by their secular counterparts.

Although the Muhammadiyah combine charity with proselytizing, the emphasis is often heavily on the former. Non-Muslims benefit from their services, as do Muslims who practice Islam loosely. There are also Islamic charities whose priorities are reversed. The Kuwait-based Revival and Islamic Heritage Society (RIBH) offers an example. Its food aid, poverty relief, scholarships, and heavily subsidized medical services are all used explicitly as vehicles for spreading Salafism and winning converts to "pure" Islam. Their decision-making bodies are dominated by religious scholars rather than professionals trained in philanthropy (Pall 2015). How well such heavily politicized Islamic charities deliver aid remains an open question. In principle, deep commitment to a cause can compensate for weak professionalization. Journalistic accounts of certain emergency relief efforts suggest that Salafi charities have performed equally well as less politicized Islamic charities, and much better than state relief agencies (McDaniel 2012, 56-58). But generalizations regarding comparative efficiency would be premature, because no systematic comparison exists.

Another finding of Sciortino, Ridareni, and Marjadi (2010), who rely on a 2007 study for the World Bank, is that the Muhammadiyah's female members play a major role in promoting family planning, delivering HIV/AIDS education, and making modern contraception available in villages. The observation that Islamic charities can benefit women appears also in a study by Blaydes (2014), which compares two Cairo slums with similar demographic and social indicators: Imbaba and Bulaq al-Dakrur. In the late 1980s and 1990s, Imbaba was governed locally by Islamists, whereas Bulaq al-Dakrur was ruled by religiously unaffiliated strongmen. Neither neighborhood benefited from regular state services. Insofar as they received any public goods, they were served by private charities. Relying on retrospective health histories for statistically matched residents in the two neighborhoods, Blaydes finds that the women of Imbaba received better reproductive health services than those of Bulaq al-Dakrur. Moreover, the former were no less likely to leave school or marry early. For all its limitations, the study challenges the conventional wisdom that Islamist rule necessarily harms women. It invites researchers to keep an open mind, in other words, to be on the lookout for mechanisms that either raise or diminish the effectiveness of Islamic charities.

Nothing in Blaydes' account suggests that Islamist social services owed their superior outcomes to distinct organizational characteristics. The broader literature on Islamic charities suggests that they did not. Hospitals with and without a religious identity are organizationally indistinguishable. In a study spanning Egypt, Jordan, and Yemen, Clark (2004) observes that Islamic charities do not adopt monitoring, communication, consulting, or cooperation templates that are somehow rooted in remembrances of Prophet Muhammad. For instance, in delivering medical services, the physicians of an Islamic clinic do not interact with patients, nurses, or each other any differently from their counterparts at secular clinics.

The rhetoric of Islamic charities suggests that they prioritize needs of the poor. In fact their beneficiaries belong mostly to the middle class. Like the best secular clinics, the best Islamic clinics are located in affluent neighborhoods. The leading Islamic clinics also charge fees that put their services beyond the reach of the poor. Many Islamic charities are known to provide higher quality services than government agencies. But their successes do not flow from their religious identity; secular private charities also outperform the government. The functions of Islamic charities include assistance to Islamist employers and job-seekers. The benefits of these services flow overwhelmingly to the middle and upper-middle classes.

Islamic charities differ from secular charities in the use they make of religion in fundraising. They are much more likely to appeal to Islamic solidarity. To be sure, this difference is a matter of degree. Even secular organizations, such as the Red Crescent Societies of majority-Muslim countries, often ground their fundraising campaigns in Islamic principles of assistance to brothers in need (Benthall and Bellion-Jourdan 2003). They also redouble their fundraising efforts in late Ramadan, when Muslims are particularly inclined to give.

Islamist political organizations, including those engaged in violence, use charity to gain support. As Berman (2009) shows, they use charity also to incentivize militants to undertake risky, and even suicidal acts. They tend to establish themselves in communities with an unmet demand for social services such as schools, clinics, youth programs, and old-age homes. In providing such services through Islamic charities, they gain sympathy. Much more is needed, however, to make individual beneficiaries risk their lives for the organization's political objectives. The Taliban of Afghanistan ensure their militants' loyalty by giving them a religion-based education that is useful only in an Islamist milieu. A militant who decided to disobey orders to carry out a risky attack and settle elsewhere would lack the skills to fit into a non-Islamist society. If he obeys and gets killed, his relatives left behind will be honored and supported for the rest of their lives. The perceived fearlessness of Taliban fighters is thus rooted, on the one hand, in their lack of an outside option and, on the other, in the charitable services received by loyal Taliban personnel and their families.

The Taliban's charities are financed primarily through taxes on the population under its rule. The sources of these funds are thus known. Yet a verse of the Quran (2:269-71) instructs believers to be discrete about their voluntary contributions. The verse is commonly taken to mean that Islam encourages anonymous giving. However, most major mosques, schools, libraries, hospitals, and fountains endowed by wealthy Muslims of the past millennium bear the founder's name. Evidently, at least among the wealthy, the norm was honored mostly in the breach. Donors could have a preference for anonymity when making donations of smaller magnitude. Lambarraa and Riener (2015) explore this possibility through field experiments in Morocco. Their subjects, all students, were given the option to donate from their payments for participating in a survey to a local orphanage under treatments that varied both the publicity of the donation and the salience of Islamic values. In the salient Islamic treatment, anonymity of donations increased the incidence of donation as well as the average size.

Whether a preference for anonymity exists among other Muslim populations remains to be explored. Research comparing motives for charity among Muslims and Catholics in several countries suggests that this preference, insofar as it exists, competes with various other motives. Experiments and interviews by Warner et al. (2015) show that the notion of "duty to God" triggers thoughts of charity among Muslims but not among Catholics. If God monitors everything, charity performed to please God need not be publicized; in fact, publicizing the act could be viewed as sullying the underlying motives. But the same research shows also that at their meetings members of the Hizmet movement led by the Pennsylvania-based Turkish imam Fethullah Gülen must announce annual pledges. Apparently, competition among members bolsters cash contributions and volunteer services. Here is a case where, at least within a prominent Muslim sect, publicity is considered virtuous because of a positive externality.

2.3.2 *Islamic Education*

The madrasa is a college devoted to Islamic education. Developed in the eleventh-century, it institutionalized a dichotomous division between the "religious sciences," which rest on Islamic scripture, and the "foreign sciences," which draw on pre-Islamic learning and develop independently of Islamic thought. The curriculum of the pre-modern madrasa was based overwhelmingly, if not exclusively, on the religious sciences (Makdisi 1981). Since the 19th century madrasas have co-existed all across the Muslim world with universities whose curricula feature disciplines that amount to "modern foreign sciences". Thus, the curriculum of the University of Karachi covers the range of fields found at the typical British or French university; by contrast, that of Jamia Darululoom Karachi, a madrasa, concentrates on Islamic law. "Islamic universities," such as Karachi's Sindh Madressatul Islam University, have emerged as hybrid schools whose curricula blend the liberal arts with Islamic teachings.

Madrasas and, to a lesser extent, Islamic universities have drawn scholarly attention on suspicion that they train students for careers in terrorism. Beyond the headlines, researchers have tried to determine how religious schools affect economic productivity and development. Focusing on Pakistan, Delavande and Zafar (2015) use experimental evidence to test whether students at madrasas, Islamic universities, and non-religious universities differ in terms of trust and trustworthiness. Intriguingly, they find that madrasa students are more trusting and also more trustworthy than students at the other types of colleges. The results thus suggest that a madrasa education, whatever its political effects and consequences for productivity, prepares students for interacting in a market economy. Yet, students from other backgrounds underestimate the trustworthiness of madrasa students. Insofar as a group's trustworthiness fails to elicit trust from outsiders, unrealized gains from trade are inevitable. The evident losses probably result from the political agendas of madrasas. These agendas must be obscuring the trustworthiness that madrasas impart with respect to market interactions. But the matter requires a fuller investigation.

In South Asia, the term madrasa applies not only to religious higher-education providers but also to religious secondary and primary schools. Lower-level madrasas have also been studied for possible economic effects. Focusing on secondary school children in rural Bangladesh, Asadullah (2014) compares registered madrasas and non-religious schools in terms of student achievement. When selection effects are accounted for, he finds, the two sets of schools are identical with regard to quality of mathematics instruction. The madrasas are slightly less effective in teaching English but, unsurprisingly, more effective in teaching Islam. By the same token, the quality of secondary education in rural Bangladesh is low across the board. With regard to preparing students for professional success, all Bangladeshi schools are failing badly, irrespective of whether they have a religious identity.

Andrabi, Das, and Khwaja (2012) reach similar conclusions in a study of Pakistani primary schools. Madrasas constitute fewer than six percent of all primary schools; non-madrasa private schools are more than four times more numerous. Parents tend to prefer private schools to public schools because the quality of education tends to be higher. The poorest and smallest villages lack a choice because neither madrasas nor non-madrasa private schools locate in such areas. Insofar as improving human capital is the goal, the major challenge is to improve the public school system by addressing such problems as teacher absenteeism, class size, and school management. The quality of madrasa education is a secondary issue because at most 2% of Pakistan's schoolchildren attend a madrasa.

These works raise the issue of whether religion has somehow stood in the way of educational reforms that would improve learning outcomes generally. It could be that religion undermines all education by closing minds; Andrabi, Das and Khwaja (2012, 173) hint at this in invoking the "ideological bent of the majority of the population." Ideology constrains reforms, they hold, either because of sensitivities or by causing and preserving imbalances of power.

Female education offers a case in point. Practices associated with Islam, such as the segregation and shielding of girls in the interest of family honor, could diminish human capital by limiting the education of girls. They could leave mothers poorly educated, harming the intellectual development of children, girls and boys alike. Such logic suggests that a government committed to Islamization might harm educational outcomes more by promoting a morality inimical to female education than by increasing the religious content of education. Asadullah and Chaudhury (2010) explore these possibilities by comparing the relevant attitudes of the female graduates of registered secondary schools and madrasas in rural Bangladesh. Controlling for a rich set of individual, family, and school traits, they find that madrasa graduates differ on attitudes associated with female employment, desired fertility, and higher education for girls, when compared with their secular-educated peers. In particular, madrasa graduates are less likely to believe that husband and wife should both contribute to income and that a married working woman and married wife are equal; they are also more likely to prefer an unspecified number of children (meaning the number is “up to God”) and to consider higher education a preserve of boys.

Meyersson (2014) takes a different approach by exploiting data on Turkey’s municipal elections of 1994. Municipalities most likely to elect an Islamist mayor may also be those where female education was constrained for other reasons. Generally, therefore, the causal effects of Islamist electoral victories cannot be separated from the factors responsible for the wins themselves. To minimize the unobservable factors driving the election results, Meyersson uses a regression discontinuity empirical design. Specifically, he compares educational outcomes in two classes of municipalities: municipalities where the Islamist candidate for mayor barely beat a secular candidate and those where the Islamist candidate barely lost. Over a period of six years, Meyersson finds, in closely contested municipalities female secondary education advanced more where the mayor was Islamist than where he or she was secular. Moreover, the effects were still measurable 17 years later, and adolescent marriages remained lower. The underlying reason, Meyersson proposes, is that Islamist mayors took measures that made socially conservative parents feel more comfortable sending their daughters to school. These included refusing to enforce the ban on girls wearing a headscarf in school, building dormitories for girls, and instituting extracurricular activities compatible with conservative values. The argument underscores that conservative movements can have liberating effects and, conversely, that the well-intentioned policies of socially liberal movements may undermine their own objectives.

The finding, assuming that it holds up under further scrutiny, does not imply that Islamist rule is generally good for the productivity of the poor or the welfare of women. The distributional effects of a political party’s rule depend on much more than the measures it takes to encourage conservative parents to send their daughters to school. A fuller assessment would consider also mechanisms operating through the rule of law, investment patterns, the business climate, and legislation concerning women’s rights. In any case, the improvements in question may have causes other than Islamist municipal governance. They include the establishment of substantial numbers of new religious schools by a conservative-Islamist coalition government in 1996 and the extension of compulsory schooling in 1997 from five to eight years.

Related work by Güleşçi and Meyersson (2015) estimates the effects of the 1997 law on women’s religiosity and empowerment. Using another regression discontinuity design, the authors find that in increasing the average length of secular schooling the extension of compulsory education lowered women's professed religiosity, reduced their likelihood of wearing a headscarf, gave them greater control over marriage and contraception, and increased their consumption of durables. By the same token, labor participation was unaffected, possibly because the attitudinal changes were too weak to overcome various constraints on female employment. Using a nationwide 2012 survey, Cesur and Mocan (2014) confirm the Güleşçi-Meyersson results. They find, in addition, that the added secular education lowered women's tendency to vote for an Islamist party.

Just as market pressures influence the decisions of Islamic charities, they could induce modifications in the curricula of Islamic schools. Indeed, many of the thousands of Muhammadiyah-operated Indonesian schools made curricular adjustments to prepare their students for modern life. Specifically, they trimmed the hours reserved for religious subjects to allow time for learning modern knowledge and skills. Fuad (2004) observes that the initial pressures to modernize the curriculum came in the 1910s from middle-class Muslim merchants, who wanted their children to acquire the skills necessary to compete effectively with the graduates of both Christian schools and essentially secular government schools. The ensuing curricular reforms entailed copying selected educational programs of the Christian schools. Muslim students thus acquired opportunities to obtain a modern education without exposure to the proselytizing of Christian missionaries. The Muhammadiyah movement's commitment to modern education has continued to the present. According to Fuad, two-fifths of Muhammadiyah schools follow a "traditional curriculum," under which 30% of class time is spent on religious subjects and 70% on general subjects. An even larger number follow Indonesia's "national curriculum," which limits religion to two hours a week.

Neither the curricular modernization pressures on the Muhammadiyah nor the subsequent reforms should come as a surprise. After all, earning an income is a powerful human drive. But other aspects of Indonesia's educational history, which Fuad also relates, defy simple explanation. Firstly, the curricular borrowing in question was limited to the natural sciences and courses directly useful to business, such as accounting and management; many modern social subjects, including the humanities, were excluded. Secondly, the teaching of Islam has relied persistently on memorization; no serious attempt has been made to use it as a vehicle for improving critical thinking. Finally, religious and modern subjects still form two separate and non-overlapping spheres throughout the Indonesian educational system. Although Muslim thinkers placed the fusing of Islamic and modern learning on the reform agenda as early as the 19th century (Zaman 1999), in Indonesia no such integration has taken place. Whether financed by the state, the Muhammadiyah, or some other entity, an Indonesian school's curriculum is still characterized, first and foremost, according to its apportionment of teaching time between Islamic and modern education.

With local variations, education patterns in other Muslim communities around the globe present the same puzzles. Vast literatures spread across the humanities and parts of the social sciences address the tenacity, pedagogy, and politics of Islamic education. But the puzzles have barely been recognized as having economic relevance, to say nothing of measuring systematically the economic effects of the observed patterns. Given that critical thinking skills undergird the pace of innovation (Sternberg 1995) and hence economic success, why have market pressures not induced reforms in Islamic education itself? Why has the training of critical thinking been neglected, especially as it relates to Islam? And what are this neglect's measurable consequences?

The fruitfulness of addressing such questions through modern empirical methods is brought into relief by Platas Izama (2015), who identifies a curious relationship between Muslim population share and educational attainment. In sub-Saharan Africa, she finds, Muslim educational attainment is *inversely* related to the Muslim share of the population. Thus, Muslims get less education, on average, if they live in a Muslim-majority country governed primarily by Muslims than if they live in a Muslim-minority country governed principally by non-Muslims. To identify the underlying mechanisms, she uses administrative data and a household survey with embedded experiments conducted in two districts of Malawi, one Muslim-majority and the other Muslim-minority. Ruling out possible explanations such as financial or informational barriers to education, discrimination, and even tradeoffs between religious and modern education, Platas Izama proposes that differences in socialization account for the paradox. In Muslim-majority areas, politically powerful elites raise the salience of the conflict between religious identity and secular schooling; in response, parents, especially those poorly educated themselves, hold their children back from school. In Muslim-minority areas, elites concerned with Muslim religious identity have less political power, which keeps them from giving the conflict in question salience. The argument thus links Muslim underachievement in education to the perception of a "cultural threat".

The Platas Izama finding suggests that research concerning the Islam-education connection should focus on the governance of education and on socialization mechanisms that influence education decisions. And the underlying research provides one way to explore the links between Muslim education, on the one hand, and Muslim governance and socialization on the other. It is in line with the earlier-noted conjecture of Andrabi, Das and Khwaja (2012), that Islam undermines all education by closing minds. It harkens to the Bénabou, Ticchi, and Vindigni (2015) mechanism through which religion impedes economic success. Moreover, it helps to explain the findings of Delavande and Zafar (2015), Asadullah (2014), and others regarding the absence of major differences in educational outcomes between the students of Islamic and secular schools. All such works suggest that the primary order effects of Islam on education work not through Islamic schools but, rather, through structural factors that handicap schooling generally in heavily Muslim societies.

2.3.3 *Islamic Finance*

Islamic finance refers to a class of financial transactions that are ostensibly free of interest and compatible with Islamic teachings. It encompasses Islamic banking, asset-backed Islamic bonds known as sukuk, Islamic insurance known as takaful, along with Islamic credit cards, mutual funds, stock indexes, mortgages, and microfinance. The Islamic finance market was estimated to hold assets around $2 trillion in 2016 (Islamic Financial Services Board, 2016). The figure represented 1% of the global finance market of around $200 trillion. The global share of Islamic finance pales in comparison to the 24% share of Muslims within the global population, or even to the 14.5% global GDP share of the 57-member Organization of Islamic Cooperation (Table 1). Evidently, only a small share of the financial transactions by or among Muslims follows a self-consciously Islamic template. Nevertheless, in the Muslim world and even beyond, the rise of Islamic finance represents a challenge to conventional finance.

Although the concept of distinctly Islamic finance emerged in the 1940s, it became operational only with the opening of Dubai Islamic Bank in 1975. For more than a decade thereafter Islamic banking remained the only form of Islamic finance with a global presence. What makes Islamic banks distinct, according to their architects and promoters, is their shunning of interest. In theory, an Islamic bank accepts deposits and makes loans on the basis of profit-and-loss-sharing (PLS). Its depositors earn returns by sharing in the profits that the bank earns through its investments. For its part, the bank gets compensated for its services by sharing in the profits generated by the projects that it finances. In principle, PLS mimics the partnerships through which medieval Muslim traders shared commercial risks with the investors who financed their operations. The contractual terms of these partnerships were enforced through Islamic law, which is why PLS is considered “Islamic.”

Scholarship on Islamic banking focuses on whether its actual operations differ in any fundamental way from conventional banking, which deals in interest openly and without apology. In practice, various researchers have shown, the returns of Islamic banks are statistically indistinguishable from those of the conventional banks with which they compete. They generally set their “profit shares” in advance through procedures that make simple transactions look complex. Hence, their returns amount to what most economists call interest. The reason why Islamic banks resort to interest is not for lack of commitment to their charter. Rather, like profit-maximizing conventional banks, they consider interest advantageous under conditions of asymmetric information (Kuran 2004a, 12-13).

There is nothing unusual about financial institutions maximizing profits or finding interest convenient. Could the architects of Islamic banking have failed to appreciate the advantages of interest to financial transactors? Initially, they were unconcerned with the economic functions of Islamic banking. Aiming first and foremost to distinguish the economic behaviors of Muslims from those of non-Muslims, they saw Islamic banking as a vehicle for creating a financial subsector that would separate Muslims from the rest of humanity. Precisely because interest is so fundamental to banking throughout the world, interest-free banking would serve as a visible marker of economic Islamization (Kuran 2004a, 87-89).

The most comprehensive analysis of how Islamic finance generates products belongs to El-Gamal (2006, 2008). The first step, he notes, involves deciding that an Islamic variant of some market-tested financial product is needed. Certain features of the popular product are declared “un-Islamic,” and an “Islamic” alternative is introduced. Because the prohibited features serve useful functions, the next step is to find compensating loopholes. Ancient procedures implemented under Islamic law are redeployed, often in modernized form. The “new” product is presented as an Islamic alternative to the pre-existing product, invariably under an old Arabic name that evokes piety, especially among the vast majority of Muslims who do not speak Arabic. Often the alternative is a functionally identical yet cosmetically different version of the prohibited procedure. It amounts to writing “1+1=2” in a more complicated form, such as “$(-0.7+1.7)^2+(3/3)=(4)^{1/2}$. Many of the financial procedures touted as Islamic are ruses medieval Islamic jurists developed expressly to circumvent inconvenient legal barriers. Certain ruses, such as the double sale used to bury interest payment in a fictitious transaction, have Christian equivalents dating from the Middle Ages, when the Church prohibited interest.

The use of ruses is not costless, observes El-Gamal. The lawyers who seek acceptance from regulators do not work for free, nor do the Islamic specialists who rule on “Islamicity”. The public relations officials burdened with distinguishing Islamic products from their conventional counterparts absorb additional resources. More important, the loss of transparency makes it harder to price risk. Indeed, it undermines institutions built over decades, if not centuries, to facilitate the measurement of risk. Still another cost involves the facilitation of corruption. In complicating financial transactions deliberately, Islamic finance opens itself to money laundering and financial fraud. What it obtains in return is legitimacy in the eyes of savers, investors, depositors, and financiers who value “Islamicity” as an end in itself. Islamic finance thus opts for lower financial efficiency as the price of differentiating itself as “Islamic”.

The credit card is a financial instrument that gained popularity outside the advanced economies after the emergence of Islamic banking. As such, it offers an especially clear case of the process described by El-Gamal (2006). In Turkey, credit card use took off in 1990 with the establishment of an Interbank Card Center. By then, Turkey had had Islamic banks for seven years. They denounced credit cards as un-Islamic categorically. Meanwhile conventional banks massively increased their supply of credit cards, making it clear that they are a major source of revenue. Consumers of all stripes, including pious Muslims, quickly warmed up to instantaneous credit. Sending the emerging opportunities, Turkey’s Islamic banks responded quickly. In 1998, they all introduced “credit cards without un-Islamic features”; though called credit cards, these functioned as charge cards. The first *bona fide* Islamic credit card—one that allows payment for purchases in installments—was issued in 2002, a decade after conventional Turkish banks first offered the service.

Since Islamic banks had denounced charging interest for delayed payment, they had to concoct Islamic alternatives. Some Islamic banks opted to use annual fees for the right to spread payments up to a particular limit; others chose to mimic the functions of interest through multiple sales that are all legitimate in themselves; still others would charge interest under the guise of an “inflation adjustment”. The upshot is that Turkey’s Islamic banks now supply Islamic credit cards that substitute closely for conventional credit cards. In stages, they have accepted as “Islamic” features and functions that they had all condemned as un-Islamic just years earlier, before it became clear that Muslims generally wanted them (Çokgezen and Kuran 2015). The main substantive difference between Turkey's conventional and Islamic credit cards is that the charges of the latter are less transparent.

With local variations, the Turkish pattern resembles that of other markets where Islamic credit cards have made inroads. Wherever they exist, enormous efforts are made to brand them as fundamentally different from conventional credit cards, even as they perform identically. Çokgezen and Kuran (2015) validate this observation statistically by comparing the most popular conventional and Islamic entry-level credit cards of three countries: Turkey, Malaysia, and United Arab Emirates. Using analysis of variance tests, they show that for cash withdrawals and debt rollovers, differences across countries drive the variations across cards. Put differently, each country's Islamic cards resemble its own conventional cards more than the Islamic cards of other places. Just as avoidance of interest is not a distinguishing feature of Islamic credit cards, so their charges are indistinguishable from those of the conventional cards with which they compete. The observed pattern is characteristic of segmented competitive markets. In all three countries, people freely choose among numerous local credit cards, most conventional and many Islamic. Market pressures force Islamic banks to offer credit cards, but also to make the cards resemble those of their conventional competitors.

Whether Islamic banking differs in economically meaningful ways from conventional banking has been explored also by Aggarwal and Yousef (2000), with emphasis on Egypt, Iran, Jordan, and Malaysia in the 1990s; Chong and Liu (2009), in regard to Malaysia between 1983 and 2004; Khan (2010), on the basis of data from Pakistan and the Arab Gulf; and Pepinsky (2013), using survey data from Indonesia. All these articles and many others (for a survey, see Abedifar et al. 2015) agree that Islamic banking differs from conventional banking mainly in symbolism and terminology.

Reaching the same conclusion through a dataset covering 22 countries consisting of both Islamic and conventional banks over 1995-2009, Beck, Demirgüç-Kunt, and Merrouche (2012) explore whether Islamic banking is efficient, and how it functions during financial crises. Although huge advocacy and operational literatures are replete with pertinent claims, analytical exercises are strikingly scarce. The authors find, on the one hand, that Islamic banks are relatively less cost-effective and, on the other, that they perform better during financial crises. The former result validates El-Gamal's (2006) claim as to the inefficiency of Islamic finance. It identifies quantifiable costs to constraining banks and complicating their operations for the sake of Islamic branding. As for the latter result, it appears to be driven mainly by the investment strategies of Islamic banks. Relative to conventional banks, Islamic banks are better capitalized; they also invest more conservatively and hold higher reserves. Through a sample from 24 countries between 1999 and 2009, Abedifar, Molyneux and Tarazi (2013) confirm that Islamic banks lend more conservatively. In countries governed by Islamists, a complementary factor might lie in the special assistance that Islamic banks enjoy during financial crises. But this conjecture awaits verification.

The finding that Islamic banks pursue relatively conservative investment policies conflicts with a key claim of the architects of Islamic banking, that borrowers without connections and low collateral would benefit (*Global Financial Development Report*, 2014, 36-37). The underlying logic is that a bank lending on the basis of PLS will take more risk than one required to ascertain the borrower's creditworthiness. The conflict between Islamic banking's lending principles and practices reflects managers' reluctance to do PLS.

In a complementary paper, Demirgüç-Kunt, Klapper, and Randall (2013) explore whether Islamic finance has advanced financial inclusion. They do so on the basis of a sample of adults from 64 countries, which include three-quarters of the world's adult Muslim population. They find that Muslims are no less likely than non-Muslims to report borrowing from a formal financial institution or, for that matter, to report borrowing in any form. By the same token, self-identification as Muslim is associated with a 6 percent decrease in the probability of having a formal financial account. If religious factors are among the gap's causes, Islamic finance might contribute to financial inclusion.

Yet, in this cross-country sample just 7 percent of unbanked people cite religion as a barrier to account ownership; and outside of sub-Saharan Africa, Muslims are no more likely than non-Muslims to abstain from formal finance for reasons of faith. Like non-Muslims, Muslims list cost, documentation requirements, and distance as the key barriers. Moreover, religiosity appears statistically irrelevant. A limitation of this worldwide dataset is that it does not distinguish between conventional and Islamic financial products. To test whether access to Islamic finance makes a difference, Demirgüç-Kunt, Klapper, and Randall (2013) use a separate dataset based on interviews conducted in the Middle East and North Africa alone. As much as 45 percent of the respondents would choose an Islamic product over an otherwise identical conventional alternative even if it required paying an additional charge equivalent to 5 percent of the loan amount. But only 2 percent report current use of Islamic finance. The huge gap between expressed preferences and actual behavior may be due, in part, to ignorance about Islamic financial opportunities. Intriguingly, living in a home with a TV and internet is strongly related to use of Islamic finance. However, the gap remains to be explored systematically.

What is beyond doubt is that in predominantly Muslim countries financial inclusion is quite low by global standards. Using OIC membership as the criterion for identifying Muslim countries, Ben Naceur, Barajas, and Massara (2015) report that on average they exhibit about 425 fewer financial accounts per 1000 adults, 12 fewer financial branches per 100,000 adults, and about 20 percentage points lower credit use by firms. Might Islamic finance, now in in its fifth decade, be closing the gap? Through various controls and empirical specifications, the authors find no reliable association between financial inclusion and access to Islamic banking. Using macro data, they thus reproduce the micro findings of Demirgüç-Kunt, Klapper, and Randall (2013). Nevertheless, and as both sets of authors acknowledge, scholarship on the effects of Islamic banking is in its infancy. A study by Gheeraert (2014) underscores the need for further investigations. Using a global data base of Islamic commercial banks, it finds that Islamic banking stimulates financial development without crowding out conventional banking.

As with other Islamic financial products, analytical research on sukuks (Arabic plural, *sukk*) began with the question of how it differs from conventional, interest-based bonds. A sukk is a debt instrument that involves transfers of a tangible asset. In one common variant, the borrower sells an asset to the lender, who then leases that same asset back to the borrower; the borrower makes regular payments to the lender through the income generated by the asset; and at some predetermined date, the borrower repurchases the asset from the lender. What makes this set of transactions "Islamic" is the asset's centrality. But the asset is often fictional, and frequently the periodic payments are tied to a widely used interest rate index such as LIBOR or EURIBOR. As a matter of practice, then, sukuks commonly resemble variable-rate conventional bonds, the only difference being their cumbersome structure that disguises their real function. The masking is done by certified Sharia experts, who get compensated for their services at the expense of parties to the financial transaction (El-Gamal 2006, chaps. 6-7; Khan 2010, 815-16).

Some sukuks are structured as a partnership contract in which the financier earns not a predetermined income stream but, rather, a predetermined share of the issuer's profits, positive or negative. These sukuks differ functionally from conventional bonds, so it is instructive to investigate whether financial markets treat them differently. Taking on the task, Godlewski, Turk-Ariss, and Weill (2013) focus on corporate debt in Malaysia, the world leader in corporate sukuk issues. Malaysian law treats bond and sukuk income identically for taxation purposes, which spares the analysis of tax-related distortions. The stock market reacts negatively, the authors show, to sukuk issuance. In particular, firms that issue sukuks lose value relative to similar firms that borrow instead by issuing bonds. Validating market expectations, sukuk issuers subsequently experience lower performance than bond issuers. Apparently, stock market participants foresee the fall in the relative performance of sukuk-issuing firms. The results hold when controlling for firm characteristics before the issue of debt.

One reason for the observed underperformance of sukuk issuers lies in the costs of the many additional operations required. Another is that moral hazard is a more serious problem with sukuks, because issuers have less to lose from misusing the funds at their disposal. These observations raise the question of why firms issue sukuk in the first place. After all, Malaysian law allows firms to issue bonds instead. A plausible explanation is that firms are incentivized to issue sukuks when they anticipate a slowdown. In addition to shifting some of the expected losses to the lender, sukuks may allow the borrowing firm to keep its balance sheet looking healthy. In sum, the advantages that firm managers obtain from issuing sukuk outweigh the consequent bad signals and the associated harm to shareholders as a whole. The analysis leaves unanswered whether individual firms shift back and forth between sukuks and bonds according to ups and downs in expected profitability.

2.4 Muslim Economic Attitudes

At least since Max Weber's *Protestant Ethic and the Spirit of Capitalism* (1904-5/1958), a widely held view has been that Western Europe's economic ascent was galvanized by attitudes conducive to thrift, education, and work. A corollary of the Weberian thesis is that if a civilization, region, or nation has fallen behind, attitudes inimical to economic growth must have been responsible. For a century, tests of this thesis involved analytically crude cross-country comparisons. But an emerging literature is using advanced empirical or experimental techniques to identify relevant attitudinal differences.

The World Values Survey, which for decades has been administered to representative samples in dozens of countries, contains information about religious affiliation, training, and participation. Using questionnaires from 1981-97, Guiso, Sapienza, and Zingales (2003) identify the relationship between religious beliefs and economic attitudes, controlling for country-based fixed effects. The authors find that a Muslim religious upbringing increases trust in government and the courts. These tendencies must facilitate government-led reforms and the provision of public goods through the state. On the negative side, a Muslim upbringing lowers general trust, raises intolerance toward immigrants and other races, lowers the acceptance of inequality as a means of providing incentives, depresses faith in competition, and fosters repressive attitudes toward female education and employment. Such effects are generally harmful to economic development. On the whole, the authors conclude, Islam promotes attitudes consonant with the Muslim world's low economic performance.

To its credit, this study distinguishes between practicing and nominal Muslims. Its findings raise the question of whether, say, Muslim Arabs with secular upbringings and secular lifestyles perform any differently—controlling for such factors as gender, age, and education—from their devout compatriots raised in religious families. The study does not speak to this question. Only if the two groups differ in economic performance, could one infer reasonably that Islam retards development through the economic attitudes it inculcates. If the two groups are indistinguishable in economic performance, the observed economic underperformance of the countries in question would be attributable to the country-based fixed effects that Guiso, Sapienza, and Zingales control for. Those fixed effects include the persistent consequences of institutions governing economic relations.

One such consequence is low general trust. This is a condition typical of countries that started to adopt modern economic institutions in reaction to the existential threats instigated by Europe's industrialization and its building of colonial empires. In predominantly Muslim countries, according to the World Values Survey, just 28% of the respondents report that "most people can be trusted," as against 46% in predominantly Protestant European countries. Bohnet, Herrmann, and Zeckhauser (2010) investigate the sources of this difference through experiments. They do so using trust and risky dictator games with subject pools assembled in Kuwait, Oman, the United Arab Emirates, Switzerland, and the United States. Residents of the Arab Gulf are particularly averse to betrayal, it turns out; this lowers trust, except within social networks. Consequently, Emiratis, Kuwaitis, and Omanis require greater levels of trustworthiness before they will trust. The Swiss and Americans are substantially less averse to betrayal, because they come from societies where contract breakers can be forced to pay damages. Through experiments conducted in Cairo, Binzel and Fehr (2013) find further evidence of a low-trust equilibrium that inhibits profitable exchanges.

A millennium ago, Europeans lacked the formal institutions through which they now enforce contracts. Had the World Values Survey been conducted then, it probably would have shown the level of general trust to be similar among Europeans and Middle Easterners. That is because Europe had not yet established institutions conducive to impersonal exchange. An obvious next question is why institutions that lowered the costs of interacting with strangers have fallen much more substantially in Western Europe than in the Middle East. Section 3 ahead, which surveys works focused on the past, provides clues to the origins of the attitudinal differences identified both by Bohnet, Herrmann, and Zeckhauser and by Guiso, Sapienza, and Morales.

But we have not yet exhausted the important works on the economic effects of contemporary Muslim attitudes. Using a large rural survey covering 16 states of India, Borooah and Iyer (2005) explore the effects of religion and caste on school enrollments. They find that attitudes on education affect whether children go to school, as do their parents and communities. Among the factors that reduce the likelihood of Muslim children receiving an education is that their communities, and their own parents, are relatively more likely to discourage schooling as "unimportant." The possible causes of the negative attitudes toward education include perceptions of discrimination in the labor market, the use of Hindu-centric textbooks, and, with respect to girls, veiling restrictions. Whatever the sources of the inter-communal differences in attitudes towards school enrollment, they are sharpest when parents are illiterate. Moreover, the literacy of mothers is particularly important. Between Hindus and Muslims, 90% of the community effect for boys and 96% of the community effect for girls comes from families with an illiterate mother. The results imply that educating women is critical to increasing the next generation's educational opportunities. They also establish that attitude-driven intercommunal differences in school enrollments are not immutable. Children born to literate Muslim parents will almost certainly be schooled regardless of communal pressures.

Norton and Tomal (2006) focus on links between religion and female education using a global sample of 97 countries. Controlling for colonial heritage, urbanization, labor force participation, and young adult mortality, they identify a powerful negative link between the Muslim share of the population and female educational attainment. Specifically, a one standard deviation increase in the Muslim share raises the unschooled female population by 12.3%. A larger Muslim population share is associated also with a wider gender gap in educational attainment. The research design is not suited to identifying the mechanisms at play. But the works of Borooah and Iyer (2005) and Platas Izama (2015) point to communal socialization patterns as a key factor. Further country-specific and comparative studies are needed to determine the extent to which Muslim attitudes are at play globally.

2.5 Islamic Economies

The idea of restructuring entire economies according to Islamic principles has been on the Islamist agenda since the 1940s. But concrete economic Islamization initiatives have tended to have a more limited scope. A basic reason is that Islamists have lacked the political power to implement their agenda beyond isolated sectors. Thus, most initiatives have consisted of the fiscal and financial transformations reviewed in sections 2.2.3 and 2.3.3. The only attempt at comprehensive restructuring was made in Iran, where Islamists gained full political control in the aftermath of the 1978-79 revolution that overthrew the Pahlavi monarchy.

Prior to the revolution, Iranian Islamic thought harbored two competing visions of the ideal economy. The first entailed a staunchly egalitarian system. Dubbed “Islamic socialism,” it would seek redistribution in favor of the oppressed masses and state ownership of major productive assets. The second vision, often called “Islamic capitalism,” was of a market system regulated by Islamic norms and regulations (Behdad 1994). During the first decade after the Iranian Revolution, from 1979 until the death of its leader Khomeini in 1989, the redistributionist faction within the regime enjoyed considerable power. Property was confiscated on a vast scale, and many sectors, including banking and insurance, were nationalized (Behdad 1995). One consequence was capital flight on a massive scale. Another was a 20 percent decline in manufacturing output. Because of such setbacks, Iran’s GDP shrank by over 40 percent between 1977 and 1988 (Rahnema 1995, 141; Pryor 2009, Table 11.1; Amuzegar 1992, 417-21). This experience discredited the efficient and egalitarian vision of the Islamic economy, spurring a powerful alliance in favor of its liberal alternative. After Khomeini, the Islamic Republic sought help from the World Bank and the International Monetary Fund to re-transform its economic system, now according to liberal economic principles. Property rights were strengthened. Egalitarian policies imposed under the guise of Islamization gave way to policies tolerant of inequalities and relatively respectful of market freedoms (Behdad 2006).

For all their differences, the two competing visions of Iran's Islamic future agree that Islamic rules would lower corruption. Citizens would obey rules more readily, and officials would be reluctant to sell influence. Yet, since 1989 massive corruption has remained among the hallmarks of Iran's economy. As of 2016, Transparency International ranks Iran among the world's 50 most corrupt countries, out of 176. One source of corruption is the power of the clergy, another the ambiguity of many rules imposed in the name of Islam. Each of these factors has been a major source of rent seeking (Karshenas and Moshaver 2012; Kamrava 2012).

The egalitarian and liberal versions of the Islamic order are equally committed to de-feminization of the labor force. They both oppose gender mixing in the workplace. In the first decade of the Islamic Republic, it was common for enterprises to stop hiring women in order to avoid hassles with government agencies and vigilantes committed to enforcing Islamic morality. Some firms replaced their female employees with men because of the impracticality of creating gender-segregated workplaces. The economic liberalization policies adopted after 1989 made it impossible to enforce the de-feminization policy. In cities female labor participation quickly rose above its pre-Revolution level (16.5% in 2006, as against 11.9% in 1976). Initially, the growth in female employment came almost entirely in low-ranked, low-paid positions; the share of women holding managerial positions is at its 1976 level (Behdad and Nomani 2012). But the trend is upwards for female managers in the 25 to 50 age bracket. The rapid expansion of education opportunities beyond the middle and upper classes in the first quarter-century of the Islamic Republic has increased the supply of educated women who qualify for professional positions (Bahramitash and Esfahani 2009).

2.6 Islamic Networks

Regardless of political regime, all predominantly Muslim countries, and even many where Muslims form a minority, have "Islamic" business networks. Their distinction is that their members are uniformly Muslim and, critically, that their operations are identified with Islam. The prominence of these networks justifies studies on their contributions to economic development and their effects on the distributions of wealth, income, and political influence. Yet their capabilities and limitations have not been researched using econometric techniques simply because pertinent data sets conducive to quantitative analysis are hard to collect and standardize. The chief difficulty is that interactions within these networks are largely invisible to outsiders.

Under the circumstances, the most insightful works on Islamic networks are ethnographic studies (Cesari 2003; Singerman 1995). These feature five themes of interest here. The first is that network membership is akin to belonging to a club. Members receive support from other members in return for contributions to the group and, sometimes, to the wider society as well. Secondly, their commercial successes are explicable through the institutions that govern their operations, rather than characteristics of Islam; a common counter-claim is that Islam enables networks to overcome free rider problems that debilitate analogous secular groups. Thirdly, Islamic networks benefit from alliances with politicians who give them access to rents. Fourthly, members' religious ties do not necessarily trump their pursuit of self-enrichment. Finally, the timing of the emergence of Islamic networks—second half of 20th century—reflects opportunities associated with economic modernization. Let us take up these themes in turn.

Although few of the works on Islamic networks rely on the economic theory of clubs, or even on its applications to religion specifically (Iannnaccone 1992), they describe groups that behave essentially as clubs. The networks in question include the global Hizmet network led by Fethullah Gülen (Dreher 2015), Syria's Damascus-based Jama'at Zayd (Pierret and Selvik 2009), the Bilal Muslim Mission of sub-Saharan Africa (Ahmed 2009), and Eastern Indonesia's Hadhrami network coordinated by the Islamic organization Al-Khairaat (Slama 2011). The members of these networks give each other business, and they support one another financially in times of need. In return for these advantages, they help to finance the group's activities and participate in its recruitment campaigns. They also provide charity, both on their own and jointly with the group. Thus, the members of Jama'at Zayd finance mosques, schools, and hospitals affiliated with the group. They also fund poverty alleviation programs, provide care for orphans, and help impoverished youths get married. Through its members' donations, the Hizmet movement has established schools in 130 countries, along with thousands of mostly volunteer-staffed outreach centers.

A controversy in the literature on Islamic networks concerns the motivations underlying the observed patterns. In line with the logic of club goods, many writings hold that network members are incentivized to serve their collective needs through the threat of expulsion. The individual decisions that account for the network's workings have nothing to do with religion per se, they observe; Islam serves simply as a source of identity for which a non-religious unifier, such as region or ethnicity, could easily substitute. Other writings, primarily those of activists, hold that Islam suppresses the selfish motivations associated with *homo economicus*; in promoting altruistic drives and facilitating the identification of collective benefits, it turns each network member into *homo islamicus*, a faith-driven individual who obviates the need for extra-religious institutional interventions. Still other writings, including those just cited, try to have it both ways. They discuss the incentives for joining the network and abiding by its requirements, then claim that its spiritual functions foster pro-social attitudinal changes in its members. But they do not reconcile the two explanations or estimate their relative contributions.

Certain accounts of the Hizmet movement integrate the two sources of motivation by adding a third: corporate social responsibility. Under these accounts, community building and business development are complementary rather than rival pursuits (Dreher 2015, 828-30; Yavuz 2013). Indeed, companies whose owners and managers belong to the Gülen network invest in programs, institutes, schools, and universities that expand the network as part of a strategy to improve their own business opportunities. Through Gülen's writings and those of his followers, but also through organized discussions among network members, the movement's members learn that profit making provides the resources for building a prosperous Muslim society. Free riding is limited also by making network members compete for status within the network by investing in public goods.

In providing social services, the Gülen network has also pursued political power in its homeland, Turkey. During the first decade of Islamist rule in Turkey under the Justice and Development Party (AKP), Gülen's network shared in the privileges of power, including preferential treatment in government hiring and contracts (Gürakar and Meyersson 2016). Meanwhile, the network joined, and in some respects spearheaded, efforts to undermine the country's secular institutions dating from the 1920s. Network members helped to end the staunchly secular military's role in politics, most saliently by participating in the fabrication of evidence that implicated hundreds of generals in coup-plotting (Rodrik 2014). Along the way, there were tensions over leadership and the sharing of rents between the two camps, AKP and Hizmet. These came to a head in 2013, when Gülen associates tried to implicate AKP's leader, Recep Tayyip Erdoğan, in a corruption probe. Erdoğan responded by purging Gülenists from various state agencies, including the judiciary. A much larger anti-Gülenist purge followed the July 15, 2016 military putsch, which Erdoğan blamed on Gülen (Gorvett 2016). This brief account illustrates that, like secular business networks, religion-based business networks can use their resources for political ends. The extent to which Islamic business networks share an interest in political power has not been studied systematically; nor does there exist a comprehensive comparative study that illuminates the Gülen network's extraordinary global range and influence.

The literature on Islamic networks leaves unclear whether Islam gives them any special advantages that are absent from non-Islamic faith-based networks, or from non-religious networks, such as ones based on ethnic ties. Research on organized Islamic business associations suggests that their achievements are grounded in rent seeking. MÜSİAD, Turkey's main Islamic-oriented business association, offers an example. It was founded in 1990 by relatively small businessmen who felt disadvantaged by protectionist state policies favoring members of TÜSİAD, the politically secular association of the country's leading conglomerates, all with deep ties to the secular state (Buğra 1994, chaps. 3, 5). Based mostly in tertiary cities that played minor roles in the nation's economy, throughout the 1990s they fought for infrastructural investments benefiting their members. With the rise to power in 2002 of an Islamist-based party, the AKP, the tables turned. Since then, MÜSİAD has developed ties of its own to the state, and its membership's share of government contracts has grown. Rents once enjoyed by TÜSİAD now flow partly to MÜSİAD, whose members tend to sub-contract with each other (Lorasdağı 2010, Hosgör 2011).

Although MÜSİAD continues to be known as an association of small businessmen, as of 2013 its members include one-tenth of Turkey's top 500 firms (Özcan and Gündüz 2015, p. 66). Like TÜSİAD's members, MÜSİAD-linked companies are heavily concentrated in Istanbul (Buğra and Savaşkan 2014, chap. 4), Turkey's economic engine. In principle, it differs from TÜSİAD in its aversion to interest. But in practice all MÜSİAD companies give and take interest in one form or another, some through the legal ruses used by Islamic banks, others through fatwas that legitimize participation in interest-based deals within a "non-Islamic" financial system (Hoşgör 2011, p. 347). These two business associations differ in regard to women's rights, civil liberties, and foreign policy priorities; MÜSİAD is consistently closer to the positions of the AKP, TÜSİAD to those of the mostly secular elites who dominated politics up to 2002. Yet, in terms of investment, marketing, and commercial strategies, the differences appear minor, beyond MÜSİAD's heavy dominance in sectors that cater to religiously sensitive consumers, such as

Islamic finance and Islamic clothing. In its early days, MÜSİAD members drew a disproportionate share of capital from Turkish immigrants in Western Europe, who were interested in quick returns; accordingly, the corresponding investments went largely into consumer durables and construction, two sectors with relatively high cash flow (Özcan and Çokgezen 2003). Whether these patterns have changed under governments partial to MÜSİAD remains to be examined systematically.

If Turkey has attracted attention from researchers focused on alliances between pious businessmen and Islamist parties, Iran has drawn interest for its "mosque-bazaar" alliance. The Islamic movement that challenged the secular Pahlavi regime derived substantial strength from urban-based shopkeepers, brokers, and merchants known collectively as bazaaris. A widespread view is that the alliance has supported the conservative core of the Islamic regime since its revolutionary beginnings in 1979. Bazaari associations certainly served the Islamic regime in its early years. They helped it to "command right and forbid wrong" by imposing market regulations in the name of Islam and coordinating donations for national and religious causes. But bazaaris were never unified, and their divisions on such issues as trade regulation and labor policies deepened as the regime solidified its control; nor were they ever heavily represented within the regime itself, as measured either by the professions of parliament members or by their family backgrounds. Bazaaris encompass multiple and often-competing networks. They establish patronage channels for personal ends, rather than as vehicles for enhancing their collective welfare. Their political opinions show substantial variation, which challenges the view that they form a class conducive to wholesale mobilization (Keshavarzian 2009; Nomani and Behdad 2006, chap. 5; Smith 2004).

Unlike work in some other areas—Islamic finance, Muslim economic attitudes—research on Islamic economic networks has remained country- or area-specific. A synthesis of findings to date, with systematic attention to cross-national commonalities and differences, remains to be undertaken. Research is needed also on the circumstances under which Islam serves as the basis of network formation.

3. Historical Sources of Economic Underdevelopment

Studies that explore Islam's historical effects on the pace and nature of economic development comprise five strands. One examines the historical connections between Islam and the development of financial and commercial institutions. Another focuses on links between Islam, on the one hand, and urbanization or the provision of public goods on the other. A third literature investigates the court system, including its functions, procedures, biases, and evolution. The fourth strand consists of historical comparisons between the economic performance of Muslims and those of non-Muslim communities with which they interacted; the latter communities include Christians and Jews living under Islamic rule as well as Europeans conducting business in predominantly Muslim lands. Finally, there are works that investigate the historical impact of Islam on economic development in areas dominated by non-Muslims, such as Europe.

3.1 Commercial and Financial Underdevelopment

It is in the 18th and 19th centuries that the Middle East, South Asia, and other regions with high Muslim concentration came to be viewed as economic laggards. The markers of their economic underdevelopment included commerce and finance. Although they all continued to feature bustling bazaars teeming with shops and itinerant sellers, they lacked the large commercial and financial enterprises that were becoming increasingly critical to economic growth and prosperity. The world's largest commercial enterprises, as measured through capital or employment, were based overwhelmingly in Western Europe and North America, the leading economies of the time (hereafter the West, for brevity). The West also dominated the most rapidly growing sectors of the world economy—mass production, mass transportation, modern urban services, insurance, and banking. In majority-Muslim regions, banks were conspicuous by their absence until foreigners established the earliest prototypes under foreign legal systems. These interregional differences in finance mirrored interregional variations in the transition from personal and impersonal exchange. Far along in the West, the transition was delayed in lands under Middle Eastern governance and in heavily Muslim regions.

Generations of scholars have explored the origins of the evolutionary process that culminated in the institutions of the modern global economy. The emergence of banking in medieval Italy, the business corporation in the Netherlands and England, the business press in leading ports and cities, and the modern factory all across northern Europe and North America have all been studied with attention to key players and to the incentives that galvanized critical innovations. The links between these innovations have also been explored, with an eye toward identifying the mechanisms that made European economic modernization self-sustaining. It is natural to wonder why, for much of the second millennium, the dynamism characteristic of Western commerce and finance from the Middle Ages onward was lacking in the Middle East.

After all, when the West initiated its long transformation in the Middle Ages, the Middle East was not an economic laggard. If anything, it was economically more advanced, as measured by the global prominence of its commercial centers, its participation in global trade, and probably also its living standards. Something must have kept the Middle East institutionally lethargic in commerce and finance. Prominent historians have attributed the stagnation to conservatism rooted in Islam (see references in Kuran 1997). Yet, during the millennium when the Middle East's commercial and financial institutions stagnated, the region experienced major transformations in other areas; the military and taxation offer two examples. For that reason alone, conservatism does not explain the observed divergence.

An alternative theory centers on Middle Eastern institutions that limited incentives to preserve established commercial enterprises and accumulate private commercial capital (Kuran 2003a; 2005a; 2005b; 2011, chaps. 3-8). At the start of the second millennium Middle Eastern merchants and investors pooled labor and capital within partnerships essentially identical to those used by coeval European merchants. But partners were subject to inheritance rules that had two relevant effects. On the one hand, these rules tended to break up successful businesses after the founder's death. On the other, they incentivized resource pooling within small and short-lived partnerships. The inducements in question came from Quran-based inheritance rules. These required the division of an estate among all members of the deceased person's immediate family and parents, and, under certain conditions, more distant relatives as well. Under Islamic law, the immediate family could include up to four wives; ordinarily each additional wife raised the number of inheriting children, fragmenting the estate even further in relation to the nuclear family. The most successful merchants and investors tended to have more wives than average performers, which compounded the danger of fragmentation for large estates.

One outcome is that few major businesses outlived their owners. In the West, by contrast, less egalitarian inheritance systems enabled large commercial enterprises to survive and expand for generations. Another outcome is that merchants and investors sought to minimize the probability of getting entangled in estate settlements involving the heirs of deceased partners. By law, a partnership ended at the withdrawal, incapacitation, or death of any partner. Merchants and investors thus kept their partnerships small in membership and short in duration in order to avoid costly business interruptions. Indeed, as the West saw the emergence of large and long-living commercial companies, no such development took place in the Middle East. Put differently, the upper tail of the size distribution of enterprises did not lengthen in the Middle East, as it did in the West; likewise, the upper tail of the longevity distribution remained essentially stagnant. Although the vast majority of enterprises remained tiny in both regions, the growing differences in the upper tails of the size and longevity distributions would have momentous consequences.

The efficient exploitation of the Industrial Revolution's new technologies required enterprises that combined capital and labor on a scale far greater, and for longer time horizons, than familiar in the Middle East. Hence, by the 19th century the Middle East's commercial sector was structurally handicapped. The Middle Eastern economy also lacked various institutions that developed during the West's economic modernization process to alleviate the communication, coordination, and enforcement problems that emerged as exchanges became less personal with the growth in average enterprise size and longevity. Examples of such complementary institutions include standardized accounting, banks, and stock markets.

In the mid-nineteenth century Middle Eastern policy makers set out to make up for lost time through institutional reforms. The reforms have yet to run their course, because certain key ingredients of a successful modern economy fall into place only gradually, through experience. As a case in point, trust in large organizations develops as they interact with employees, clients, and suppliers. And the confidence to engage in impersonal exchange develops as people achieve gains unavailable through personal exchange. As noted in Section 2.4, in the Middle East the trust necessary for impersonal exchange remains below the levels of economically advanced societies.

The foregoing theory does not invoke interest, whose ban under Islamic law is often cited as a key source of the Middle East's slip into underdevelopment. In fact, and as Rubin (2010, 2011) also notes, in the Middle Ages there was no essential difference between the Middle East and the West with regard to the permissibility of interest. In both regions, interest was banned for scriptural reasons; and people routinely dealt in interest through legal ruses that clerics accommodated. Thus, interest-based financial contracts were common in both the Medieval Middle East and Medieval Europe. So the interest ban cannot explain why financial markets modernized in one of these regions while essentially stagnating in the other. The key difference between the two regions does not lie in how lenders were compensated. Rather, in the Middle East credit markets remained personal much longer, and banks—indefinitely living financial intermediaries that connect depositors and lenders unknown to one another—emerged with a delay of many centuries. Kuran (2005; 2011, ch. 8) considers the Middle East's failure to produce indigenous banks a salient manifestation of the region's inability to generate the legal framework for the large and perpetual enterprises we now call firms. The very mechanisms that inhibited the emergence of large and perpetual commercial trading companies also blocked the emergence of banks.

Rubin (2011, 2017) offers a complementary explanation for the delayed emergence of Middle Eastern banking. It focuses on the supply of economic rules rather than the demand for them. Early Islamic statesmen derived legitimacy from religious authorities to a greater degree than their counterparts in the West. Hence, relative to Christian clerics, Muslim clerics had a greater capacity to block the relaxation of the interest ban; precisely because rulers depended on them for legitimation, they had more influence over policies. Accordingly, Muslim clerics continued to promote the formal restriction even as their counterparts in Western Europe reinterpreted the Christian ban as applying only to exorbitantly high interest. They yielded to political pressure only in the 19th century, a time when statesmen desperately sought to boost commercial productivity as a means of raising taxable capacity. In the mid-19th century, secular commercial courts began operating side-by-side with Islamic courts. This enabled people to borrow and lend at interest openly. Until then, the necessity to use legal ruses complicated record keeping, discouraging modern banking. Financial liberalization thus facilitated the opening of the Middle East's first banks. The delay in legalizing interest hindered the opening of banks also through another mechanism, Rubin (2010, 2017) demonstrates. It discouraged the use of interregional financial instruments such as the bill of exchange, a crucial stepping stone on Europe's pathway to modern banking.

The relative importance of the supply- and demand-driven mechanisms remains an open empirical question. But they are mutually compatible. Individually as well as jointly they illuminate why the Middle East's commercial and financial markets began the transition from personal to impersonal exchange much later than those of the West, and only at a time of existential crisis that induced players to think out of the box. Until the shocks generated by the rise of the West, credit markets remained simple. That restrained bottom-up demands for relaxing financial restrictions. Meanwhile, statesmen had no urgent reason to stimulate economic activity by asking clerics to reinterpret Islam's financial rules. And, for their part, individual clerics were unmotivated to initiate formal changes. For one thing, a formal revision of Islamic law could galvanize further demands for revision, ultimately throwing in doubt the eternal validity of the Quran's commands and jeopardizing their own authority as clerics. For another, clerics were accustomed to circumventing inconvenient rules on a case-by-case basis, and in the absence of large or perpetual private enterprises no need arose for general legal reforms.

Insofar as Islamic law impeded financial development, its effects should be visible outside the Middle East, wherever it was imposed. Thirteen modern countries of Southeastern Europe lived under Ottoman rule, in whole or in part, for periods ranging from more than half a millennium to a century and a half. Grosjean (2010) uses the Life in Transition Survey, a nationally representative 2006 study that covered 28 post-communist countries and Turkey, to investigate the financial and real legacies of Ottoman rule. Controlling for the duration and Ottoman rule in each locality, along with personal and local characteristics, she finds that former Ottoman rule is associated with a 10% decrease in national financial development, as measured by households with a bank account and a debit or credit card. This negative effect of Ottoman rule persists, though in milder form, in countries ruled by Ottomans only partially. Within such countries, former Ottoman rule is associated with a 4% lag in financial development. In related work, Dimitrova-Grajzl (2007) finds that former Ottoman rule is associated with relatively weak performance along several other economic dimensions.

Grosjean (2010) attributes her results to the interest ban's endurance for several centuries longer in Islam than in Christianity. This interpretation is problematic because in Southeastern Europe, as in the Middle East, individuals living under Muslim rule routinely circumvented the Islamic ban on interest. But her results accord with the delayed transition to impersonal exchange in places under Islamic law. This delay included the late arrival of modern banking. Future research should control for geographic variations in the supply of modern credit markets.

The finding that the Middle East's commercial and financial institutions stagnated has not gone unchallenged. On the ground that Islamic law was not autonomous, Pamuk (2012) holds that powerful groups always managed to alter Islamic institutions that no longer suited their interests. Insofar as commercial and financial institutions did not change, it is because the elites in charge sought to avoid empowering merchants. This claim overlooks that institutions do not necessarily change by decree. In any case, insofar as differences of power were involved, one needs to explain why people with a stake in change remained powerless to bend state policies in their favor. In any case, Pamuk neglects to show that the observed stagnation actually suited the interests of powerful. His subsidiary argument is that Islamic commercial and financial institutions were reinterpreted as needed. The Islamic ban on interest was circumvented through legal fictions, he notes, and clerics bent the rigid rules of the Islamic trusts known as waqfs to allow them to supply credit and to interest-based credit.

Pamuk's first counter-example does not illustrate institutional change. As discussed above, the Islamic ban on interest was never enforced in the first place by either the Ottomans or preceding Middle Eastern dynasties. His other counter-example, that of the cash waqf, is an exception that proves the rule. A sixteenth-century response to rising demand for credit in Turkey and the Balkans, it involved a compromise between religious purists and economic pragmatists. But the chosen solution was far from optimal as an instrument to resolve the credit crunch. As we shall see further on, under Islamic law mergers among waqfs were strictly forbidden; this rule carried over to cash waqfs, preventing their transformation into banks capable of pooling large amounts of capital and making large loans. Revealingly, cash waqfs withered away with the arrival of modern banking. Far from showing that pre-existing institutions do not constrain commercial and financial possibilities, the cash waqf demonstrates, then, that they constrain responses to emerging challenges (Kuran 2005a; 2011, 158-61).

There is a second counter-example to the stagnation in question. It, too, proves the rule that Islamic institutions constrained the private sector's development. In Ottoman Istanbul, gediks were entitlements to usufruct rights over tools used in production and commerce. Over the course of the 18th century, gediks turned into liquid assets to suit financial needs of the military units that infiltrated the local guilds. Drawing on court records, Ağır (2017) shows that the entry barriers that conferred value to both guild memberships and gediks also undermined the practicality of gediks. Thus, gedik markets formed poor substitutes for the equity markets that were developing concurrently in Western Europe. Indeed, as Istanbul gained access to better financial instruments through the transplant of Western institutions in the 19th century, gedik markets just disappeared. Like the cash waqf, then, the tradable gedik was a second-best response to the need for giving means of production financial liquidity. The Ottoman and Western solutions were each based on their respective institutional endowments, and the differences mattered critically to the subsequent regional differences in economic success.

3.2 Urban Development and Public Goods

Commercial and financial development invariably go hand in hand with urbanization. This is because cities serve as hubs that coordinate the activities of merchants and financiers (Glaeser

2011). Recognizing that urbanization is both an outcome of various development indicators and a proximate cause, historians commonly use it as a proxy for economic development generally (Hohenberg 2004).

Using city-specific data on population, geographic location, institutions, and religious composition, Bosker, Buringh, and Zanden (2013) seek to explain the striking differences in urban development patterns of Europe and the Middle East over the period 800-1800. In 800, they observe, the Middle East's largest cities were far more populous than those of Europe. But European cities grew faster, and by the 13th century Europe's urban population, and by the 18th century its urbanization rate, surpassed that of the Middle East. Drawing partly on Bulliet (1975), they say that the key causes of the divergence in question were geographically driven choices of transportation mode and urban governance. Whereas the Middle East chose the camel as its main commercial mode of transportation because of its arid climate, Europe chose the ship because it has abundant navigable rivers. The possible efficiency gains were far greater in water-based transportation than in caravan transport, giving trade-dependent European cities advantages over their Middle Eastern counterparts. Throughout the period studied, the Middle East's capital cities towered over its other cities. In Europe, by contrast, capital cities were much less important until the rise of nation-states. Hence, for many centuries, small European cities enjoyed more discretion over their affairs than their counterparts in the Middle East did. By virtue of their autonomy, they could tax local commerce on their own, generating synergies between commercial and urban development. The Middle East did not emulate the institutional advantages of Europe within the time frame of Bosker, Buringh, and Zanden (2013). The authors attribute the absence of cross-regional institutional borrowing to the paucity of exchanges between Europe and the Middle East. It reflects, they surmise, doctrinal differences between Islam and Christianity.

Although the main findings of Bosker, Buringh, and Zanden (2013) are illuminating, the claim that doctrinal differences limited institutional borrowing is open to challenge. For one thing, Middle Eastern borrowing from the West was routine in certain areas, including military and medical technology. For another, immediately after 1800, the endpoint of the article's chosen millennium, the Middle East initiated massive institutional reforms, including fundamental transformations of urban governance. Indeed, in the 19th century leading cities of the eastern Mediterranean established municipalities, all modeled after Western urban governance. Until then, as Bosker, Buringh, and Zanden recognize, in Middle Eastern cities Islamic Sultan-appointed judges (kadis) were responsible, in addition to running their courts, for monitoring social services. In Europe, by contrast, social services were not only supervised but usually also provided at least partly by locally elected mayors, who were free of judicial duties. One may add that Islamic judges were rotated frequently (12-18 months in the Ottoman Empire), which limited their incentives and opportunities to provide leadership with respect to long-term projects.

The advantages of leadership continuity are too obvious to have gone unnoticed. An obstacle to local urban governance is that Islamic law lacks a concept of corporation. It recognizes no self-governing associations other than the state, let alone ones meant to last indefinitely (Kuran 2005b). Thus, whereas Europe had more than 4,000 self-governing cities by the 12th century, until the 19th century those of the Middle East were ruled from the capital. Cities far from the capital often enjoyed a measure of autonomy de facto, due to the primitiveness of the available monitoring technologies. But they lacked legal personhood, which is a defining element of a corporation. As such, Middle Eastern cities could not contract with individuals or other cities as a collective entity. This handicap would have limited their efficiency relative to the West's self-governing cities. It would also have accounted for the relatively lower urbanization rate that the Middle East registered until well after the Industrial Revolution.

Why was the corporation a fixture of Western legal systems from the Middle Ages onward but absent altogether from Islamic law? During the 7th to 9th centuries, the period when Islamic law took its classical form, the corporation was known to both Islamic and Western jurists. It is present in Roman law, on which both European and Middle Eastern jurists drew liberally. The political conditions at Islam's emergence help to explain why the developers of Islamic law spurned the corporation, even as they accepted, and went on to develop, other pre-Islamic institutions, including commercial partnerships, the bill of trade (which differs from the above-mentioned bill of exchange in requiring a single currency), the market inspector, and tax farming. None of these borrowed institutions are present in the Quran. They received Islamic legitimacy not by virtue of Quranic references but through generations of jurists who rationalized various practices in terms of Quranic principles and reconciled them with the evolving corpus of Islamic law. Thus, the corporation's absence from the Quran hardly explains its absence from Islamic law. A more critical factor is the political environment in which Islam emerged and initially developed.

Whereas Christianity was born within a state that projected immense power, Islam emerged in a stateless region inhabited by feuding tribes, sedentary or nomadic. Its spectacular success in gaining Arabian converts stemmed partly from the benefits that the peoples of 7th-century western Arabia achieved from political centralization under a single legal system. The state that Muhammad founded had the motivation as well as the capability to exclude the concept of the corporation from the emerging Islamic legal system; it also had an incentive to deny the means of efficient organization to groups that might destabilize the achieved order. For their part, after the Western Roman Empire collapsed in 476, the new states of Western Europe were too weak to block incorporations. Hence, various players, including religious orders, guilds, and cities, were able to organize themselves as a corporation. In a nutshell, differences in state strength around the 7th to 9th centuries account for the striking inter-regional difference in urban governance in the Middle Ages: self-governance in Western Europe vs. governance from the capital in the Middle East.

By itself, an institutional choice made in the 7th century cannot explain urban governance patterns lasting a millennium. Explaining the persistence of the initial institutional choice requires the identification of reasons why the institutional transplants of the 19th century were not made earlier. An organization akin to the corporation could also have been invented indigenously. If this did not happen, a key reason is that until the Industrial Revolution the Islamic trust known as the waqf fulfilled many functions that Europeans relegated to the corporation (Kuran 2011, chs. 6-7). A waqf is an endowment established under Islamic law by a single person through income-producing private real estate to provide a designated social service in perpetuity. (The earlier discussed "cash waqf" was an Ottoman innovation that substituted cash for real estate.) The social service could involve anything legal. Examples include mosques, schools, water fountains, hospitals, parks, even lighthouses. Waqf assets were considered sacred, which gave them considerable immunity from confiscation in the face of weak private property rights.

That immunity, along with legal provisions that allowed a founder to appropriate some of his or her waqf's income, incentivized the wealthy to convert real estate into a waqf. The provision of public and semi-public goods through waqfs thus became a self-enforcing pattern. The wealthy considered the waqf indispensable because it allowed them to shelter wealth from the state and divert some of it to personal uses; rulers found that the private provision of public goods freed up their own resources for military pursuits; and the consumers of subsidized, even free, waqf services appreciated the apparent generosity of property-owning elites. Meanwhile, in the medieval West some public and semi-public goods were provided through trusts akin to waqfs. But most were provided through corporations. Thus, almost all European universities were founded, or quickly reorganized, as a corporation. Their Islamic counterparts, madrasas, were all organized as a waqf. Likewise, European parks were typically established and maintained by the local government, a corporation. In the Middle East, the waqf was the usual organizational form of choice.

A waqf was managed by a caretaker appointed by either the founder or the previous caretaker according to stipulations in the waqf deed. Provided the courts enforced the founder's instructions, the caretaker's lack of discretion solved a principal-agent problem. On the downside, it became a source of dynamic inefficiency in the face of unexpected price movements, migrations, and technological innovations that created a demand for adjusting the uses and management of the waqf's resources. Adjustments could not be made legally even if, with perfect foresight, the founder would have allowed them. As a self-governing organization, the corporation was less vulnerable to such dynamic inefficiency. The difference in flexibility between the two organizational forms would not have posed a major problem in the Middle Ages, when economic conditions changed gradually. It became a massive problem as the Industrial Revolution quickly turned thousands of waqf deeds into anachronisms.

This brings us back to the Bosker, Buringh and Zanden (2013) finding that cities of the Middle East grew relatively more slowly. Among all state officials of the Islamic Middle East, the kadi, whose jobs included overseeing urban public goods, had a job description that came closest to that of a European mayor. But he served also as a judge and a notary. His diverse tasks gave him access to information valuable to the Sultan, his boss. Indeed, his most critical function must have been to transmit local information to the Sultan's tax officials. The key implication is that the kadi worked primarily for the state rather than for cities. He was incentivized to improve urban administration only insofar as the state stood to gain. But this interpretation remains to be theorized formally. It needs also to be validated empirically through case studies as well as creative statistical analyses covering broad geographical areas.

The Middle East's institutional framework for providing urban public goods would have undermined economic development, because of both the dynamic inefficiency of waqfs and the kadi's incentives to favor the Sultan's fiscal needs over the interests of urban constituencies. Yet another adverse effect of the waqf was the crowding out of capital from commercial enterprises. The paucity of commercial capital aggravated a problem discussed earlier, the weakness of incentives to develop large and perpetual commercial organizations suitable to banking, insurance, large-scale trade, and eventually mass production and mass transportation. Little is known about the efforts that the largest pre-modern commercial enterprises made to overcome their handicaps rooted in Islamic law. One reason is that they left almost no documentation. Another is that organizational history, now a mature research field with respect to the West, remains underdeveloped with respect to places once under Muslim rule.

Classical Islamic law, in place by the 10th century, allowed the formation of organizations commanding abundant capital. Thus, huge mosques, schools, and hospitals operated for centuries as a waqf, often without the infusion of more capital. But the same law denied waqfs the flexibility that keeps profit-seeking companies in business perpetually. Waqfs were not suitable to business themselves. The early Islamic decision to disallow the corporation thus inhibited more than urban growth. It also suppressed commercial expansion and modernization (Kuran 2011, chs. 6-8).

An often overlooked determinant of institutional adoption is geography. Indeed, very few contributions to the economic history of the Middle East ascribe geography a significant role. An exception is Michalopoulos, Naghavi, and Prarolo (2016), which links several features of Islamic law to the high inequality of land quality in the Middle East. This characteristic, they argue, induced the residents of poorly endowed places to favor predation over production as an enrichment strategy. And that choice made the residents of better endowed areas pre-commit to redistribution in an effort to guard commercial opportunities and secure trade routes. Several elements of classical Islamic law, suggests the article, were complementary responses to the need for institutionalized sharing. They include the egalitarianism of the Islamic inheritance system, the progressivity of the zakat requirement, and the perpetuity of the waqf. The authors leave open whether variations in the application and enforcement of these institutions are also related to geography. One might expect Muslim-governed areas with much more equally distributed natural endowments to have generated very different institutions over time.

Uncovering the history of Islamic economic organizations will inevitably require linking studies of profit-making enterprises with inquiries of why wealth holders were motivated to establish waqfs and why it took until the 20th century to give the waqf conveniences associated with the corporation. A century ago, influential thinkers in Turkey and India held Islamic economic institutions responsible for the economic problems of Muslims in their respective countries (Kuran 2016, 442-44; Kuran and Singh 2013, 514). The identified problems included the failure of Muslims to form large companies, serious Muslim underrepresentation in new economic sectors, and glaring inefficiencies associated with waqfs. Though these perceptions accord with the interpretations in this subsection, further research is needed to validate their generality. Studies must encompass areas well beyond Turkey and India. Investigations are needed into the upper-end of the organizational size distribution, including both profit-oriented and strictly charitable waqfs, with a focus on adaptability, internal governance, legal restrictions, and state policies.

State policies fall within the domain of political economy, the hybrid discipline that focuses on interactions between politics and economics. Other political variables that interact with economic outcomes include property rights, rule of law, and individual freedoms. With respect to links between Islam and economic performance, our master topic, institutional political economy, has become a lively research area.

3.3. Contract Enforcement through Courts

The link between contract enforcement and the efficiency of exchange is among the central themes of institutional political economy (North 1981; Platteau 2001; Greif 2006). One instrument of contract enforcement is trust and another the courts. At least since Weber (1956/1978, 976-78), a common view among comparative legal scholars has been that Islam retarded economic modernization through legal codes and procedures inimical to judicial predictability. Weber coined the term "kadi justice" to describe a justice system that produced arbitrary verdicts. The resolution of any given case depended, according to Weber, on the judge's mood of the moment.

No one has tested whether the verdicts of the Islamic courts were, in fact, less predictable than, say, those of coeval English or Dutch courts. Less ambitiously, Islamic specialists working in the area studies research tradition have sought to disprove Weber's arbitrariness claim by identifying the logic of Islamic court system. To that end they have been identifying patterns in the contracts registered by the Islamic courts, the procedures used to reach verdicts, and the resolution of disputes brought to court. Jennings (1973) is the most influential contributor to this literature. Working in his footsteps with the aid of statistical tools, Ergene (2003) studies the court records of two small towns in north-central Turkey, Kastamonu and Çankırı, to identify a much broader range of patterns. Dealing with both civil and criminal cases, he documents the fees that litigants paid over the 1652-1744 period. He shows that actual court fees were substantially higher than allowed in official manuals but also that they increased over time. He also demonstrates that parties who were both wealthy and socially prominent enjoyed advantages in court. Ergene and

Coşgel (2016) build on this work, with a particular focus on provincial relationships, gender roles, and the legal strategies of interacting individuals. Given the project's limited goals, the focus on commercially marginal and politically un-strategic towns has two analytic advantages. It avoids the need to consider the institutional complexities found in larger centers of the time, where the presence of foreigners forced judges to make special provisions. Also, it disproves Weber's arbitrariness claim in a milieu where the monitoring of judges was probably less effective than in major centers.

Weber's own scholarly agenda transcended the description of civilizational characteristics. He was also interested in their dynamics, particularly as they related to modernization. As noted in the introduction, economics has seen a revival of interest in Weber's overarching goal, namely, to identify social mechanisms responsible for the divergence of economic performance across civilizations. A rapidly expanding literature couched in the new institutional economics is examining how legal systems affect economic performance.

Underdeveloped economies are now advised to institute laws enforced independently from the executive and legislative branches of government and impartially across society, without regard to such personal traits as sex, ethnicity, religion, wealth, and social status. To what extent did pre-modern Islamic courts meet these standards? If they fell short, that would have been among the causes and manifestations of economic underdevelopment. Were they moving in the direction of impartiality? Insofar as they were not, foreigners interacting with Muslims would have sought, as their own legal systems modernized, to avoid Islamic courts; and insofar as they could not avoid these courts, they would have sought special dispensations aimed at alleviating their legal vulnerabilities. For their part, non-Muslims disadvantaged under Islamic law would have tried to place themselves under alternative legal jurisdictions, if and when more impartial and more efficient legal jurisdictions became available. Research focused on the legal choices of non-Muslims living under Muslim rule is treated in Section 3.5 below.

Muslims themselves eventually abandoned Islamic law to one degree or another; and in contexts relevant here they did so almost totally even in countries formally committed to Islamization. Even in ultra-conservative Saudi Arabia and the Islamic Republic of Iran, matters such as commerce, finance, and taxation are run, except for symbolic deference to the Quran, under some variant of modern, Western-based law. To understand why, one must analyze how Islamic courts handled commercial contracts and also whether they were modernizing on their own, prior to the 19th century, when the West's rising global dominance forced legal reforms.

Kuran and Lustig (2012) address these questions through an analysis of trials conducted by Islamic courts in Istanbul, the capital of Ottoman Empire and, before the 19th century, the economic center of the Eastern Mediterranean. If Islamic law was adapting to changes in the global economy, the signs would have appeared first in leading commercial hubs. Using a seventeenth-century data set published bilingually (Kuran, ed. 2010-13), they show that the procedures of Istanbul's main Islamic courts were biased systematically in favor of Muslims, men, and state officials. The judicial biases in question naturally led out-groups to avoid suing members of in-groups unless their cases were sufficiently strong. Documenting these patterns, the article shows that they resulted in higher win rates for out-group plaintiffs than for in-group plaintiffs. Non-quantitative historians using the methods of area studies have attributed the evidence of high win rates for minorities and other out-groups to the exemplary fairness of the Islamic legal system. Considering the substantial underrepresentation of out-groups among plaintiffs, Kuran and Lustig infer, on the contrary, that the observed discrepancies in win rates stemmed from legal discrimination against the out-groups. They show also that during the seventeenth century, when West European courts were becoming fairer, no such trend emerged in Istanbul.

Members of out-groups could level the legal playing field by documenting their commercial and financial transactions involving in-groups. Indeed, Kuran and Lustig also find that litigants benefited massively when their case was documented. The plaintiff win rate, 60.3 percent when the sides make their cases without reference to documentation, jumps to 83.9 percent when only the plaintiff presents a document; equally striking, it plummets to 7.2 percent when only the defendant does so. At least one document was introduced in only 15.2 percent of the trials, which raises the question of why the rate was so low, despite their enormous value as legal instruments. The courts charged for certifying contracts and settlements. More fundamentally, in the 17th century the Ottoman economy had barely started the transition from personal to impersonal exchange. In Ottoman realms, commercial organizations were tiny and short-lived, and business took place largely among acquaintances. Irrespective of religion, gender, or status, people enforced contracts generally through reputation-based means, seeking contract enforcement from courts only as a last resort, in extraordinary circumstances. In brief, low documentation in commerce was a telling symptom of economic underdevelopment.

Though documentation affected how a judge would treat a contract if it gave rise to litigation, it did not guarantee enforcement. As long as judges were partial to certain groups, contract enforcement would vary in strength depending on the identity of the litigants. Starting from this premise, Kuran and Rubin (2017) explore whether legal power, as measured by privileges before the law, undermines financial power, the capacity to borrow cheaply on the basis of collateral. The article's theoretical argument speaks to finance generally, not merely to Middle Eastern history. But its main empirical application yields insights into financial development in the Middle East, and in particular into why Muslims fell behind in finance.

Studying Istanbul court records from 1602 to 1799, Kuran and Rubin find that elites (identifiable through their titles), men, and Muslims paid higher interest rates relative to commoners, women, and non-Muslims, respectively, conditional on various loan characteristics. In a society where the average real interest rate was 19 percent, the interest rate surcharge was around 3.5 percentage points for elites, 3.8 percentage points for men, and 2.4 percentage points for Muslims. The underlying biases of the Islamic courts also affected trustworthiness. Christians and Jews were substantially more likely than Muslims to serve as co-signors, doubtless because it was relatively easy to enforce the commitments of a non-Muslim co-signor. These results show that the biases of the Islamic legal system imposed costs on the very groups they were meant to favor. Elites stood to benefit through lower credit costs from reforms that would level the judicial playing field in regard to financial matters. Revealingly, the beginnings of legal modernization in the Ottoman Empire included the establishment of relatively impartial and secular commercial courts modeled after those of France.

These works demonstrate that the records of Islamic courts can provide invaluable insights into the operation of the private economic sector, whose development lagged strikingly throughout the Middle East. Heretofore, most research on Islamic economic history has relied on documents produced at the initiative of the state, for state needs. This is partly under the influence of theories that link development to the state. A complementary reason is that, for most places, state documents have been more accessible than court registers. So the production of data reflecting private contracts is a welcome development. At present, records accessible to scholars who do not speak the native languages are limited. Apart from the Istanbul records mentioned above, they also include those of the Islamic court of Brava, Somalia (Vianello and Kassim 2006). The Brava records remain to be tapped for insights into the economic history of East Africa.

3.4 Scientific Decline

Until the 12th century Muslims stood at the forefront of optics, metallurgy, astronomy, and even science in general; around that time, they gave up their lead and have never regained it. Providing a sweeping account of the trajectory, Huff (2003) has suggested that the Muslim world's scientific decline was both a contributor to its subsequent loss of global stature and one of the decline's pervasive symptoms. The fact of the decline itself is almost universally accepted within the social sciences and humanities. The only objection comes from post-modernists for whom all science is storytelling and, hence, equally valid. But the timing of the decline has been controversial, and its causes and consequences are also subject to spirited debate.

On timing, a common belief, discredited by Huff (2003, 211-15), Iqbal (2002, 163-65), and others, is that the decline in question began with the 13th-century Mongol invasions of the Middle East. Chaney (2016) addresses the controversy through two ambitious measurement exercises. His baseline data set consists of all pre-1850 entries in the Harvard Library collection with an "Islamic sounding" author. Between 900 and 1100, twelve percent of the entries are on scientific topics, he finds; by 1700, they are only two percent. Entries on religious topics follow the opposite trajectory. Whereas they make up 30 percent of the Middle East's written intellectual output between 900 and 1100, by 1700 the share is 40 percent. Chaney also constructs a second data set, based on a biographical dictionary of the 17th-century Ottoman scholar, Kâtip Çelebi (Hacı Halife). Of the works included in the Kâtip Çelebi Dictionary, 13 percent of those from 900-1100, but 40 percent of those from 1400-1500, entail commentary on earlier-produced original works. The Kâtip Çelebi Dictionary thus points to a steep upward trend in derivative works. This trend coincides with the fall in production measured through the Harvard collection. Geographic analysis of the scientific decline shows that it began in Iran in the 12th century and reached Spain, the Western outpost of the Muslim world, in the 14th century.

These measurement exercises thus validate scholarship holding that the start of the Muslim world's scientific decline predated the Mongol invasions. The Mongol hordes reached Iran too late to explain the fall in Iranian scientific production; besides, science declined also in regions outside the Mongols' reach. With regard to sources of the decline, Chaney suggests that the principal cause was the religious movement known as the "Sunni revival." This movement empowered clerics, he claims, enabling them to incentivize religious works at the expense of scientific works. Yet, the

Sunni revival was stronger in the Western Middle East than in Iran, where scientific decline was especially pronounced, according to Chaney's data. Equally critical, scientific production rose in pre-Reformation Europe, where the Roman Church yielded far more power than Sunni clerics did in the Middle East. In itself, this sheds doubt on Chaney's interpretation of the patterns in his data. Sunni Islam lacks the tight hierarchy of the Church; if some clerics wanted to suppress science, Sunni Islam's decentralized organization limited their ability to realize that goal. Also, in the period when Chaney's measurements point to scientific decline, Sunni clerics were falling under the control of rulers. In section 5.5 ahead, we shall see that Platteau (2017) develops the last point.

The explanation must lie elsewhere, then. Chaney himself suggests, with reason in this case, that madrasas contributed to the scientific decline. In the period 900-1100, just four percent of the books in the Harvard library were written by a madrasa-based author; in 1300-1400, the figure was 40 percent. Chaney thus infers that the decline in Muslim scientific production reflected institutional changes that boosted the payoff to producing Islamic knowledge and, concomitantly, the power of Muslim clerics.

Chaney does not explain why madrasas were less conducive to scholarship than their counterparts in the West, universities. Economic studies of waqfs (Kuran 2001; 2011, ch. 6; 2016) provide, I would suggest, the missing interpretation. Established as waqfs, madrasas followed rules laid down by the founder; they lacked the flexibility to adapt to intellectual advances. For their part, universities were established as corporations; being self-governing, they could create new departments, change textbooks, and alter funding priorities relatively more easily. As proposed in sect. 3.2 above, the waqf arose as a response to weak property rights, and Muslim jurists spurned the corporation to hinder organized political dissent. The spread of waqfs enhanced clerical control over scientific production, but not because they gained political power. Rather, under Islamic law clerics monitored waqfs and commonly took control of their assets. The share of religious writings rose in concert with the growing economic base of clerics. And the growing share of un-original, derivative writings probably reflected the madrasas' commitment, under the law, to serve the tastes, ideas, and purposes enshrined in their deeds. As waqfs, madrasas were less flexible than the European corporations that influenced scientific production, whether as universities, monasteries, religious orders, or the Roman Church itself.

3.5 Within-Country Comparisons between Muslims and non-Muslims

Ever since Islam came to be associated with the economic underperformance of the Muslim world, the proposed evidence has included comparisons between specific Muslim communities and the non-Muslim minorities living in their midst. Such comparisons have the advantage of holding fixed geography, resource endowments, and other factors liable to confound inter-regional analyses. Studies of Muslim minorities in countries under non-Muslim rule overlap with this literature insofar as they investigate the effects of religion.

3.5.1 *Choice of Law*

Prior to the 18th century, the Middle East's non-Muslim communities were not wealthier, on the whole, than its politically and militarily dominant Muslims. Although religious minorities dominated certain sectors in particular localities, they were underrepresented in the most lucrative professions and, hence, at the top-end of the wealth distribution. Christians and Jews were handicapped by their exclusion from the military, a source of huge rents. Perhaps more crucially, they controlled disproportionately few waqfs. Whereas Muslims of means could shelter wealth by forming a waqf at will, until the 19th century non-Muslims needed special permission, granted infrequently. In the late 18th century non-Muslim Middle Easterners began to pull ahead of Muslims. This is evident in their increasingly disproportionate presence in posh urban neighborhoods and especially in their domination of emerging modern sectors, including mass production, mass transportation, urban utilities, banking, and insurance. Particularly in the second half of the 19th century, they formed a highly disproportionate majority of the local investors and managers of the Middle East's modern enterprises. They were also represented very disproportionately among bank customers and holders of formal insurance contracts.

The observation that Muslim and non-Muslim economic fortunes began to diverge around the 18th century is not new. What is new is the emphasis, in the spirit of the modern social sciences, on explaining the earlier and later patterns through a unified, internally consistent theory. One line of research concerns a feature of Islamic law dating from the rise of Islam: the choice of law granted to non-Muslim "peoples of the book." Under Islamic law, Christians and Jews may organize their commercial and financial activities according to Islamic principles; they are welcome also to use Islamic courts to register their contracts and settle any disputes among themselves. But they are free, in addition, to do business according to rules of their own and have non-Islamic courts adjudicate their disputes. If they opted for the legal system they considered most advantageous, their observed choices would provide clues regarding the relative efficiency of alternative legal systems. Such comparative information cannot be gleaned from the business practices of Muslims or from economic interactions between Muslims and non-Muslims. All aspects of Muslim life, including their relations with Christians and Jews, were under the jurisdiction of Islamic courts. Mandatory behaviors do not yield insights into relative efficiency.

Recognizing these historical patterns that span more than a millennium, Kuran (2004b; 2011, chaps. 9-10) proposes that non-Muslims got ahead by exercising their choice of law, as individuals, in favor of Western legal systems. In the process, he says, the Middle East's Christian and Jewish entrepreneurs gained the ability to use modern forms of pooling labor and capital, to conduct increasingly impersonal exchange, and to benefit from banks, stock markets, and formal insurance. Indeed, all Ottoman subjects who acquired formal access to European courts by working for a European consul were non-Muslim. For their part, Muslims wishing to modernize their commercial and financial operations had to wait for the establishment of secular courts and the promulgation of new commercial regulations through state initiatives. This is precisely because they were barred by law from doing business under a European legal system; unlike Christians and Jews, they lacked choice of law as individuals. Christians and Jews pulled ahead of Muslims also by working with foreign companies, forming partnerships with foreign companies and individuals, and learning new skills and techniques from their foreign contacts. To join lucrative European networks, they had to learn European languages and customs. By virtue of their familiarity with European societies, Middle Eastern Christians and Jews thus became natural intermediaries between Muslims and European settlers. There are geographic variations in timing and degree, of course. These have not yet been exploited systematically to test Kuran's theory formally. But non-Muslim advantages appear to have been particularly pronounced in areas exposed directly to the French, the British, and other Western countries at the forefront of economic modernization.

The Muslim delay in abandoning old business practices and joining European-dominated networks had the unintended result of decreasing their competitiveness in commerce and finance, except in areas without European presence. It also delayed their accumulation of private commercial capital and use of modern enterprises. An overwhelming majority of the local participation in "merchant houses," which were clusters of partnerships expected to be renewed repeatedly, came from non-Muslims. This prepared non-Muslims for establishing, or working for, the region's pioneering joint-stock companies and business corporations.

In a complementary article, Artunç (2015) explores the value of the choice of law enjoyed by non-Muslim Ottoman subjects in the century up to 1850, when legal reforms made a variant of French commercial law available to all Ottomans, irrespective of religion. The patents (*berat*s) that provided the privilege to do business under a foreign legal system as well as exemptions from Islamic law were tightly rationed. On average, a patent cost 55 times the Ottoman per capita gross domestic product in 1800. Moreover, patent prices varied systematically depending on the differences between countries in political clout, probability of war with the Ottoman Empire, and legal particulars. About half of all non-Muslims with a British or French patent had at least one other patent, which allowed them to switch court systems strategically as disputes arose. By generating contract uncertainty, strategic forum shopping would have harmed non-Muslims. Its commonness thus poses a puzzle that awaits explanation. Artunç also emphasizes that the number of Ottoman-recognized patent-holders was quite limited. At any one time, he estimates, patents provided extraterritorial legal privileges to around 1700 people. Hence, privileges flowing from formal patents could not have accounted, in and of themselves, for the enormous gains that Ottoman Christians and Jews made during the 19th century. Further work is needed to sort out the advantages that non-Muslims acquired through interactions with foreigners and the reasons why foreigners preferred to deal with non-Muslims.

In Egypt at least, one non-Muslim minority, the Coptic Christian community, got ahead of Muslims long before the 19th century. The reason, Saleh (2016a) argues, lies in the regressive poll tax imposed on Copts following the Arab conquest of Egypt in 640. Since the poll tax was removed upon conversion to Islam, poor Copts converted disproportionately, and the remaining Copts turned into a richer minority. Over many centuries Copts invested heavily in their children's human capital, in order to discourage further conversions. By virtue of their higher literacy, they ended up filling most positions in Egypt's mid-level state bureaucracy. Because they were not particularly prominent in business, Copts showed little interest in European consular patents. In Egypt, then, choice of law accounted for the advances not of all non-Muslims but only of Jews and non-Coptic Christians.

3.5.2 *Education*

During the 19th century school attendance rose by orders of magnitude in parts of the Middle East, with advances generally greater among non-Muslims than among Muslims. The discrepancy is often attributed to Christians' access to missionary schools, opposition by Muslim clerics to educational modernization, or the Ottoman state's sluggishness in implementing educational reforms. These supply-side explanations are thoroughly inadequate, Al-Shamat (2009) shows. Focusing on the demand side, she also investigates why, in 19th century Lebanon, Muslims lagged behind Christians in educational attainment. The demand for education was somewhat greater among Christians than among Muslims, she finds. More strikingly, the favored type of education differed greatly by religion. Whereas Christians favored schools that taught modern science and a European language, Muslims were far more likely to attend traditional schools whose curriculum was limited to religious studies.

The discrepancy reflected labor market transformations that produced sharp religious differences in employment opportunities. A major change came with the emergence of an export-oriented silk industry. This new sector generated opportunities to work as an agent for a European company, as a silk merchant, or as an employee of a European-capitalized, if not also European-based, financial company. All such new positions required familiarity with a European language, which made Christian Lebanese favor the new schools over traditional Christian schools. Like their Muslim counterparts, traditional Christian schools generally continued to emphasize religious studies.

Meanwhile, the Ottoman reforms were drastically enlarging the public sector. To obtain employment as a low- or mid-tier public servant, a religious education sufficed. Whereas Christians showed little interest in the civil service, Muslims saw it as a source of steady income and a path to upward social mobility. Another factor distorting educational choices is military service. Whereas Christians were exempt from military service in return for a special tax, Muslims had to serve many years unless they paid a large fee or enrolled in an Islamic school. In sum, employment specializations dictated what type of education each group demanded. Christian Lebanese wanted a modern education to get ahead in sectors tied to the emerging modern global economy; Muslim Lebanese generally opted for a cheaper Islamic education focused on religion, because that sufficed to qualify for traditional civil service.

Al-Shamat's observations raise the question of why economic opportunities differed by faith. Islam's asymmetric form of legal pluralism must have contributed to Christian dominance of the silk sector. Insofar as this conjecture is correct, the observed intercommunal differences in educational demand and attainment are among the eventual byproducts of legal provisions going back to early Islam. The connections in question merit further analysis in the Lebanese context but also for the Islamic world generally. Research is needed also on whether religion still affects career choices.

Saleh (2016a) documents that in the 19th and early 20th centuries Egypt featured Christian-Muslim educational and occupational differentials analogous to those of Lebanon. The gaps shrank dramatically after educational reforms in 1951-53. These transformed Egypt's traditional elementary schools, which prepared students only for religious higher education, into modern primary schools, which provided access to university via secular secondary schools. Because a far greater proportion of Muslims had been attending traditional elementary schools, the reforms benefited mainly Muslims. The Christian-Muslim gap in educational attainment shrank, as did the centuries-old gap in white-collar employment.

India is another country where Muslims fell behind in educational attainment. Focusing on its colonial period and relying on a new data set on the literacy by region, Chaudhary and Rubin (2011) find that Muslim literacy was negatively correlated with the fraction of Muslims living in a region. Revealingly, the correlation disappears when the collapse of Muslim rule is controlled for. With the aid of school data, they show that the longer Muslim rule lasted, the more likely it was for Muslims to attend to attend madrasas, as opposed to British public schools, which were better at promoting literacy. Hence, the longer Muslim rule lasted in a region of India, the less literate its Muslims were in the waning years of British rule.

3.5.3 *Inheritance Systems*

Most of the relevant comparative studies focus on the Middle East. Using the Kastamonu Islamic court registers from the 17th and 18th centuries, Ergene and Berker (2009) show that inheritance settlements fragmented estates, thereby inhibiting the preservation of wealth across generations. Their results support Kuran's (2003; 2011, chs. 3-4) argument that the egalitarianism of Islamic inheritance practices harmed commercial development as an unintended byproduct.

The Indian subcontinent, which houses a relatively larger share of the world's Muslims, offers a puzzle analogous to the Muslim reversal of fortune in the Middle East. At least since the late 19th century India's Muslims have lagged behind its Hindu majority. Exploring the reasons, Kuran and Singh (2013) suggest that differences between Hindu and Muslim inheritance and resource pooling practices, combined with the Muslim proclivity to lock capital in waqfs, contributed to the relative underperformance of Muslims under British rule. Unlike the Middle East, choice of law was not a critical factor.

In introducing their own commercial institutions, the British made Anglo-Indian law available to all Indian merchants and investors, irrespective of faith. They thus enabled both Hindus and Muslims to register and operate modern enterprises, including joint-stock companies and corporations. But Muslims made disproportionately little use of these new organizational forms. In 1940, as British rule was ending, just 4% of the directorships of publicly traded companies belonged to Muslims, who constituted 22% of India's population; 40% of the directorships belonged to Hindus, whose population share was 70%. The commercial cases handled by India's high courts show another such discrepancy. Only 11% of Muslim litigants were party to a case involving a corporation, as against 17% of Hindu litigants.

India's Hindus were quicker to use modern organizations, because they were already accustomed to pooling labor and capital within joint-family enterprises; these were meant, like the British-introduced organizations, to outlive their founders. For their part, Muslims divided estates according to Islamic inheritance rules, which made successful large enterprises die with their founders. To keep capital undivided, Muslim families founded waqfs. Like Middle Eastern waqfs, those of India lacked the flexibility required for commercial success under fluid economic conditions.

If the egalitarianism of the Islamic inheritance system and its enforcement by Anglo-Indian courts reduced the scale of Muslim-owned businesses, Muslims who followed less egalitarian inheritance practices should have been more successful in commerce. It so happens that four Muslim castes had been following Hindu inheritance practices since they converted many centuries ago. Respecting their particularities, British judges allowed these "nonconforming Muslims" to keep settling their estates in "Hindu ways". Relative to conforming Muslims, the nonconformists were very disproportionately likely to serve on the board of a publicly traded company. Likewise, they were much more likely to establish or serve a corporation.

These findings strengthen the argument that Islam's inheritance system delayed the transition to modern economic practices through indigenous institutions. They thus invite further studies to determine the extent to which the Indian and Middle Eastern patterns are generalizable to wider Muslim world.

3.5.4 *Foreign Privileges*

The Indian case discredits the popular view that European colonizers dismantled Islamic institutions wherever they could. The British helped to preserve and enforce the Islamic inheritance system. Yet, in the 19th century neither the British nor other European powers showed interest in adopting Islamic commercial or financial practices themselves. On the contrary, they used their rising clout to exempt their own subjects, and usually also their local non-Muslim protégés, from Islamic rules. By that time, resident foreigners in the Ottoman Empire were exempt from most taxes and fees borne by the local population. Increasingly they did business in ways that set them apart from the local population, including practically all Muslims. The privileges in question are known collectively as "capitulations". Throughout the Middle East, the capitulations are now depicted as horrible instruments of subjugation and impoverishment.

Yet, the capitulations resulted from bilateral agreements, and they date from times when the Middle East was hardly weak or poor. Egypt-based Fatimid rulers extended capitulations to European merchants as early as the 12th century, and the Ottomans did so in the 16th century, generally considered their golden age. At least initially, then, Middle Eastern regimes received something valuable in return for their concessions. They incentivized European merchants to conduct trade across the Mediterranean. The Middle East's benefits from the capitulations increased in concert with the evolution of European commercial institutions (Kuran 2011, chaps. 11-12). For instance, as European credit markets developed, it became increasingly advantageous to deal with merchants able to borrow from modern financiers. The metamorphosis of the capitulations into instruments of tax evasion does not negate the benefits they provided for centuries by alleviating the Middle East's disadvantages rooted in Islamic law, such as limited private commercial capital.

A side-benefit of the capitulations was to inform the region's peoples about alternatives to Islamic law. The commercial and financial reforms initiated in the 19th century were designed, above all, to give the region's religious majority access to institutions long available to resident foreigners through the capitulations.

3.6 Reciprocal Effects on Europe

Since the mid-19th century the transplant of European institutions to the Middle East has been a source of intense controversy; Berkes (1964) and Keyder (1981) are representative of the contrasting interpretations. The borrowings have not yet run their course. For example, trust-supplying contract enforcement institutions are still not well-established in the region. But the fact of the West's massive impact on the Middle East is thoroughly uncontroversial. Even Islamic economics, which aims to undo the corrupting influences of Westernization (see Sects. 2.2.3, 2.3.3, 2.5 above), is responsive to global institutional developments. "Islamic banking" would be a contradiction in terms had the corporation not been transplanted from Western law to all legal systems of the Muslim world.

Against this background, it is easy to overlook influences in the opposite direction, from the Middle East to the West. Iyigun (2015) reminds us that before modern times the competition between Islam and Christianity, the world's leading monotheisms in terms of adherents, was a powerful shaper of history in Christian-governed lands, too. Before the 19th century, certain advances critical to European economic development were responses to the existential threat of Islam. Various technological advances took place through efforts to block the advances of Muslim armies. Among the incentives for undertaking costly global explorations was the opening of trade routes to India and China that bypassed the Islamic Middle East. Hence, no inquiry into the connections between Islam and economic development would be complete without consideration of Islam's and the Muslim world's indirect effects on European economic modernization.

Conflicts within Europe, including struggles between Protestants and Catholics and those among rival Protestants, were not driven solely by local factors, as the story is usually told. Using data on violent confrontations running from 1401 to 1700, Iyigun (2008) demonstrates that military engagements between Protestant reformers and their opponents varied inversely with Ottoman military pressures on Europe. The Ottoman military challenge thus reduced attacks on Calvinists, Anabaptists, and other reformist denominations, facilitating their survival. But the impact of the Ottomans went beyond their suppression of conflicts among rival Christians. Ottoman conquests lowered by 25% the number of all newly initiated intra-European conflicts. They also cut by 15% the violence associated with longer-running feuds. Still another effect of the Ottoman military challenges was to halve the duration of intra-European conflicts. These unintended political benefits to Europe went hand in hand with unintended economic benefits. Material security strengthened as a result of Ottoman expansion. As North (1981) and scores of other economic historians stress, the rise of the West received a huge stimulus from stronger property rights.

The motivation for the Ottoman drive into Christian-controlled Europe is often portrayed as the ideology of Islamic Holy War (*gaza*). Without denying the significance of Holy War ideology, Iyigun (2013) shows that the ethno-religious identities of the Ottoman sultans mattered almost as much. Exploiting the randomness of Ottoman throne successions and variations in the ethno-religious backgrounds of Ottoman queen mothers, he establishes that the sultan's maternal background had a huge impact on the geographic orientation of Ottoman expansionism. Sultans with a Muslim (rather than Christian) matrilineal genealogy were much more likely to seek expansion in Europe than in the East or in North Africa. Evidently the ethno-religious composition of the Ottoman sultan's inner circle was among the variables that influenced European material security, internal conflicts, and conduciveness to innovation and growth.

At the start of the 21st century, Islam is again sending shockwaves into Europe, this time through diffuse movements sowing global fear through deadly attacks launched in the name of Islamist organizations. The arrival in Europe of mostly Muslim refugees from war-torn countries such as Syria, Iraq, and Afghanistan is making Europeans, and even Americans who have accepted very few refugees, fear that their aging societies are in danger of Islamization. The rise of nativist parties in Europe and the convulsions in U.S. politics suggest that Islam's internal dynamics are directly relevant, once again, to policies, priorities, values, and lifestyles in the West (Gould and Klor 2016).

If Iyigun's empirical findings are any indication, future historians trying to explain the present political and economic trajectories of predominantly Christian societies will not have the luxury of ignoring developments in the Muslim world.

4. Authoritarianism in the Present

Economic success does not occur in a political vacuum. Countries with unconstrained executives cannot pursue policies credibly, and the consequent uncertainty harms investment. Weak rule of law induces capital flight and loss of human talent. Moreover, limited personal freedoms discourage creativity. It is natural, then, for scholars interested in comparative economic performance to pay close attention to political variables and mechanisms. Certain scholars interested in the connections between Islam and economic outcomes to explore the historical origins of authoritarian government and weak rule of law in the Muslim world. Others, whose works I take up first, investigate whether any relationship exists in the present between Islam and either rule of law or attitudes toward democracy.

4.1 Anti-Democratic Attitudes

A sizable literature outside of economics explores whether support for democracy differs between Muslim-majority and Muslim-minority (or non-Muslim-majority) countries. Economists are now contributing to this literature, adding methodological sophistication and enriching its content. Their interest generally stems from cross-country correlation between political and economic freedoms.

Using democracy data of the Polity IV Project and the political rights and civil liberties ratings of Freedom House, Rowley and Smith (2009) validate a pair of widely recognized patterns. One is that Muslim-majority countries are relatively less democratic, the other that they are less free. They then rule out that oil or income explains the observed deficits. The strong positive correlation found in much of the world between wealth and democracy is absent in Muslim-majority countries, they observe; on the contrary, the wealthier countries tend to have weaker democracy ratings. Equally intriguing, the democracy and freedom deficits in question are especially pronounced in Islam's "historic heartland," which Rowley and Smith define to include all countries that were substantially within the Arab Caliphate by 750 CE, except Spain and Israel, which have since become predominantly non-Muslim. Moreover, Muslim-majority countries outside the heartland are not significantly less democratic or less free than Muslim-minority countries. Muslim-majority countries located outside Islam's historic heartland have either large non-Muslim minorities or strong secular traditions. Rowley and Smith infer that these countries are freer and more democratic because they are "less Islamic." Potrafke (2012) reproduces these results using the political index of Cheibub, Gandhi and Freeland (2010).

A possible reason for the rarity of democracy is low demand; Islam might condition its followers to respect authority and devalue representation. But data from the World Values Survey, whose participants in 80 countries were assured of confidentiality, appear to negate this hypothesis. People in Muslim-majority countries are more pro-democratic than others, not less so. This finding raises the question of whether Muslims also favor freedoms taken for granted in most democratic countries. As Rowley and Smith point out, opposition or indifference to basic freedoms could make democracy unsustainable even if attitudes to democracy itself are positive. Unlike respondents in Muslim-minority countries, those in Muslim-majority countries value government order more than personal freedoms. They also reject one particular freedom decisively: religious freedom. Yet, the Muslim world's "religious freedom deficit" generally loses significance when Islam's historic heartland is excluded from the sample of countries. The only exception is that restrictions on proselytizing and conversion are popular even outside the heartland.

Rowley and Smith speculate that the key obstacle to democracy might be Islam's religious freedom deficit. They reason that the governments of Muslim-majority countries restrict religious discourse, and in so doing constrain political discourse as well. Fears of religious freedoms fueling instability could constrain democratic deliberation and thwart movements to institute democracy. Rowley and Smith do not substantiate this causal chain. They offer it as a conjecture to be tested as suitable data becomes available. Gill (2013) and Gill and Owen (2017) propose several distinct mechanisms, though these await application specifically to the Muslim world.

Implicit in the Rowley-Smith paradox is that answers to the World Values Survey's attitudinal question signal the intensity of demand for democracy. Yet the meaning of the term democracy could differ across countries. To Saudi respondents, democracy may mean meaningful elections and broader expressive freedoms, but not necessarily the freedom to criticize clerics or the right to challenge Saudi interpretations of Islam. For their part, Italian respondents might take for granted the freedom to lambast Church policies on abortion; to them, democracy could conjure images of dysfunctional coalition governments, which would be absent from the Saudi respondents' image of democracy. These cases illustrate the need for fine-tuned comparative data on political preferences. Because of their coarseness, the questions of the World Values Survey are poorly suited to solving the Rowley-Smith paradox.

An additional interpretational challenge exists. Even if Italians and Saudi Arabians share a single understanding of democracy, their valuations depend on their own conditions. Just as individuals who work the most tend to value work the least, respondents living in the least democratic countries might crave democracy more. In other words, the crux of the Rowley-Smith paradox might be the basic economic principle of diminishing marginal utility, which means essentially that we value more what is scarcer. On that basis, Maseland and van Hoorn (2011) interpret the World Values Survey scores as marginal preferences rather than attitudes. The fact that respondents in Muslim-majority countries tend to favor democracy more makes sense, say Maseland and van Hoorn, because they have less of it. It reflects their relative deprivation of the rights that come with democracy; Italians would be as enthusiastic about democracy were they to live in the repressive conditions that characterize life in Saudi Arabia.

This argument, too, calls for attitudinal surveys designed specifically to identify where Muslim attitudes toward specific freedoms and rights stand out as unusual relative to the rest of humanity. The challenges are immense because authoritarian regimes prohibit open-ended surveys liable to show their societies in a bad light, or to uncover suppressed discontents.

A related challenge is to explain the attitudes revealed by surveys. Binzel and Carvalho (2017) develop a model that attributes Egypt's Islamic revival and accompanying social transformations to an unexpected fall in social mobility among its educated youth. Because religion helps to cope with failure, a consequence was an increase in religious participation. The social influence of clerics rose in tandem, as did the centrality of the mosque as a forum for dissent. Although Binzel and Carvalho do not address the Rowley-Smith paradox directly, their work offers clearly relevant clues.

Carvalho (2013) furnishes further insights through a model that explores the spread of veiling among Muslim women since the 1970s. Veiling serves as a commitment mechanism that limits the temptation to transgress religious norms. As it spreads, women who would rather stay unveiled feel growing pressure to conform. Under conditions observed in many countries, including Egypt, the resulting equilibrium involves widespread veiling. A side-effect is to increase the salience of Islam and, hence, its role in shaping social attitudes. Using three data sets, one from Turkey, one from 25 Muslim-majority countries, and one from Belgium, Aksoy and Gambetta (2016) find that highly religious women conform to Carvalho's predictions. Among such women, modernizing forces such as education, urban living, higher income, and contacts with non-Muslims all increase veiling.

Platteau (2017, sect. 7.3) offers a complementary explanation for the spread of modest feminine attire in the Muslim world. Insofar as veiling signals Islamic piety, it allows women to move around freely and seize economic opportunities without threatening the honor of their family. Like Carvalho's work, Platteau's observation suggests that a ban on veiling can lead to a rise in gender segregation by limiting female mobility.

4.2 Weak Rule of Law

If democracy is one political ideal of our time, another is government under law, or rule of law. Guttman and Voigt (2015) investigate whether Islam has a discernible impact on the content or enforcement of constitutions. Their empirics rely on two measures of Islamic influence. The first is whether at least half the population is Muslim. The second is an index of factors selected as proxies for the degree to which Islam guides the government's policy choices. Relying on a model constitution published by the Al-Azhar Academy in Cairo, they hypothesize that Muslim-majority countries tend to have a presidential form of government and that their constitutions institute discrimination, especially inequalities between men and women.

Guttman and Voigt then test their hypotheses using their Islamic State Index. They find no evidence that Islamic states have weaker property rights or that they restrict the independence of their parliaments. But these states are less successful at ensuring judicial independence, partly because competing state agencies contribute to the interpretation of the law's sharia-based elements. Women's rights are more constrained in Islamic states than elsewhere, both in principle and in practice. Testing alternative explanations for sex discrimination, they find that oil rents are not significantly associated with either women's legal rights or such outcomes as female labor force participation and female political representation. Rainfall also fails as an alternative explanation for the observed sex discrimination.

Using a 207-country sample, North, Orman, and Gwin (2006) conduct a similar exercise. Their goal is to determine whether rule of law and the pervasiveness of corruption correlate with a country's religious heritage. As indicators of religious heritage, they use the country's largest religious group in either 1900 or 2000. Depending on the empirical specification, they find that corruption is lower and rule of law stronger in countries dominated by one or more of the following heritages: Protestantism, Catholicism, an Asian ethno-religion, and Hinduism. Under no specification does Islam contribute positively to rule of law or negatively to the pervasiveness of corruption. Countries with an Islamic heritage thus form a bottom tier of countries, along with those dominated by Orthodox Christianity, an African ethno-religion, or a Pacific Island ethno-religion.

5. Historical Sources of Authoritarian Governance

Literatures focused on contemporary connections between Islam and authoritarianism leave unexplained the political patterns themselves. Several largely complementary works provide insights into the historical mechanisms that brought about present outcomes. The mechanisms in question are intertwined with mechanisms that shaped economic trajectories.

5.1 Early Arab Conquests

From World War II onwards, the Middle East has been among the least democratic regions of the world. On that basis, many popular writers have asserted that Islam is incompatible with democracy. Investigating the connection, Chaney (2012) finds that what tends to keep a country from democratizing is not the Muslim share of its population but the proportion of its landmass conquered by Arab armies during Islam's early centuries. Countries located within his "Arab conquest region" corresponds to what Rowley and Smith (2009) call "Islam's historic heartland." Almost all of its countries are ruled autocratically; although the majority are Arab, ten are non-Arab. The 15 Muslim-majority countries situated outside the Arab conquest region do not stand out as particularly authoritarian. Their political evolution since 1960 matches that of the underdeveloped world's non-Islamic segment.

If Muslim attitudes or beliefs were the fundamental obstacle to democratization, it would not matter how a country became predominantly Muslim many centuries ago. So Chaney's finding would appear to rule out Islamic theology as the key source of authoritarianism. Yet, as Blaydes (2012) reports, his key finding relies critically on a few low-population countries. Replicating the analysis with population-weighted regressions renders statistically insignificant the variable measuring Arab conquest. At the same time, Arab League membership emerges as a comparably sized predictor of contemporary authoritarianism. These patterns suggest that Arab culture, which would have diffused through the spread of Islam, provides a better explanation for modern political patterns than Arab conquest. Further research may reveal that the two explanations are mutually compatible after all.

5.2 Slave Armies

Whether the driver of persistent authoritarianism has been Arab culture or early Arab conquests, it raises the question of the underlying mechanism. Chaney's own explanation, developed in Blaydes and Chaney (2013), is that these conquests fostered institutions inimical to political decentralization. Specifically, Arab rulers of the conquered territories enforced their authority through armies and bureaucracies composed primarily of slaves. Imported from distant lands, these recruits lacked ties to local elites in the capital or other strategic centers. This choice of military recruitment kept local elites persistently weak, preventing the emergence of local aristocracies. It thus spared rulers from needing to bargain with local elites. Meanwhile, in Western Europe rulers funded armies by giving land grants to local nobles. Known as feudalism, this alternative fiscal system gave rise to landed aristocracies. The Church bolstered the decentralization of power by remaining an independent institution supported through vast wealth.

Why might Islamic and European military recruitment strategies have differed? From the 8th century onward, Muslim rulers had the financial capacity to import slaves. Hence, they had no need to negotiate with the elites they ruled. They could also use imported soldiers to suppress local challengers. For their part, European rulers lacked the resources to recruit foreign soldiers. To fund armies, they had to share power with notables. European feudalism thus produced sustainable political checks and balances, facilitating the development of permanent parliaments and increasingly influential civil societies. Such sovereign-constraining institutions failed to develop in the Islamic Middle East. The Blaydes-Chaney thesis is thus that regional differences in sovereign resources around the 8th century, just a century after the rise of Islam, accounts for the observed political divergence during the Middle Ages. It accords with rising prosperity and political stability in Europe over 800-1500 CE. Blaydes and Chaney measure the latter variable by ruler duration and the probability of being deposed. By the same two measures, the Islamic world became less stable over the same period.

The Blaydes-Chaney emphasis on slave armies as the source of authoritarianism invites the objection that some military slaves of the Islamic world created sovereign-constraining institutions themselves. During their active military service, the mainly Turkish, Circassian, and Georgian slave soldiers of Egypt's Mamluk Sultanate (1250-1517) received income from rural plots of land (*iqtā*'s), which reverted to the state upon their dismissal, retirement, or death. Lacking roots in Egypt, they were not considered a threat to the incumbent power holders. But by virtue of their investment strategies, they gradually gained power themselves. To perpetuate their status and pass privileges to their descendants, these foreign slaves invested heavily in urban waqfs; tellingly, the rich architectural legacy of medieval Cairo consists largely of buildings endowed by military slaves (Petry 2000). These waqfs substantially restricted the fiscal capacity of subsequent sultans.

The slave soldiers of the Ottoman Empire also constrained the dynasty they were meant to serve. From their establishment in 1383 to the late 16th century, the Ottoman Janissary corps, composed overwhelmingly of converted Christians, effectively guarded the privileges of Ottoman rulers and their officials. The privileges of Ottoman bureaucratic, military, and religious elites included immunity from taxation and various monopoly rights. But individual Janissaries did not fade away at the termination of their service. Even as they protected the political status quo, they amassed economic privileges of their own and enlarged their corps through the inclusion of freeborn Muslims who played no military roles. Over time the Janissary corps turned into a formidable political power with its own ties to the local, non-foreign population. They became sufficiently powerful, in fact, to depose multiple Ottoman sultans. They delayed, even blocked, military reforms right up to 1826, when a showdown with Sultan Mahmud II ended in their annihilation. As Tezcan (2010, chaps. 5-6) observes, in the 17th and 18th centuries the Janissaries transformed themselves from an elite fighting corps into a commercial cartel and a political pressure group. By then, they were hardly under the Sultan's thumb. Pursuing agendas of their own, they constrained the Sultan with respect to matters ranging from price controls to imperial organization. In stages, they turned into a parallel force working autonomously against the Sultan's interests.

Prior to 1826, the Ottoman political equilibrium was not lacking in sovereign-constraining institutions. Hence, the key difference between the Ottoman and European equilibria is not that only one entailed a division of powers. Rather, the Ottoman equilibrium denied the masses a voice. Whereas Europe's checks and balances forced rulers to listen to commoners and accommodate their desires, those of the Islamic Middle East essentially excluded the masses from the political bargains that determined resource allocation and institutional choices.

If the Janissary case is any indication, the specifics of military recruitment would not have mattered critically after the establishment of a political system denying the masses a voice. Indeed, massive changes in military recruitment policies did not put the Ottoman Empire on the road to democratization. As units composed of freeborn Muslims replaced those filled with Christian-born Janissaries, the Ottoman Empire did not become more democratic. What remains controversial is the source of Middle Eastern authoritarianism. The Blaydes-Chaney hypothesis overlooks a key Islamic institution, the waqf.

5.3 Political Roles of Islamic Waqfs

Middle Eastern rulers preferred foreign-born slave soldiers on the presumption that such soldiers would have difficulty forming coalitions with disgruntled local constituencies. But slave soldiers and their descendants came to control enormous wealth, and they married into local communities. These two factors would have made it difficult to keep officials loyal to the sultan. The reliance on slave soldiers required, then, measures to inhibit broad-based opposition movements.

The rules of the waqf, which emerged around the time when Arab rulers started to rely on slave soldiers, were designed to hinder collective action and deny beneficiaries a say over the use of endowments (Kuran 2016). Insofar as the wealth accumulated by slave soldiers flowed into waqfs, the political capabilities of slave soldiers were limited. Although no systematic study exists on the composition of slave soldiers' wealth, assets endowed as a waqf must have formed a substantial share. In both Mamluk Egypt and the Ottoman Empire, powerful slave soldiers are now remembered through mosques, schools, and charitable complexes, all established as an Islamic waqf whose endowment consisted of income-producing land and urban real estate.

The waqf might have become a source of democratization because, in principle and usually also in practice, the sovereign had no say over its governance, and also, by virtue of its presumed sacredness, it enjoyed substantial protection against confiscation. Yet, the waqf's potential contribution to democratization was not realized. Three distinct counter-mechanisms stand out (Kuran 2016).

First of all, under the law a waqf's activities were essentially set by its founder. This limited its capacity to convert economic resources into political power. Hence, whereas an incorporated European church was free to participate in politics, a waqf-based mosque was not. Second, being designed to provide a service on its own, a waqf could not establish coalitions. Mergers of resources were disallowed, either at the founding stage or subsequently. Thus, in contrast to European cities, which routinely formed coalitions, waqfs within the same city did not cooperate among themselves, to say nothing of forming alliances across cities. Finally, and as Rothstein and Broms (2013) also note, the beneficiaries of a waqf had no say in evaluating or selecting its officers, and they had no forum for meeting together as a political community. The upshot is that in spite of its vast resources, the Islamic waqf contributed minimally to building civil society It atomized beneficiary groups did not gain consciousness of their collective potential power.

5.4 Tax Farming

To collect revenue, pre-modern rulers in various parts of the world, including the West and the Islamic Middle East, relied extensively on tax farming. But the form of tax farming varied between regions and over time. Focusing on France and the Ottoman Empire, Balla and Johnson (2009) identify differences in the credibility of state promises. Over the long run, these differences had serious political consequences.

In France, tax farmers managed to form a coalition that limited the King's ability to alter contract terms unilaterally. In the Ottoman Empire, tax farmers could not form a coalition because they were far more numerous; and their inability to act collectively allowed the Sultan to exercise much more discretion on fiscal matters. Thus, he routinely retracted lifetime tax farms when opportunities emerged to lease them again at higher prices. In the short run, then, Ottoman rulers could raise revenue more easily than their French counterparts. But this advantage weakened them in the long run through adverse effects on investment. Particularly relevant here are the lasting political effects. Whereas the sovereign-constraining powers of French tax farmers put France on a path to democracy, the absence of fiscal checks on the Ottoman state reinforced its authoritarianism.

Balla and Johnson attribute the Ottoman tax farmers' inability to constrain the state's takings to the features of Islamic law analyzed above in Sections 3.1 and 3.2. The Islamic inheritance system discouraged the formation of large tax forming consortia. Consequently, in both capital and number of investors the average Ottoman tax farming partnership remained much smaller than the typical French tax farming company. Meanwhile the security of Islamic waqfs sucked capital away from tax farming. A further Ottoman handicap lay in the the absence in Islamic law of a concept of corporation. It denied Ottoman tax farmers the organizational option through which French tax farmers protected their capital and constrained the sovereign simultaneously, as by-products of their quest for profits. In sum, legal choices made in the Middle Ages caused Ottoman and French fiscal institutions to diverge in the centuries leading up to the Industrial Revolution.

Comparing Ottoman state finances with those of the major West European states between 1500 and 1914, Karaman and Pamuk (2010) confirm that in the 17th and 18th centuries the Ottoman tax intake lagged behind those of Western states. Only in the 19th century, through extensive political and economic reforms, did its revenues as a percentage of GDP catch up to those of other European states. The Ottoman government's low tax intake contributed to its string of military defeats from the 17th century onward. Resource gaps hindered technological modernization in the military. They made it impossible to equip soldiers adequately and to pay them well, undermining the effectiveness of military units.

Like Balla and Johnson, Karaman and Pamuk point to the inefficiencies of Ottoman tax farming as a chief cause of Ottoman fiscal woes. But their explanation differs. Where Balla and Johnson emphasize the Ottoman state's inability to commit credibly to tax farming contracts, Karaman and Pamuk lay the blame instead on falling monetization in the Ottoman economy. Monetization declined in the 17th century, they observe, because of silver shortages rooted in a persistent trade deficit with the East. The breakdown of the Ottoman monetary system hampered efforts to monetize tax collection; and leakages stemming from intermediation costs and embezzlement were substantially greater with taxation in kind.

The Karaman and Pamuk explanation, which complements that of Balla and Johnson, raises the question of why the Ottoman Empire did not overcome its trade deficits. The stagnation of private commerce and finance at a time of remarkable institutional dynamism private sectors of the West must have played a role. Had the private Ottoman economy been more dynamic, the Ottoman trade deficit need not have been as large or as persistent. More important, Ottoman GDP might have grown faster, allowing the alleviation of silver shortages. Tax revenue could have increased in spite of collection difficulties. Through multiple mechanisms, then, the Ottoman state's economic capacity was held back by the performance of its private economy.

5.5 Political Instrumentalization of Islam

Whether addressing historical or current patterns, much of the literature on the links between Islam and either economic or political performance focuses on causal mechanisms through which some feature of Islam produces dysfunction. Proposing that the relationship between Islam and politics is generally misconceived, Platteau (2008, 2011, 2017) argues that in fact politics tends to dominate, manipulate, and use Islam. Islam moves into the driver's seat under two situations, he says: during periods of state consolidation, when centrifugal forces need to be overcome, and during times of state weakness, when the ruling clique and its opponents fight a "religious bidding war." The bidding war involves a race to outdo others in justifying opinions through Islamic principles and precedents. The consequent "obscurantist deadlock" hinders economic modernization, aggravating the crisis responsible in the first place for making the state adopt Islamic idioms. Auriol and Platteau (2017) develop the underlying theory. The argument harkens to Rubin's (2017) argument concerning the role of Islam as a source of legitimacy and to Coşgel, Miceli and Rubin's (2012) work on the Ottoman dynasty's delay in embracing mass printing in the interest of preserving political legitimacy.

The lack of a centralized Islamic authority, says Platteau, has allowed Muslim statesmen to dominate Muslim clerics for long periods over large areas. Generally, then, rulers have been able to pick and choose from among abundant interpretations of Islamic law, behavioral standards, and policies. But in times of state weakness clerics fill the political vacuum. Through their help, challengers justify their bids for power in religious terms. The state then reacts through religious rationales of its own. This religious bidding war shuts down rational discourse, obscuring genuine problems as well as feasible solutions. Preventing the adoption of sound economic policies, it causes economic distress. Once public discourse turns into a competition over religious purity and correctness, it becomes difficult to break. Society finds itself in an equilibrium that makes it appear stuck in the past. Indeed, its fault lines, agendas, concerns, modes of discourse, and practices all give it an increasingly archaic appearance. Though the term did not exist in the early 19th century, what outside observers of the era saw in the Ottoman Empire was, to use Platteau's term, an obscurantist deadlock. Likewise, as of 2016, Saudi Arabia and Egypt each displays a political equilibrium that conceals massive inefficiencies, inequalities, and illegalities simply by focusing attention on competing religious interpretations and identities.

The state and clerics are not the only players that influence political discourse. To his credit, Platteau recognizes that various features of Islamic law discussed in Sections 3.1 and 3.2 above, including the absence of the corporation, the rigidity of waqfs, and egalitarian inheritance rules, stunted the development of non-governmental organizations. The debility of Muslim civil society has contributed, he holds, to obscurantist deadlocks.

Platteau's argument compellingly describes the last few centuries within an equilibrium-based framework involving both policy making and public discourse. It illuminates patterns that have reappeared after a period of secularizing reforms initiated in the 19th century. Historians can employ it profitably in contexts well beyond those that Platteau explores. Yet, the argument does not fit all of Islamic history. As Coşgel, Miceli and Ahmed (2009) point out, times of Muslim clerical power have not been limited to periods characterized by a fledgling state. In the high period of the Arab Caliphate (750-978), clerics produced treatises on state finances, which legitimized taxation beyond the forms and rates given in the Quran, but also constrained rulers. Ottoman clerics enjoyed greater independence in the 14th and 15th centuries, when the state was expanding in Europe, than in the 17th and 18th centuries, when it faced chronic budget deficits and steady territorial contraction. By the time the clerical corps turned into a rubber stamp, Ottoman development, as measured by institutional advances, was already well behind that of Europe.

Ottoman clerics served as instruments of political legitimation until new sources of legitimation emerged with the global rise of the West. In highlighting the legitimation of governance, Coşgel, Miceli and Ahmed (2009) take the shifts as given. Building on his articles discussed above, Platteau (2017) interprets the ebbs and flows in Islam's legitimizing role through analytic narratives. The last major shift in Islam's political role was not that of the 19th century, he shows. Many governments of the modern Muslim world make huge investments in religious legitimacy through subsidies to religious education and movements. Often they do so out of weakness rather than strength.

6. Conclusions and Challenges Ahead

At the end of a long survey of research on connections between Islam and economic performance, it is worth recalling that when the literature was last surveyed (Kuran 1997), humanists were framing most debates. Contributions by social scientists were mostly "interpretive" rather than analytic. Few writings advanced falsifiable hypotheses or tried to test competing claims systematically. In the interim, economists and other social scientists have brought rigor to many discourses. Novel perspectives have emerged on many issues. While certain suppositions of the non-analytic literatures have been validated, others have been falsified. An expanding range of new questions are under investigation.

This last section first highlights the methodological enrichment under way, with an eye toward identifying academic synergies. Key findings of the past two decades are taken up next, starting with works on current patterns and continuing with those focused on historical roots. I point, finally, to important questions that remain unaddressed.

6.1 Reinterpreting Islam's Economic Roles

Three concepts central to modern economics have now taken center-stage in scholarship on the links between Islam and economic performance: choice, causality, and efficiency. At least implicitly, the surveyed works are all concerned with the motivations underlying individual choices, the mechanisms through which relevant variables interact, and comparisons between achieved and potential uses of resources. With respect to the first two concepts, choice and causality, the contribution of the surveyed works is simply to use them with greater precision than in area studies, following scientific conventions. But the third concept, efficiency, is alien to the area studies tradition, because it involves ranking alternative outcomes, for instance, alternative practices in terms of health effects or enterprise longevity. Within area studies, efficiency claims are avoided if they reflect poorly on one's region of specialization. This tendency is especially pronounced in Islamic and Middle Eastern studies, where a reputation for being critical can lead to loss of access in repressive regimes. The concept of efficiency is implicit, of course, in writings that blame undesirable outcomes on outsiders. Works that hold the Mongols responsible for the decline of Islamic science offer a case in point; they assume that a productive scientific community is a source of prosperity. The studies surveyed in this article deal with efficiency explicitly, consistently, and unabashedly. Whether the focus is on Islamic education, the Islamic pilgrimage, or Islamic inheritance rules, outcomes are evaluated through specified metrics.

Notwithstanding the foregoing methodological differences, the analytical social sciences are benefiting from works that fall within the area studies tradition. To one degree or another, most of the works covered in this survey rely on area studies for institutional particulars, historical events, and even quantitative data. In a few of the works critiqued, the value added lies largely in reinterpreting data found in area studies outlets through the methods of economics, or in using them to test causal hypotheses rigorously. But by no means have the analytic social scientists concerned with links between Islam and economic performance left data collection entirely to others. Whether to test old or new hypotheses, they have been adding to the available primary data through archival searches, controlled surveys, and behavioral experiments. Topics that have generated massive data collection by economists include the effects of Ramadan fasting, the determinants of trust, judicial biases and their consequences, the size distribution of firms, the educational consequences of Islamist rule, and the impact of Islamic banking.

When Islam-related themes were largely confined to area studies, in many parts of the analytic social sciences Islam and the Muslim world were essentially invisible. Vibrant historical fields such as organizational development, financial development, the study of markets, and political modernization ignored the Muslim world, to name a few that have long drawn prominent contributions from economic and political historians focused on other geographic areas. Now that analytic social scientists are addressing connections between Islam and economics, Islam-related works are gaining visibility outside of area studies. This is evident in the rising numbers of Islam-related papers in both general interest and thematic economics and political science journals. Their growing presence in these two disciplines, which is observable in this survey's bibliography, will undoubtedly influence broad trends within the social sciences.

Contributors to Islamic Studies, Middle East Studies, and South Asia Studies have long cautioned against uncritical or unfiltered transfers to Islamic contexts of propositions developed within academic communities where knowledge of the Muslim world is superficial. There are indeed good reasons to generalize guardedly. The global predictions of mid-20th century modernization theorists were off the mark in regard to the role of religion. Likewise, thinkers who characterized Middle Eastern political history as a sequence of uniformly despotic regimes overlooked important variations as well as evidence of institutional dynamism in certain periods. But one should distinguish between intellectual skepticism, which is central to all sound scholarship, and blind dismissal of influential universal literatures, which can be self-limiting. In protecting themselves from literatures with minimal Islam-related content, area studies scholars commonly dismiss huge areas of the social sciences, sometimes including all of economics, as useless, even harmful. The rich achievements reported in this survey should help convince even the most resistant area studies scholars that their scholarly habits are outdated.

The dismissal of the analytic social sciences is sometimes motivated by a desire to avoid Eurocentrism, or Orientalism, or some other cultural bias. Another common pretext is that the analytic social sciences produce theories unsubstantiated by data. Although the resulting detachment may protect area studies from unwarranted generalizations, its harm to the learning process greatly outweighs this benefit. Apart from depriving area specialists of useful skills, it constrains the questions asked and the leads pursued. It also reinforces the isolation of Islam-related scholarship from the analytic social sciences, to the detriment of both area studies and knowledge production in general.

A common trait of genuine Orientalist scholarship—research practiced by earlier generations of scholars who characterized themselves as Orientalist—was a belief in the consistent and overarching superiority of the West. Many Orientalists held that Western economic institutions are indelibly superior to those of the Muslim world across the board and irrespective of context. Fortunately, this is no longer a dominant view within any scholarly discipline, and certainly not among researchers who publish in respectable social science outlets. The economists and political scientists whose works are surveyed here all appreciate the vast achievements of waqfs, the scientific productivity of medieval Arabs, and the flexibility of Middle Eastern fiscal systems. In any case, the commendable desire to avoid Orientalist bias is not costless itself. Amplifying the above-noted aversion to judging, it dulls the capacity to identify deficiencies and, where they are obvious, from trying to explain the underlying causes. It also fosters avoidance of inter-regional rankings, even inter-temporal comparisons, as though reporting weakness in one specific place, time, or context amounts to condemning an entire civilization. Now that the social science literatures reviewed in this survey are well-established, a potential danger is that social scientists will drive their development without critical feedback from area specialists. No discipline or school of thought is immune to the dangers of intellectual isolation. Area specialists could play valuable roles by helping social scientists avoid over-generalizations, refine interpretations, and identify richer data sources.

Area studies and the analytical social sciences are not rival forms of scholarship. As the surveyed works show, they are complementary pursuits. Just as economists, political scientists, and other social scientists have been making abundant use of data collected by area specialists, so area specialists can improve their works and make their fields more useful by following developments in the social sciences, being responsive to the puzzles they raise, and participating in discourses they initiate.

A major contribution of the new institutional economics has lain in its emphasis on the distinction between static and dynamic efficiency. This distinction appears prominently in many contributions surveyed here. Self-reinforcing Islamic institutions that were well suited to the Middle Ages turned into handicaps as global economic conditions began changing rapidly, and adaptability became increasingly advantageous. The Islamic waqf, Islamic court procedures, and the religion-dominated Islamic educational curriculum are among the examples of institutions that served Muslims well for centuries before becoming sources of disadvantage vis-à-vis both local non-Muslims and foreigners. The surveyed literature has thus brought sophistication to a previously sterile literature concerning the merits of Islam's classical institutions. The view that they contributed to Muslim prosperity is entirely compatible with the roles they have played in Muslim underdevelopment, provided the context is properly identified and delimited.

The surveyed works feature many cases of unintended and unforeseen consequences of institutions whose predictable and intended consequences were often laudable. Armies composed of slave-soldiers, Islam's egalitarian inheritance system, Muslim territorial advances in Europe, and commercial privileges extended to foreigners are among the institutions that achieved their desired ends but also, and over the long run more importantly, affected economic and political developments adversely, and through entirely unintended mechanisms. Frequently changing tax policies offer another example. In increasing state revenue, they also reduced incentives to innovate, invest, and accumulate. The concepts of unintended and unforeseen consequences were central to the Scottish Enlightenment of the 18th century, and to scattered earlier works, including Ibn Khaldun's 14th-century *Prolegomena*, which is analytic in a way that today's area studies generally are not. The works surveyed here caution against heaping unqualified praise on economic policies that did serious harm over the long term. By the same token, they caution against the neglect of unintended and unforeseen benefits. For all the costs borne by the local population, the commercial privileges that Ottoman rulers gave to foreign merchants had favorable long-term effects. Key legal reforms of the 19th and 20th centuries were motivated by a desire, induced by foreign successes, to extend the same opportunities to locals.

6.2 Roles of Modern Islam

Over the past two decades more than half of the literature on the connections between Islam and economic performance has focused on the effects of current policies and practices. Although most of the contributions investigate one particular country or region, collectively they suggest that the most important effects work through education, networking, and Ramadan fasting by pregnant women.

The pilgrimage to Mecca promotes trust, which is favorable to growth. Fasting during Ramadan increases happiness and sows optimism. But the durability of these favorable effects is unknown, and in the case of Ramadan, there is a negative consequence, too. Fasting by pregnant women harms prenatal development. Whether awareness of the damage alters behavior by pregnant women remains to be investigated. Zakat is another core Islamic requirement on which studies exist. They show that mandatory zakat systems according to early Islamic templates have had negligible effects on poverty and inequality. By the same token, the failures of these systems have galvanized movements to re-conceptualize zakat as a global transfer system from rich segments of the global Muslim community to its poorest segments. Zakat may yet turn into an instrument of inequality reduction.

Self-consciously Islamic charities tend to outperform governments in providing social services. But the same is true of private secular charities. Evidently, the successes of Islamic charities stem from superior organization rather than Islam itself. Indeed, from an organizational standpoint today's Islamic charities harken more to the charities of advanced modern societies than to anything found in seventh-century Arabia. Although Islamic charities generally tout their services to the poor, by and large their beneficiaries belong to the middle class. In this respect, too, they resemble secular charities of the Muslim world. These conclusions are based on studies focused on particular countries and sectors. No meta-analysis of Islamic charities has been undertaken, to say nothing of a broad comparison involving charities associated with other faiths and philosophies.

In terms of market returns, schools wedded to an Islamic curriculum are widely considered inferior to secular schools. Discrediting this belief, studies focused on South and Southeast Asia find that Islamic schools perform no worse than their non-religious counterparts, as measured by such factors as productivity, trust, and trustworthiness. But Islam affects human capital, creativity, and other attributes relevant to economic performance through other channels, too. Broader inquiries are needed.

In Sub-Saharan Africa Muslim educational attainment falls with the Muslim share of the population. A plausible reason, awaiting validation through alternative methods and in other regions, is that Muslim socialization patterns differ according to the Muslim population share. In predominantly Muslim communities, Muslim elites enjoy enough power to treat school choice as an expression of religious identity. Specifically, they induce parents seeking recognition as good Muslims to deny education to their children, especially to their daughters. Where Muslims form a minority, Muslim elites concerned with religious identity enjoy relatively less power over their brethren. Hence, Muslim parents make educational decisions without considering how their choices will affect the Muslim community's self-image. Insofar as this insight generalizes to other societies, the task of raising Muslim human capital requires collective efforts at changing understandings of what it means to be a good Muslim, not altering Islamic religious instruction per se. It also suggests that in certain places Islam molds human capital less through Islamic education than by discouraging schooling, inquisitiveness, and creativity in general. This conjecture awaits further testing throughout the Islamic world. It may hold the main key to the challenge of overcoming Muslim underdevelopment.

Ever since the idea of establishing distinctly Islamic economic systems entered the global Islamist agenda, its leading concrete project has been to establish an Islamic financial sector that avoids interest. Alas, a half-century of experiences with Islamic banking, Islamic credit cards, Islamic bonds, Islamic derivatives, and other Islamic financial instruments have proven that distinctly Islamic finance is a mirage. The global Islamic finance sector's initial reaction to a financial innovation is typically to forbid it as un-Islamic. Typically, pious Muslims then seek Islamic substitutes. The demand invariably brings about symbolically Islamic variants that are functionally identical to practices condemned as sinful just a few years earlier. Thus, markets have repeatedly forced Islamic jurists to reinterpret what counts as interest. The procedures that Islamic financial institutions follow in order to make their operations appear Islamic foster conservative investment policies. They also entail deadweight losses. For all these disadvantages, Islamic finance may contribute to economic development by promoting financial inclusion. It draws deposits disproportionately from pious Muslims who consider its operations closer than conventional finance to the spirit of Islam. Insofar as the Islamic finance brand's benefits come from financial inclusion, its impact should be strongest in the world's least developed economies. This conjecture remains to be tested systematically.

Efforts to restructure entire economies according to Islamic teachings have ended in failure. The basic reason is that the revivals have centered on institutions unsuited to a modern economy based largely on impersonal exchange. Beyond basic moral principles, Islam's fundamental sources do not offer the blueprint of an economy suited to the 21st century.

The remarkable successes of certain Islamic commercial networks have been portrayed as evidence that Islam supports trade and growth. Yet, their operations do not rely on distinctly Islamic institutions. Their profitability owes more to the logic of club goods than to anything inherent in Islam. In enforcing favoritism toward members, they behave like other networks built on some shared characteristic, whether ethnicity, religion, or region of origin. Likewise, in forming alliances with political parties in return for access to rents, Islamic networks display behaviors characteristic of rent-seeking associations around the globe.

Negative attitudes toward education, especially toward female education, is a common feature of Muslim communities. But the latter effect is largely absent from families with a literate mother. In Iran, the world's only economy that operates under a government committed formally to wholesale economic Islamization, de-feminization of the labor force has been a consistent goal. Nevertheless, female employment has expanded substantially since the Islamic Revolution of 1979. The rising supply of educated women has played a role, as has market competition among firms seeking to control costs. Apparently, attitudes toward education are responsive to market conditions. A development program that relies heavily on skilled labor would probably shrink the educational gender gap.

Among the economic handicaps of the Muslim world is low generalized trust. Unfortunately, trust cannot be built quickly. It can take generations for people to learn, through repeated successful exchanges, to trust strangers and institutions. An implication is that no quick fix exists to the Muslim world's economic underdevelopment. Yet, research on this subject is in its infancy. We know little about variations in the Muslim world, or within particular predominantly Muslim countries. Insofar as certain sectors contribute relatively reliably to building trust, that ought to be a factor in investment decisions.

6.3 Historical Roots of Modern Patterns

Low generalized trust, which harms economic performance by narrowing the domain of feasible exchanges, is a legacy of the Muslim world's history. Not until the 1850s, and in some places much later, were institutions conducive to impersonal exchange put in place. Prior to the transplant of modern commercial and financial laws to replace indigenous institutions dating from the Middle Ages, personal exchange was the norm. Commercial contracts involved natural people known to one another. Enterprises were small and short-lived. No demand existed for the firm, which is a profit-seeking organization meant to outlive its founders and employees. Commercial capital accumulation was severely limited.

The legal system responsible for low generalized trust developed in the early Islamic era, the 7th to 10th centuries. High inequality of land productivity, which favored predation over production as an enrichment strategy and also encouraged income redistribution, may have contributed to its specifics. But whatever the sources of Islamic law, the common view that Western colonial powers created the Muslim world's economic problems lacks a basis in reality. Although foreign powers pursued policies designed to extract resources from their colonies, they also benefited the region by initiating or assisting the transplant of institutions that had failed to develop indigenously. The transplants gave Muslims the means to conduct impersonal exchange efficiently, to accumulate capital safely, and to form large and perpetual organizations capable of exploiting modern technologies. Regional variations in development are related to differences in the timing of the transplants in question.

During the millennium preceding the Industrial Revolution, the Muslim world's economic stagnation was evident in its slow urban growth relative to Western Europe. Among the reasons for this lag is that Muslim-governed cities lacked corporate status. The absence of the corporation was a key feature of Islamic law. Thus, social services provided largely through corporations in medieval Western Europe were provided through waqfs in the Middle East. Waqfs became highly popular largely because they served their founders as wealth shelters. They delayed development because of their dynamic inefficiency, but also by sucking capital out of commerce. In limiting the capital available to flexible partnerships, waqfs dampened the incentives to expand partnerships and extend their lifespans; in turn, that alleviated pressures to develop an institutional infrastructure capable of supporting large and long-lasting enterprises. Among the consequences was the absence from the Muslim world of banks until the mid-19th century. This was more critical to the Muslim world's observed trajectory than the Islamic ban on interest, which was always easy to circumvent. The interest ban delayed banking indirectly as well, by discouraging the bill of exchange, which stimulated the rise of banking in Europe.

The courts that helped enforce Islamic contracts did not render verdicts arbitrarily, as some prominent scholars have asserted. But their procedures were better suited to the Middle Ages than to the modern era. That Islamic law does not recognize the corporation was a key problem here, too. it undermined impersonal exchange. Another problem was that it grants individuals rights according to their religion. The latter feature raised credit costs for the politically dominant religious community, namely, Muslims. The resulting Muslim handicaps became particularly noticeable in the 19th century, as access to cheap credit became increasingly critical to economic success. The replacement of Islamic law with a religiously neutral legal system began at that time, with the establishment of specialized commercial courts in major economic centers of the Eastern Mediterranean.

The millennium before the Industrial Revolution did witness changes to some economic institutions. But the most significant changes involved elements of statecraft, such as tax collection, military recruitment, and military organization. One exception involving the private economy is the emergence of the cash waqf, a rudimentary bank that made small loans at interest. Another is the gedik, a tradable entitlement to factors of production, which gave rise to a primitive equity market. These second-best responses to financial underdevelopment became anachronisms with the transplant of superior alternatives from Europe, banks and stock markets. The evidence is overwhelming, then, that the stagnation of private commerce and finance contributed substantially to the Muslim world's loss of global economic standing.

Until the 19th century, Middle Eastern Muslims enjoyed a standard of living similar to that of the Christians and Jews living in their midst. Then, during the 19th century, they fell behind non-Muslims practically everywhere. One reason lies in the choice of law that non-Muslims enjoyed under Islamic law, as individuals. By virtue of this privilege, which Islamic law denies to Muslims, non-Muslims were able to take the lead in using the organizational forms and business techniques of the emerging modern economy. They also pooled resources with Western businesses, gained exposure to Western know-how, and forged Western contacts. The Western links of non-Muslims stimulated their demand for education. Even as Muslims remained wedded to traditional, sectarian education, non-Muslims began to favor schools teaching modern science and European languages. Meanwhile, governments were expanding as a result of reforms that shifted the supply of public goods from waqfs to government agencies. The new jobs, which required no knowledge of European languages, were filled disproportionately by Muslims. The institutional transformations of the 19th century thus created a religious bifurcation in employment, with commerce and finance dominated increasingly by non-Muslims.

Islam's effects on economic development are not limited to its impact on Muslims. Because of the age-old rivalry between Islam and Christendom, Muslim advances could have major repercussions on Western Europe. Indeed, threats that Muslim-governed states, chiefly the Ottoman Empire from the 15th century onward, posed to Western commerce and security stimulated technological innovations and the global explorations. Another consequence of the Ottoman military campaigns was the suppression of intra-European hostilities. They thereby facilitated the spread of Protestantism, strengthened property rights, and stimulated investment. In the 21st century, Islam has again taken center stage in European policy making. The challenges of assimilating Muslim asylum seekers from war-torn lands are making the European Community reconsider its rules of privacy, mobility, and citizenship, even the mutual responsibilities of member nations. In a revival of a pre-industrial pattern, the West's economic and political evolution is now tied visibly to developments in the Muslim world.

The heartland of Islam, the Middle East, is the world's least democratic region. Yet in the World Values Survey Middle Easterners appear remarkably favorable to democracy. One factor underlying this "Muslim democracy paradox" is that Muslims define democracy narrowly, to exclude intellectual, religious, and expressive freedoms. Another is that the survey ratings reflect a desire for more democratic rights at the margin. Muslims express high enthusiasm for democracy precisely because they tend to live under highly authoritarian regimes. Among the most salient characteristics of these regimes is that they lack judicial independence.

It was not outsiders who imposed on Muslim-governed countries the political patterns that characterize them today. The prevalence of authoritarianism has not resulted from boundaries that colonial powers drew after World War I, or from divide-and-rule policies. Like the roots of economic underdevelopment, those of authoritarianism stretch back to early Islam. There are indications that authoritarianism is especially pronounced in Arab countries, which hold less than a quarter of the world's Muslim population. One factor may have been early Islamic rulers' dependence on armies and bureaucracies composed of imported slaves. This dependence would have kept local Arab elites weak and prevented the emergence of local aristocracies capable of establishing political checks and balances. Yet, the highly skilled slaves of the medieval Arab world created ruler-constraining, and thus potentially democracy-promoting, institutions themselves. They formed waqfs that sheltered major properties from taxation and confiscation. Alas, these waqfs lacked the flexibility needed to become a political force. Unlike the corporations that met analogous social needs in Europe, waqfs denied a voice to the masses who benefited from their services. Hence, they failed to promote democratization.

Like rulers in other parts of the world, those of the Islamic Middle East relied substantially on tax farming for revenue. The region's tax farmers ran small-scale financial enterprises, which operated through either sole proprietorships or small and ephemeral partnerships. Their high numbers made it impossible for them to organize collectively, which blocked another potential constraint on the exercise of arbitrary power. One consequence is that sultans could alter their contract terms unilaterally. Another is the persistent weakness of rule of law in the Middle East. Investment suffered and tax intake remained low. Still another is that rulers did not need to bargain with economic elites.

Weak rule of law and weak economic performance may go hand-in-hand with a weak state. During times of state weakness, Muslim clerics gain influence as state officials, and their opponents try to outdo one another in justifying positions through religious references. Competition over doctrinal purity crowds out rational discourse, creating an obscurantist deadlock that prevents economic advances and the resolution of conflicts. The nature of clerical education matters, too. When Arabs were at the forefront of science, clerics got more exposure to science than they do now. The breadth of their education made them relatively tolerant of innovation and open to rational arguments. The obscurantist deadlocks observed today must rest partly on the greater religious content of the typical cleric's training.

6.4 Unaddressed Questions

Although research conducted over the past two decades has greatly enriched our understanding of connections between Islam and economic performance, the broader social science literature has raised questions that specialists on Islam or the Muslim world have yet to address.

An enormous literature in behavioral economics focuses on individual responsiveness to information calling for behavioral adaptation. The findings on the prenatal harm of the Ramadan fast point to the need for analogous research on how Muslims respond when made aware of the fast's prenatal consequences. Do men and women respond differently? Insofar as responses vary, how do they depend on education, economic status, family structure, and political freedoms? Another behavioral issue concerns the relationship between trust and religiosity. Does true religiosity, as opposed to religiosity forced by the state or communal pressures, affect trust or trustworthiness? The challenge here lies in distinguishing between true and feigned religiosity. Though techniques for making the distinction exist, they are difficult to implement in repressive societies.

The number of Muslims is growing fastest in Africa, because of both high fertility and ongoing conversions. This alone calls for increased attention to the economic performance of

African Muslims. The continent also provides unusually good opportunities for disentangling the effects of Islam from those of ethnicity, geography, and other factors. In many African communities, there have been coeval conversions to Islam and Christianity. And the recentness of many conversions makes it relatively easy to identify pre-existing differences between Muslim and Christian converts.

The vast humanistic literature on the Islamic waqf depicts it as an instrument of charity (Singer 2002). By contrast, the economic literature has focused on its benefits to the founder, including wealth sheltering. Yet, waqfs' benefits to their founders have not been measured systematically, to say nothing of identifying variations across time and space. Testing the competing hypotheses would bring the largely isolated literatures in communication with one another.

Another unanswered question consists of the role of institutions established by European colonizers. Seminal work by Acemoglu, Johnson and Robinson (2001) links the economic performance of former colonies to the quality of the colonial institutions. With respect to the Muslim world, the Acemoglu-Johnson-Robinson thesis posits that discarded Islamic institutions are irrelevant to present outcomes. It implies that even if the waqf, the Islamic inheritance system, slave-based militaries, tax farming practices, and other such Islamic institutions now associated with economic and political underdevelopment had adverse effects in the past, they do not matter today. Resolving the inconsistencies between the Acemoglu-Johnson-Robinson thesis and the literatures surveyed here requires focused analyses on the transformations that colonizers actually brought about. It also requires identification of the lingering effects of Islamic institutions even after their formal abrogation. Special attention should be devoted to Iran and Turkey, which escaped colonization.

A research project by Woodberry (2012) shows that Protestant missionaries contributed to both economic and political development by setting up schools, hospitals, newspapers, and charities around the world. How the efforts of missionaries interacted with indigenous modernization efforts in the Muslim world has not been analyzed. Neither the reactions of Muslim clerics nor the counter-policies of statesmen have been studied empirically, except with respect to conversions.

Research on the economic performance of non-Muslim minorities is its infancy. Surviving records from their communal organizations have barely been tapped for insights. The court records of the Armenian, Coptic, and Greek Orthodox churches, like those of Jewish rabbinates, are likely to yield instructive comparisons. Comparative economic research on Muslim denominations can also yield fresh insights. Pioneering research by Christia, Knox, and Al-Rikabi (2016) suggests that the Shiite residents of Baghdad are less trusting than its Sunni residents. The mechanisms responsible for this pattern await investigation.

The vast majority of the studies evaluating the Muslim world's economic trajectory use Western Europe as the benchmark. Comparisons with other late modernizers, including China, India, and Latin America, may yield valuable new insights into the sources of resistance. The task of disentangling the economic effects of Islam, past and present, should benefit from a richer set of responses to the rise of the West, to colonization, and to globalization.

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