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the Origin of Theocracy**

by

Metin M. Coşgel
University of Connecticut

Richard N. Langlois
University of Connecticut

Thomas J. Miceli
University of Connecticut

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365 Fairfield Way, Unit 1063
Storrs, CT 06269-1063
Phone: (860) 486-3022
Fax: (860) 486-4463
<http://www.econ.uconn.edu/>

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Metin M. Coşgel
Richard N. Langlois
Thomas J. Miceli

Department of Economics
The University of Connecticut
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ABSTRACT

Why do states become theocracies? Johnson and Koyama (2019) analyzed the transition from a conditional-toleration equilibrium, in which feeble state capacity allows distinct religious groups to co-exist under a system of religion-based identity rules, to a religious-toleration equilibrium, in which a strong state applies secular general rules without the need for religion as a legitimizing force. This implies that religious legitimacy and state capacity are substitutes. We explore the alternative possibility that religious legitimacy and state capacity can be complements; that is, religion and state capacity work together to extract resources from the citizenry. The result is an equilibrium of religious rather than secular general rules in which state capacity and religion reinforce each other—a theocracy. Using a unique data set of world polities and religion since the year 1000, we confirm that religious general rules tend to be more prevalent in societies in which religion complements the state.

JEL categories: D72, H11, H26, Z12

Key words: Theocracy, state capacity, religious tolerance, rent seeking

Introduction.

Why have some polities successfully established the kind of liberal institutions that enable economic growth? And why have many other states, in history and in the world today, proven unable to establish growth-generating institutions? This is among the most salient research questions in the social sciences. As Daron Acemoğlu (2003) famously put it, we should not expect a political Coase theorem. We should not expect social institutions to transform themselves automatically to seize opportunities for the creation of wealth. Many scholars conceptualize the problem in terms of the institutional equilibria in which polities can become trapped. The question then becomes: under what circumstances can states transition from one equilibrium to another – from a rent-seeking low-growth equilibrium, for example, to a more-open high-growth equilibrium? Or perhaps the reverse?

An example is Johnson and Koyama (2019), who focus on the institutions of religious toleration.¹ In their account, states can enter into what they call a *conditional-tolerance equilibrium*. When polities have a low *state capacity* – a low capacity to extract taxes and otherwise monitor and control their citizenry – religious identity groups are able to coexist tenuously, governed by distinct *identity rules*. Weak state capacity and conditional tolerance reinforce one another. Alternatively, polities can sometimes achieve a *religious-liberty equilibrium*. Here distinct religious identities are able to coexist more robustly because all are subject to *general rules* that apply equally to all. In this account, high state capacity and genuine religious liberty are also mutually reinforcing. Johnson and Koyama consider in detail the problem of transitioning from the conditional-tolerance equilibrium to the religious-liberty equilibrium in the context of Western Europe during the Reformation.

¹ Also see Gill (2008) on the political origins of religious liberty.

We contribute to this literature by explicitly modeling the relationship among identity, state capacity, and the structure of rules. We consider not only the possibility that identity can be a substitute for state capacity – as when religious identification lowers the costs of tax collection – but also the possibility that identity and state capacity can be *complements*.² We show the possibility of equilibria in which strengthened identity (which we generalize beyond strictly religious identity) and increasing state capacity are mutually reinforcing. Conditional tolerance and genuine religious (identity) tolerance are both possible equilibria. But so is theocracy and its secular equivalents.

Identity and the State.

It has been conventional at least since Max Weber to conceptualize the state as a revenue-maximizing natural monopolist in the use of force, in effect a sedentary bandit (North 1981; Olson 1993). But even a unitary actor who effectively “owns” a territory must create a coalition. As Charles Tilly (1985) points out, the ruler must engage in state-making, which involves not only the elimination of internal rivals but also the bribing of rivals to join forces with the ruler. The ruler must also engage in the protection of merchants and other clients – protection in both the negative and positive senses of the term – to generate rents for state-making and war-making.

North, Wallis, and Weingast (2009) have generalized this idea by focusing on the coalition itself as the ruler. They call such a coalition a *natural state*. In this account, the participants in the coalition collude to generate rents. They do this in the first instance by limiting the internecine violence that would otherwise dissipate rents. As a means of holding the coalition together, the natural state also generates rents by limiting access to economic activity. In order to control access, it establishes identity rules that determine the rights and privileges of coalition

² The model of Skaperdas and Vaidya (2020) also finds complementarity between intensity of religious belief and state capacity, though in the context of external threats to the polity rather than in terms of its internal stability.

members and outsiders. The natural state stands in contrast to *open-access orders*, like present-day liberal democracies, which (in principle at least) do not limit access and which operate according to general rules applicable independent of identity. The question North, Wallis, and Weingast consider is how polities have transitioned, and how they might transition, from the natural-state equilibrium to the open-access equilibrium.

In the context of identity rules, “identity” is understood as a signal, an observable characteristic that allows the state to sort its denizens into categories that determine which rules, rights, and privileges apply to them. Signals of this type are what make identity rules effective. But, of course, in a wider context “identity” is a more complex, and often more fraught, concept. For one thing, as Akerlof and Kranton (2000, 2005) suggest, identity can also be a determinant of individual behavior. For example, how much effort a person exerts may depend on his or her own identity as well as on the identity of those with whom the person is interacting; both own-identity and the identity of others can shift the utility function. Clearly, religion is a major category of identity. And, for some purposes, one may want to emphasize the distinctive features of religion as an identity category, notably the threat of supernatural punishment that religion can bring to bear (Johnson and Krüger 2004; Coşgel and Miceli 2019). At the same time, of course, it is also clear that many secular identities possess motivational and other characteristics fundamentally similar to those of religion. In Akerlof and Kranton (2005), for example, a producer can elicit effort from a worker at a lower price if the worker identifies with the goals and culture of the organization – their example is the military – in much the same way that a ruler’s cost of collecting taxes might be reduced if the taxpayers identify with the religion of the ruler. The congruence between religions and secular identities is especially striking in the case of identities that require the same kinds of complex ideological investments often found in

organized religion.³ Totalitarian states driven by (for example) Marxism or National Socialism are arguably kinds of theocracies.

In what follows, we will refer to “religion” and the “religion market,” keeping in mind that religions include identities that need not invoke the supernatural. Although we do not explore the generalized concept of identity in detail in this essay, we also do not restrict our meaning of “religion” or of “theocracy” solely to identities and political structures invoking the supernatural.

The analytical framework for our argument consists of a revenue-maximizing state and a population of citizens who derive utility from religious observance. The state is potentially able to exploit that fact in two ways. First, by tolerating religious belief it can increase tax collection through religion’s pacifying effect on the citizenry (as famously recognized by Marx); and second, the state can look to religion to confer legitimacy on it, thereby lowering tax-collection costs. The latter effect is the route by which religious intolerance, or at least religious favoritism, may emerge because different religions may view the state more or less favorably. This is what potentially leads to discriminatory rules based on religious identity. As state capacity expands, however, religion may begin to play a diminished role in furthering the state’s goals, being supplanted by secular institutions; this is the Johnson and Koyama (2019) story. But if religion and state capacity are complementary, the role of religion can become integral to the operation of the state—the case of theocracy.

To examine our arguments empirically, we focus on the adoption of religious general rules in modern societies. Using a difference-in-differences method, we examine the systematic variation in the adoption of such rules between societies in which religious legitimacy *substitute*

³ Joseph Schumpeter was not alone in noticing that, for many, Marxism was a substitute for religion, having provided an outlet for “those extra-rational cravings which receding religion had left running about like masterless dogs” (Schumpeter 1950, p. 6). More controversial perhaps is the suggestion that environmentalism possesses many of the characteristics of religion (Nelson 2010).

for state capacity and societies in which they are *complements*. We use a novel dataset comprising the religious histories of today's nations to construct an index of historical religious fragmentation. Using this index as proxy for religious legitimacy, we run regression analysis to estimate influences on various measures of religious general rules. The analysis includes several exogenous geographic characteristics of countries to mitigate concerns about the endogeneity of state capacity because of its relationship with religious legitimacy.

The results provide strong support for our hypotheses about the difference between societies in which religion and state capacity are substitutes and those in which they are complements. As expected, religious general rules are more prevalent in societies in which religion complements the state. Consistent with Johnson and Koyama's (2019) argument regarding the rise of religious toleration in the modern period, our findings indicate that historical religious fragmentation has no significant effect on religious rules in societies in which the rise in state capacity substituted for religion in supplying legitimacy. In other societies, however, the differential effect of this variable is positive and significant, confirming our argument that historical religious fragmentation leads to religious general rules in societies in which religious legitimacy and state capacity are complements.

Theoretical Framework and Examples.

Our setting involves a rent-seeking ruler or sovereign who seeks to maximize the amount of taxes obtainable from the population. We take as given the aggregate level of wealth held by citizens, as determined by the existing endowment of resources and the prevailing production technology. Citizens are assumed to derive utility from consumption of a composite good (the numéraire) and also a religious good that is supplied by the religion "market," which may consist of a single provider or a group of competing providers (Stark 2007, pp. 115-122). The realized utility of

citizens determines the tax capacity of society, which is defined to be the maximum revenue the sovereign can extract before triggering a popular revolt.

The structure of the religion market influences the tax capacity through its effect on realized utility. In particular, the better off citizens are, the more taxes they will tolerate before reaching their reservation utility. It follows that the tax capacity of citizens will be maximized when the religion market is competitive because a competitive market maximizes the consumer surplus obtained from consumption of the religious good. We will refer to this result as the “Marx effect” – because religion is the opiate of the masses (Coşgel and Miceli 2009). In the current context, the Marx effect increases citizens’ ability to pay taxes, from which it follows that maximal religious tolerance is most conducive to tax collection, all else equal.

The Marx effect provides only one avenue by which religion can benefit the state. The other is through its effect on tax compliance. Taxes actually collected will generally fall short of the tax capacity of citizens because of collection costs, as citizens will resist the expropriation of their wealth by the state. Religious leaders can lower collection costs by providing legitimacy to the government, for example by declaring the sovereign divine, or divinely inspired (Coşgel and Miceli, 2009; Johnson and Koyama, 2019). By lowering collection costs in this way, religious legitimacy potentially increases overall revenue for any level of tax capacity. In contrast to the Marx effect, this factor will tend to work in the direction of having a single religious provider (i.e., a single, orthodox belief) because a unified structure maximizes the ability of religion to influence the citizenry. This assumes, of course, that the teachings of the dominant religion are favorable to the state, for if they are not, they may arouse citizen resistance to taxation, thus lowering revenues. This two-pronged effect of religion on total revenues, through its effect on tax capacity and tax collection, will be the basis for our examination of the possible structures describing the relationship between religion and state.

The other key factor in our theoretical framework is state capacity, by which we mean the state's ability to monitor its citizens, to enforce their compliance with rules, and to mulct them effectively through purely secular means (Johnson and Koyama, 2013). Especially in the case of fragile or rudimentary states, state capacity will be tied to the level of military technology, which has always been an important means of forcibly extracting resources from citizens. In more sophisticated states, surveillance and coercion may come to depend on bureaucracies and other complex organizational structures as well, even if the power of those mechanisms derives ultimately from military force. The stronger is the state in terms of fiscal capacity, the less it will have to rely on religious legitimacy for tax compliance. This presumes that religious legitimacy and fiscal capacity are substitutes in promoting tax compliance. This may be the usual situation, but it is also conceivable that the two factors are complements, which, as we will suggest below, is one possible explanation for the emergence of theocracy.

The final component of our framework is the *nature* of the rules the state promulgates by to allocate resources and maintain social order. The rules governing a society dictate the access that its members have to rights and resources under the control of the state. Such rules thus represent an important input into the citizens' production of taxable wealth (tax capacity). As described above, we will distinguish broadly between identity rules and general rules, which, recall, differ according to whether the form or enforcement of the rules depends on the identity or status of citizens or applies equally to all citizens.

We will focus on identity rules that discriminate based on the religious affiliations of the citizens, though group-specific rules could also depend on other observable characteristics such as ethnicity. In contrast, general rules do not discriminate among groups based on differing beliefs. This latter situation could manifest itself in two ways. At one extreme is complete tolerance of alternative religious views; that is, purely secular rules that do not depend in any way on religion. At the other extreme is the imposition of an orthodox religious belief that all citizens

must adhere to.⁴ When the rules of society are general because they enforce the dictates of a single religion or ideology universally prevailing (or imposed), we will refer to *religious general rules*. In terms of religious tolerance, therefore, general rules sit at both ends of the spectrum, allowing either complete tolerance or imposing complete intolerance. Identity rules fall somewhere in between, leading to Johnson and Koyama's concept of conditional toleration.

We now characterize, in a very simple framework, what rules are likely to emerge in different environments, as reflected by the degree of fiscal capacity and the capacity of religion for conferring legitimacy. With respect to fiscal capacity, we consider low and high capacity, reflecting the state's ability or resources for collecting taxes and for generally controlling the citizenry. As for religious legitimacy, we consider two situations: one in which there is a single group that possibly shares its religion with the ruler, and one in which there is a secondary religion that is different from the ruler's.⁵ We further suppose, as seems reasonable, that when the ruler shares the religion of one of the groups, that group has a higher capacity (or willingness) to legitimize the ruler, whereas a secondary religion, when present, is less capable or willing to do so, and may even be a source of opposition to the state. Finally, we allow for the possibility that religion and state capacity can be substitutes or complements in providing legitimacy (i.e., in lowering tax collection costs). The formal details of the analysis, which we now summarize, are contained in Appendix B.

The possible outcomes are represented in the matrix shown in Table 1. The vertical dimension shows the fiscal capacity of the state (either low or high), while the horizontal dimension depicts alternative possibilities for the legitimizing effect of religion. In the first

⁴ This could include secular ideological "religions" like Marxism, which actually work to suppress the practice of traditional supernatural religion.

⁵ There could be multiple such religions; all that matters for our purposes is that the ruler shares the religion of some fraction of the population. Also, we do not assume that either is necessarily the minority in terms of numbers.

column, there is a single religion, which the ruler possibly shares; in the second columns, there are multiple religious groups, and one group holds a more favorable view of the ruler. The four resulting boxes show the type of governing rules that we would predict to emerge in each case, along with the implications for religious tolerance.

Table 1.

	Single religious group	Multiple religious groups	
Low state capacity	No basis for religious identity rules/ Religious tolerance	Religious identity rules/ Conditional religious tolerance	
High state capacity		Substitutes	Complements
		Non-religious general rules/ Religious tolerance	Religious general rules/ Theocracy

Consider first the top row, where the state is fiscally weak. When there is a single religious group, as in the left-hand column, there is no basis for religious discrimination. In this case, religion may or may not be a strong source of religious legitimacy, and even if the predominant religion is opposed to the state, the state lacks the capacity to suppress it. The best it can do, therefore, is to adopt a general rule of religious tolerance *de facto* and hope to take advantage of the Marx effect of religion on tax capacity.

Next, the upper right box shows the case of a state with low fiscal capacity coupled with a citizenry comprising two (or more) religious groups. In this case, the ruler needs to rely primarily on religion for legitimacy, and that legitimacy is best supplied by the group that views the state more favorably. The best-case scenario is when the ruler shares the religion of one of the groups. In this setting, we would expect the state to impose identity rules that discriminate in favor of that religion. In particular, it would optimally structure laws so as to funnel more resources to that group, thereby maximizing its tax collection. The other religions would not be completely suppressed, but they would have less access to society's resources. In this outcome, there is discrimination based on religious identity, but different religions still co-exist. This is the conditional-tolerance equilibrium of Johnson and Koyama.

Western Europe during the Middle Ages fell into these two boxes. After the fall of Rome, state capacity was almost non-existent (Ward-Perkins 2005). Although the Merovingian kings converted to what we would now think of as orthodox Catholicism (from Arian Christianity as well as from Roman and Germanic paganism), and although those kings did at times attempt to ally themselves with the Church, in fact their ability to mobilize the resources of the countryside was almost nonexistent. Before 1150, neither the Church nor the state had the ability to persecute heretics, and "large-scale, state-sanctioned judicial killings of individuals for their beliefs were rare" (Johnson and Koyama 2013, p. 267). Even after 1150, Europe retained a – sometimes unstable – conditional toleration of the Jews. This was not because there were general rules permitting religious freedom. Christians operated under identity rules that accorded them relatively more favorable access to state resources; but *de facto* Jews were often permitted to coexist, and to operate under their own distinct identity rules, because contemporary states had inadequate capacity either to suppress or to protect them.

Now consider the bottom row of the box. Here, the state is fiscally strong, and so does not need to rely on religion for legitimacy but instead can employ primarily secular means (police

and military power) to raise revenue. In terms of the state's view of religion, the Marx effect is still present, and so the usual situation will be to allow maximal religious tolerance so as to take fullest advantage of that effect. This will be the case as long as religion is not too antithetical to the state. In this circumstance, the state's best strategy is to enact non-religious general rules and to allow religious tolerance. If, however, the predominant religion, or one of the secondary religions, is highly opposed to the state (to such an extent that it overwhelms the Marx effect), the state may find it advantageous to suppress it altogether. These outcomes are shown by the left-hand box (under "Single religious group") and the right-hand sub-box headed "Substitutes."

It is one of the central arguments of Johnson and Koyama (2019) that Western Europe after the Reformation eventually moved to an equilibrium in which (in principle at least) all religions would be tolerated and all citizens would be subject to the same secular general rules. There are other examples. The Roman Empire at its height was extremely tolerant of religion. "Indeed," as Kevin Madigan writes, "the Romans worshipped the gods promiscuously, convinced that their military and political success depended on the support of as many gods as achievable" (Madigan 2015, p. 15). Although Roman life involved numerous identity distinctions, including those between free and slave, for the most part the empire granted citizenship widely and attempted to ensure that Roman law was administered uniformly around the Mediterranean, despite the very different religions and ethnicities the empire encompassed. By the middle of the third century, however, Roman citizens, and then Roman emperors, began to suppress Christianity (Madigan 2015, p. 18), which they saw as responsible for what was in fact a spiraling fiscal crisis (Bartlett 1994). Christianity had come to be perceived as opposed to the state, and so it had to be persecuted. Of course, as Roman state capacity eroded further, Constantine would flip the script and adopt Christianity as a source of legitimacy, creating for a time – until the Western empire collapsed completely – what was in effect a theocracy.

Many have noted that, unlike Roman paganism with its multiple “small gods,” Christianity was a “big god” religion (Norenzayan 2015). A big god is a moralizing god, one who is able to monitor continually not only the behavior but even the thoughts of believers.⁶ With superior surveillance ability, the Christian god was thus far more useful to Constantine than the Roman pantheon – despite the fact that Christians at the time made up less than 10 per cent of the population of the western empire (Madigan 2015, p. 20). There is evidence that the invention of big gods is linked to increases in the division of labor and social complexity, which had rendered ineffectual older regimes of face-to-face monitoring in small groups (Whitehouse *et al.* 2019). Crucially, big-god religions are themselves complex: they require, or at any rate permit, greater institutional complexity in their deployment and administration, if for no other reason than that they could be applied uniformly to large population groups. The Medieval Church was in effect a large multinational firm (Ekelund, *et al.* 1996). This suggests that a complex religion and a complex state might even be complementary: greater state capacity makes a more-complex religion more effective as a device for monitoring and controlling the society.

Which brings us to the sub-box labeled “Complements” in the right-hand column of Table 1. This shows the case in which religion and state capacity are complements in supplying legitimacy. Clearly, such complementarity is conducive to the emergence of theocracy, which proffers *religious general rules* that mandate one specific orthodox belief for all citizens. If the imposition of religious general rules is accomplished in an environment with multiple religious groups, it will require the suppression of non-orthodox sects.

The best examples here might actually come from secular ideologies. Although secular totalitarianism began at least as early as the French Revolution, it found its most elaborate

⁶ Like Santa Claus, a big god knows if you’ve been sleeping. He knows if you’re awake. He knows if you’ve been bad or good. So be good for goodness sake.

extension in the Communist regimes of the twentieth century.⁷ Precisely because religion was the opiate of the masses, Marxism demanded that religion be extirpated in favor of Marxism's own complex and all-encompassing ideological matrix. But the substitution of Bolshevik doctrine for Orthodox Christianity (in the case of what became the Soviet Union) was also in large part an exercise in state-making. Belief in the doctrine lowered the costs of creating state capacity along largely new lines, while growing state capacity, in the form of the expanding Soviet bureaucracy, increased the state's ability to inculcate the doctrine. It is significant, however, that, during World War II, when the Soviet Union needed to extract – and ultimately did extract – an astounding level of resources from its population, Stalin was forced to back away from the anti-religion of Marxism and to reunite with the Orthodox Church, using for propaganda purposes such Christian figures as the medieval saint Alexander Nevsky, who had repulsed the Vikings in the thirteenth century (Werth 1964, p. 429).

Empirical Analysis.

We now turn to an empirical analysis of identity, religion, and the state. To derive testable implications of our arguments, we focus on religious rules as the outcome of interest and examine systematic differences in the adoption of general rules between societies in which religion complements state capacity and others in which they are substitutes. In an ideal empirical test of our arguments, we would use direct measures of our key variables and panel data that would allow us to observe the transition of societies from identity rules to general rules, corresponding to the rise of state capacity over time. In the absence of direct measures and panel data, we use cross section data on today's

⁷ In the case of the French Revolution, it was Rousseau's "general will" of the people that replaced the will of God. And, like God's will, the general will demanded interpretation by a cadre of priests, in this case the Jacobins.

societies and run the analysis based on reasonable assumptions and suitable proxy variables.

To identify the effect of having a complementary relationship between religious legitimacy and state capacity on the adoption of religious general rules, we use a difference-in-differences method of estimation. This allows us to specify formally how our framework differs from the argument put forward by Johnson and Koyama (2019) regarding the transition from identity rules to religious tolerance with the rise of state capacity. Focusing on the substitute relationship between state capacity and religious legitimacy, they argued that the rise of state capacity in the modern period gradually led states to grant religious freedom through tolerant general rules. We expand on their conceptual framework by introducing the possibility that state capacity and religious legitimacy could be complements in some societies, as seen in Table 1. The difference-in-differences analysis that we propose allows us to test whether the two types of societies behave differently in the adoption of general rules.

To implement the difference-in-differences analysis, we focus on two main testable implications of our arguments. The first is that we would expect the prevalence of religious general rules to be greater in societies in which religious legitimacy and state capacity are complements. This simply follows from the arguments summarized in Table 1. Although the rise in state capacity in modern societies would result in *non-religious* general rules if higher capacity *substitutes* for religion in providing legitimacy, we would expect societies to implement *religious* general rules if state capacity and religious legitimacy are *complements*. This would indicate that the latter type of societies should

have significantly higher prevalence of religious rules than the former, all else being the same.

The second implication concerns the relationship between general rules and the extent to which states rely on religion for legitimacy. To estimate this relationship in modern societies, we use religious fragmentation in history as a proxy variable for religious legitimacy. Fragmentation has been a common feature of religion markets throughout history, though with significant variations in origin and extent across societies. Fragmented premodern societies, as Johnson and Koyama (2019) have shown, typically relied on religion for legitimacy and on identity rules to maintain order. We therefore believe that historical differences across societies in religious fragmentation would be a reasonable proxy for the cumulative importance of religion for political legitimacy in today's societies.

This variable takes advantage of historical differences among societies in the religion market by extending the argument made in the previous section about the difference between societies with one religion and societies with multiple religions. In a religiously uniform society, rulers need not rely on religion for legitimacy because they could simply take advantage of the Marx effect of religion to increase tax capacity. It follows that, just as we would expect reliance on religious legitimacy to increase as we move from a single-religion society to one with multiple religions, we would expect reliance on legitimacy to be more prevalent in societies that have had a longer historical experience with multiple religions.

The preceding arguments predict that the effect of historical fragmentation on religious general rules will be systematically different between societies in which state capacity and religious legitimacy are substitutes and those in which they are complements. If they are substitutes, religious fragmentation in history may have no effect on religious rules today. But if religious legitimacy complements state capacity, we would expect historical fragmentation to have a positive effect on religious general rules, all else being the same.

To examine these implications quantitatively, we develop an index of historical religious fragmentation. We construct the index in two stages. Using territories corresponding to today's nations as unit of analysis, we first define a dummy variable that marks whether the territory experienced substantial religious fragmentation each year. This variable is equal to one if a sufficiently large fraction of the population adhered to a secondary religion during that period.

In the second stage we aggregate this information over time to calculate a weighted cumulative index of historical fragmentation. To be more formal, let f^t denote the dummy variable defined above that marks the presence of religious fragmentation in the population in period t . Consider a time span of T periods. We define the corresponding index of historical religious fragmentation as follows:

$$HF = \frac{1}{\alpha} \sum_{t=1}^T (1 + \rho)^{t-T} f^t, \quad (1)$$

where α is a normalization parameter such that $\alpha = \sum_{t=1}^T (1 + \rho)^{t-T}$. We consider the effect of time through ρ , a discount rate, such that $\rho \geq 0$. If $\rho = 0$, HF puts equal weight

on all historical periods, while $\rho > 0$ emphasizes the more recent periods. The resulting indices range from 0 to 1.

To implement the index, we use a unique dataset called Historical Politics Data (HPD), which includes historical information on the territories occupied by today's nation states since the year 1000.⁸ Combing through a wide variety of sources, a team of research assistants gathered information on the basic characteristics of these territories during this time period, including the main and substantial secondary religions of the population. In cases of conflicting information about a particular variable, we looked for consistency by giving priority to sources with comprehensive coverage, such as *Encyclopædia Britannica*, the “Country Studies” collection of the Library of Congress, and the book series *Cambridge Histories Online*. Rather than restrict the dataset to territories of certain size, duration, or type, we included all territories for which we could find complete information.

For each territory and year, the HPD identifies the main religion as the one that had the highest percentage of adherents. The benchmark to determine whether other substantial religious groups existed is whether the secondary religion's population share exceeded ten percent, if this information was available. For recent centuries, estimates of population shares of religious groups can be found in Brown and James (2015), which in some cases goes back to the 1700s. For earlier centuries, we used non-quantitative information from our sources to identify the main religion and to determine whether a substantial secondary religion existed.

⁸ For a detailed description of the construction of this dataset, see Coggel (2016). Given the ambitious scope and broad temporal and geographic coverage of the dataset, the final product naturally includes various imperfections caused by the difficulty of gathering and interpreting the required information.

We categorized religions into groups to facilitate systematic analysis. For indigenous religions, we recorded as much specific information as available regarding differences within a territory, but we coded them under a single category to maintain a consistent standard across territories. We did not differentiate, for example, among the varieties of Chinese folk religions or among the branches of Hinduism that have developed in India over the centuries. In the same vein, we used the coding standards of recent data on historical religious populations by treating broad categories of sects in Islam (Sunni, Shia, Kharijite) and Christianity (Catholic, Orthodox, Protestant) as distinct religions, but we did not further differentiate among the subcategories of these groups.⁹

Finally, we used the procedure outlined above to calculate the index of historical religious fragmentation for analysis. Appendix A includes a descriptive summary of the index corresponding to parameter values of $T=1990$ and $\rho = 0.001$. See also Figure 1 for the geographic distribution of historical religious fragmentation in the world. The darker shades in the figure correspond to higher values of the index, showing interesting patterns regarding the geographic distribution of religious fragmentation in history. Historical fragmentation was higher in parts of western and southeastern Asia and in parts of central Africa and eastern Europe.

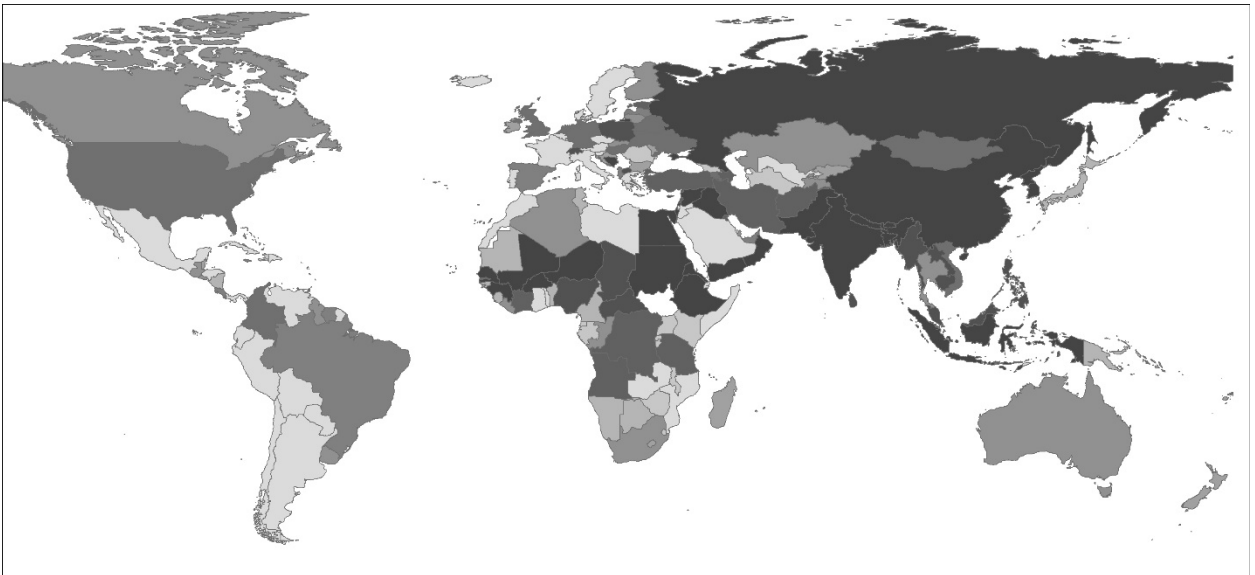
To measure the prevalence of religious general rules in each country, we use data from the Religion and State (RAS) dataset assembled by Jonathan Fox.¹⁰ The most recent version (Round 3) of the RAS dataset covers the period between 1990 and 2014

⁹ Any categorization of religions is inherently problematic due to the difficulties of comparison and standardization across different traditions. Rather than introduce bias by implementing our own criteria, we simply used the broad categories commonly used in recent quantitative studies.

¹⁰ Available online at: <http://www.thearda.com/ras/>

and includes various measures of government religion policy for all countries with populations of 250,000 or more as well as a sampling of smaller states. Among the numerous variables available in the dataset, we use those that specifically refer to religious general rules. These are the 52 variables included in the religious support category that “refers to laws or government policies which legislate or otherwise support aspects of religion.” Each of these is a dummy variable that equals one if a specific religious rule exists in a country. Although the RAS dataset provides panel data for these variables, we take the simple average of each variable over time to generate cross-sectional data for consistency with the data type of “Historical Religious Fragmentation,” our key explanatory variable, and time-invariant geographic controls.

Figure 1
Historical religious fragmentation since the year 1000



We use the variables from the RAS dataset to construct two types of indices of religious rules. The first is an overall Index of Religious General Rules, which is the

simple average of all 52 variables, standardized to range between 0 and 1. If the value of this index in a country is zero, we would view this as total religious tolerance, meaning no general rules are imposed on citizens. In contrast, a value of one would indicate a fully religious regime that has religious rules on all of the items considered by the RAS dataset.

In the second type of indices, we consider seven specific sub-categories of religious rules defined by the RAS dataset, namely “Laws on Relationships, Sex and Reproduction,” “Laws restricting Women,” “Other Laws Legislating Religious Precepts,” “Institutions or Laws which Enforce Religion,” “Funding Religion,” “The Entanglement of Government and Religious Institutions,” and “Other Forms of Support for Religion.” Examples of rules in the last category include those regarding the presence of religious education in public schools, recording of religion in official documents (e.g., driver’s license), and religious symbols on the state’s flag. These seven sub-indices allow us to examine the variation in specific ways in which the states could implement religious general rules. Each sub-index is also normalized to range between 0 and 1. Appendix A shows the summary statistics of the various indices of religious rules.

In addition to key variables of interest, we include various other variables in our analysis to control for their possible influence on the presence of religious general rules. Our main motivation for including some of these variables is to mitigate concerns over the endogeneity of state capacity (because of its relationship with religious legitimacy). Rather than include state capacity itself in the regression equations, we include several exogenous geographic characteristics of countries that are potentially correlated with state capacity. The control variables included in the analysis are the absolute latitude and

elevation of a territory; its size; roughness of terrain; temperature; island status; precipitation; fraction of arable land; suitability for certain economic activities; and oil-production capacity. By controlling for the effect of state capacity and other influences in this manner, we turn our attention to the effect of historical fragmentation. Appendix A reports the summary statistics of control variables.

Regression Analysis of Influences on Religious General Rules.

For a regression analysis of our hypotheses regarding the determinants of religious general rules, we use OLS to estimate the following equation:

$$RR_i = \beta_1 + \beta_2 C_i + \beta_3 HRF_i + \beta_4 C_i * HRF_i + X_i' \beta_5 + u_i, \quad (2)$$

where RR_i is an index of religious rules for country i and HRF_i is the key explanatory variable of interest defined in (1), namely the index of historical religious fragmentation (with $T=1990$ and $\rho = 0.001$, as defined above).

C_i is a dummy variable that takes the value of one if religion and state are in a complementary relationship. To make this determination, we used one of the variables included in the RAS dataset called “Official Support,” which “measures the formal relationship between religion and the state.” This variable was coded on a scale between 0 and 13, with higher values corresponding to increasingly higher levels of support and complementarity between religion and state. To construct a dummy variable from this information, we considered it as evidence of a substitute relationship if the state’s attitude varied between “hostility” and “accommodation,” and evidence of a complementary

relationship if the formal relationship varied between “supportive” (5) and “religious state” (13).

The variable C_i will be the basis for the difference-in-differences analysis proposed above. Ideally, for such an analysis we would want this dummy variable to be the outcome of a natural experiment. Although that is not the case in our analysis, we nevertheless believe that the relationship between state and religion observed in today’s societies is the outcome of a path-dependent process determined decades or even centuries earlier. This can be seen from the remarkable stability in the values of “Official Support” variable from the beginning to the end of the temporal coverage of the RAS dataset. The correlation coefficient between the values of this variable in the years 1990 and 2014 is 0.93. To ensure that C_i is as exogenous as possible in our analysis, we assigned the value of 1 only to those countries for which the value of “Official Support” remained between 5 and 13 in both 1990 and 2014. With these caveats in mind, we believe that C_i appropriately allows us to test for the differential effects of having a complementary relationship between religion and state and to control for this effect in our analysis.

The results of the OLS analysis reported in Table 2 clearly support our hypotheses regarding the difference between societies in which religious legitimacy and state capacity are complements and substitutes. The coefficient of C_i is positive and significant as expected, supporting our contention that religious general rules are more prevalent in societies in which religion complements the state. Since the index of general rules has been normalized to vary between 0 and 1, the coefficient of C_i indicates that

such rules are about seven percent more likely on average in societies in which religion and state are complements versus substitutes.

Table 2
OLS Estimates of Influences on Religious General Rules

	Religious General Rules
Religion complements state capacity	0.0709*** (0.0242)
Historical religious fragmentation	-0.0118 (0.0370)
Religion complements state capacity * Historical religious fragmentation	0.143** (0.0562)
Oil (1000 barrels/day/cap)	0.255*** (0.0858)
Total land area (1m sq m)	-0.00485 (0.00374)
Percentage of arable land	0.000848 (0.000733)
Mean agricultural suitability	-0.119*** (0.0408)
Mean elevation	0.00392 (0.0299)
Temperature	0.00129 (0.00119)
Precipitation	-0.000542** (0.000233)
Terrain roughness	-0.0114 (0.0749)
Island	0.0109 (0.0325)
Constant	0.181*** (0.0358)
Observations	160
R^2	0.489

Note: Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The coefficient of HRF_i is insignificant, consistent with our interpretation of Johnson and Koyama's (2019) argument that the substitution of high state capacity for religious legitimacy in certain modern societies has eliminated their reliance on religion for rules. The coefficient of the interaction of this variable with C_i , however, is positive

and significant. This finding supports our argument regarding the differential effect of historical religious fragmentation in societies in which religion complements the state. The coefficient of this variable indicates that religious rules would be about 14 percent more likely in a continually fragmented society if religion and state are in a complementary versus substitute relationship today.

Our results regarding the effects of some of the control variables are also interesting. The coefficient of oil production capacity is positive and significant, indicating that having oil reserves allows some societies to enjoy higher revenues (fiscal capacity) from this source while continuing to enact religious rules that likely emanate from continued reliance on religion for legitimacy. The coefficients of precipitation and suitability for agriculture are negative and significant, an indicator that religious general rules more likely in industrial than agricultural societies.

Table 3 shows how the results changed across different subcategories of religious rules. Although the coefficient of C_i is positive in all equations, its magnitude varies substantially. The coefficient is significant in all but the second equation. The insignificance of the effect of C_i in the second equation indicates that secular concerns dominate religious ones in the implementation of general rules concerning women even among societies in which religion complements the state. The coefficient of “Oil” is positive and highly significant in this equation, suggesting a different source of influence on restrictions on women. Although certain countries, such as Iran and Saudi Arabia, are well-known for their general rules restricting women, our results suggest that this comes from their ownership of oil reserves rather than having a complementary relationship between religious legitimacy and state capacity.

Table 3
Influences on Subcategories of Religious Rules

	(1) Rules on relationships, sex, and reproduction	(2) Rules restricting women	(3) Other rules on religious precepts	(4) Rules enforcing religion	(5) Rules on funding of religion	(6) Rules on religious and political entanglement	(7) Rules on other support for religion
Religion complements state capacity	0.0761** (0.0370)	0.0201 (0.0311)	0.0497* (0.0288)	0.0958** (0.0436)	0.108** (0.0481)	0.0646* (0.0351)	0.0578* (0.0327)
Historical religious fragmentation	-0.0404 (0.0665)	-0.0322 (0.0527)	-0.0137 (0.0415)	0.0627 (0.0663)	-0.0176 (0.0676)	0.00132 (0.0417)	-0.0203 (0.0506)
Religion complements state capacity * Historical religious fragmentation	0.157* (0.0879)	0.135 (0.0826)	0.138** (0.0694)	0.167* (0.0986)	0.187** (0.0927)	0.0220 (0.0597)	0.155** (0.0725)
Oil (1000 barrels/day/cap)	0.271*** (0.0934)	0.332*** (0.117)	0.306*** (0.113)	0.294** (0.139)	0.287*** (0.105)	0.203** (0.0804)	0.127 (0.0771)
Total land area (1m sq m)	-0.00438 (0.00535)	0.0000152 (0.00488)	0.00138 (0.00696)	-0.000900 (0.00527)	-0.00841 (0.00831)	-0.00301 (0.00568)	-0.0135*** (0.00467)
Percentage of arable land	0.000241 (0.00102)	-0.0000902 (0.000844)	0.000330 (0.000775)	0.00126 (0.00125)	0.00244* (0.00132)	0.000970 (0.00112)	0.0000485 (0.00116)
Mean agricultural suitability	-0.160*** (0.0573)	-0.119*** (0.0451)	-0.159*** (0.0465)	-0.171** (0.0751)	-0.111* (0.0593)	-0.0851 (0.0542)	-0.0466 (0.0597)
Mean elevation	0.0849** (0.0423)	0.0554 (0.0468)	0.0196 (0.0365)	0.0442 (0.0437)	-0.0717* (0.0427)	0.0110 (0.0310)	-0.0336 (0.0351)
Temperature	0.0136*** (0.00185)	0.00596*** (0.00171)	0.00427*** (0.00142)	0.00565*** (0.00194)	-0.00641*** (0.00211)	-0.00107 (0.00172)	-0.00496*** (0.00143)
Precipitation	-0.000774** (0.000309)	-0.000911*** (0.000257)	-0.000741*** (0.000280)	-0.000837** (0.000396)	-0.000396 (0.000282)	-0.000319 (0.000242)	-0.000156 (0.000287)
Terrain roughness	-0.0358 (0.101)	-0.0137 (0.0937)	0.0191 (0.100)	-0.0973 (0.117)	-0.0293 (0.0949)	0.0285 (0.105)	0.0184 (0.115)
Island	0.0339 (0.0492)	0.0392 (0.0352)	0.0191 (0.0365)	0.0580 (0.0574)	-0.0219 (0.0478)	0.00412 (0.0399)	-0.0101 (0.0411)
Constant	0.0343 (0.0563)	0.0276 (0.0490)	0.0634* (0.0379)	0.0357 (0.0612)	0.390*** (0.0737)	0.156** (0.0604)	0.336*** (0.0457)
Observations	160	160	160	160	160	160	160
R ²	0.518	0.387	0.450	0.404	0.424	0.205	0.252

Note: Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The coefficient of HRF_i is uniformly insignificant across the seven equations, once again providing strong support, with no exceptions, for Johnson and Koyama's (2019) argument regarding the absence of religious general rules in modern societies in which the rise of state capacity replaced religion for legitimacy. Regarding the differential effect of this variable in other societies in which religion continues to complement state capacity, our results show substantial variation across categories of

religious general rules. This effect is insignificant in the second equation, consistent with the coefficient of C_i in the same equation, jointly pointing toward other secular causes as the explanation for general rules concerning women. The differential effect is also insignificant in the sixth equation, which concerns rules regarding the entanglement of government and religious institutions. Examples of such entanglement coded in the RAS dataset include government officials being assigned to religious positions (e.g., the Queen of England as head of the Anglican Church) and diplomatic status or government positions given to religious leaders. Our results show that historical fragmentation had an insignificant effect on such entanglement, not just in societies in which religion and state capacity were substitutes, but in the case of complements as well.

Conclusion.

Why do states become theocracies? Johnson and Koyama (2019) have analyzed the transition from a conditional-toleration equilibrium, in which feeble state capacity demands that distinct religious groups co-exist under a system of religion-based identity rules, to a religious-toleration equilibrium, in which a strong state applies secular general rules because it has little need for religion as a legitimizing force. This implies that religious legitimacy and state capacity are substitutes. Using a simple model, we explore the alternative possibility that religious legitimacy and state capacity can be complements: religious legitimacy and state capacity work together to increase the ability of the state to extract resources from the citizenry. The result in this case can also be an equilibrium of general rules – but religious rather than secular general rules. When state capacity and religion reinforce one another, identity distinctions may disappear because everyone is a member of the same religion and thus everyone follows the rules of that

religion. In other words, a theocracy. We confront our model with a unique data set of world politics and religion since the year 1000. Using a difference-in-differences approach, we confirm that religious general rules do tend to be more prevalent in societies in which religion complements the state.

Appendix A

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Religious general rules	160	0.20	0.16	0.03	0.88
Rules on relationships, sex, and reproduction	160	0.27	0.24	0	0.86
Rules restricting women	160	0.08	0.20	0	1
Other rules on religious precepts	160	0.10	0.19	0	1
Rules enforcing religion	160	0.16	0.25	0	1
Rules on funding of religion	160	0.28	0.22	0	1
Rules on religious and political entanglement	160	0.15	0.15	0	0.68
Rules on other support for religion	160	0.25	0.17	0	0.86
Religion complements state capacity	160	0.60	0.49	0	1
Historical religious fragmentation	160	0.38	0.34	0	1
Religion complements state capacity *					
Historical religious fragmentation	160	0.22	0.33	0	1
Oil (1000 barrels/day/cap)	160	0.05	0.18	0	1.39
Total land area (1m sq m)	160	0.79	2.00	0.0007	16.38
Percentage of arable land	160	14.74	13.86	0.04	62.10
Mean agricultural suitability	160	0.42	0.27	0	0.97
Mean elevation	160	0.54	0.49	0.005	2.67
Temperature	160	18.61	8.36	-7.93	28.64
Precipitation	160	91.93	65.16	2.91	284.00
Terrain roughness	160	0.20	0.18	0.01	1.24
Island	160	0.16	0.37	0	1

Appendix B.

Theoretical Model.

We focus on the case of at most two religious groups. The ruler's problem is to maximize aggregate collectible revenue, given by

$$R = \alpha T(\theta)(1 - \delta(\rho, \lambda_1)) + (1 - \alpha)T(1 - \theta)(1 - \delta(\rho, \lambda_2)) \quad (B1)$$

where

- α = fraction of the population in group 1;
- θ = fraction of public resources allocated to group 1;
- $T(\cdot)$ = tax capacity function, where $T' > 0$ and $T'' < 0$;
- $\delta(\cdot)$ = fraction of taxable income dissipated in collection costs;
- ρ = fiscal capacity, where $\delta_\rho < 0$;
- λ_i = index of religious legitimacy from the perspective of group i , where $\delta_{\lambda_i} < 0$.

Fiscal capacity and religious legitimacy therefore both lower collection costs, and legitimacy may differ by group if one of the religions has a more favorable view of the ruler. The first-order condition defining the optimal allocation of resources between the two groups is given by¹¹

$$\alpha T'(\theta)(1 - \delta(\rho, \lambda_1)) - (1 - \alpha)T'(1 - \theta)(1 - \delta(\rho, \lambda_2)) = 0 \quad (B2)$$

which can be re-arranged to yield

$$\frac{T'(\theta)}{T'(1 - \theta)} = \frac{(1 - \alpha)(1 - \delta_2)}{\alpha(1 - \delta_1)} \quad (B3)$$

where $\delta_i \equiv \delta(\rho, \lambda_i)$. It follows that the optimal allocation of resources will depend on both the relative sizes of the two groups and the relative levels of legitimacy that they confer on the ruler. Specifically, more resources will be allocated to the more populous group, and to the group that views the ruler as more legitimate.

¹¹ The second-order condition for a maximum is satisfied given concavity of the T function.

Case 1: $\lambda_1=\lambda_2$. The first case is when the two groups view the ruler identically (or, equivalently, there is only one group). In this case, the δ_i 's drop out of condition (B3) and resources are allocated purely in proportion to the population shares. This is the case of general rules with complete religious tolerance.

Case 2: $\lambda_1>\lambda_2$. In this case, group 1 views the ruler more favorably, perhaps because the ruler shares the same religion. As a result, holding the population shares fixed, resources are skewed toward that group in proportion as λ_1/λ_2 rises. This is the case of identity rules based on religious affiliation. Formally, holding λ_2 fixed, we have

$$\frac{\partial \theta}{\partial \lambda_1} = \frac{-\alpha T'(\theta) \left(\frac{\partial \delta_1}{\partial \lambda_1} \right)}{-[\alpha T''(\theta)(1-\delta_1) + (1-\alpha)T''(1-\theta)(1-\delta_2)]} > 0 \quad (\text{B4})$$

where the denominator is positive by the second-order condition. The sign of the overall expression therefore follows from the fact that $\delta_i < 0$. In the extreme case where λ_1/λ_2 becomes large, θ will approach one. This reflects complete suppression of group 2.

Now consider the impact of a parametric increase in fiscal capacity, focusing on the case where $\lambda_1>\lambda_2$. From (B2), the comparative static reflecting the effect of ρ is given by

$$\frac{\partial \theta}{\partial \rho} = \frac{-\alpha T'(\theta) \left(\frac{\partial \delta_1}{\partial \rho} \right) + (1-\alpha)T'(1-\theta) \left(\frac{\partial \delta_2}{\partial \rho} \right)}{-[\alpha T''(\theta)(1-\delta_1) + (1-\alpha)T''(1-\theta)(1-\delta_2)]} \quad (\text{B5})$$

The sign of the overall expression takes the sign of the numerator, which, using the first-order condition in (B2), can be rewritten as

$$\alpha T'(\theta)(1-\delta_1) \left[-\frac{\partial \delta_1 / \partial \rho}{1-\delta_1} + \frac{\partial \delta_2 / \partial \rho}{1-\delta_2} \right] \quad (\text{B6})$$

Generally, this is ambiguous in sign given that $\frac{\partial \delta_1}{\partial \rho}$ and $\frac{\partial \delta_2}{\partial \rho}$ are both negative. The sign of (B5) therefore depends on whether an increase in fiscal capacity lowers δ_1 or δ_2 more in percentage terms.

In the case where fiscal capacity and religious legitimacy are substitutes (i.e., $\delta_{\lambda\rho} > 0$), an increase in ρ will lower δ_2 more than δ_1 given that $\lambda_1 > \lambda_2$, in which case (B5) will be negative. Thus, θ will fall, resulting in greater religious tolerance (i.e., more equal treatment). On the other hand, if fiscal capacity and religious legitimacy are complements (i.e., $\delta_{\lambda\rho} < 0$), then the reverse will be true. That is, an increase in ρ will cause θ to rise, resulting in more unequal treatment. In the limit, this could lead to complete suppression of group 2—what we are calling theocracy.

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