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The power of religion

Jeanet Sinding Bentzen[1] · **Gunes Gokmen**[2]

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Abstract
This paper studies to what extent religion has been used to legitimize political power throughout the world and how this matters for current institutions. Historically, some rulers have used religion to legitimize their power, while others relied on more democratic means. This tendency, termed divine legitimization, incentivized rulers to embed religion into institutions. We illustrate within a simple framework that the use of religion to legitimize power and the consequent institutionalization of religion may help explain why religion and religious institutions have persisted despite modernization. To test empirically, we combine data on pre-modern religious beliefs across 1265 ethnographic societies, various geographic data, and current data on the prevalence of religious laws in 176 countries. We provide evidence in support of divine legitimization and the resulting institutionalization of religion. For identification, we exploit exogenous variation in the incentives to employ religion for power purposes. We further document that countries that relied on divine legitimization are more autocratic today and their populace more religious. These results contribute to our understanding of the persistence of religious as well as autocratic institutions.

Keywords Religion · Institutionalization of religion · Autocracy · Religious laws · Religious legitimization · Stratification · High Gods · Religiosity

JEL Classification Z12 · P48 · O1 · Z13

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✉ Jeanet Sinding Bentzen
jeanet.bentzen@econ.ku.dk

Gunes Gokmen
gunes.gokmen@nek.lu.se

[1] Department of Economics, University of Copenhagen, Copenhagen, Denmark

[2] Department of Economics, Lund University, Lund, Sweden

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1 Introduction

Religion has historically played an important role in political economy across the world. For instance, the Code of Hammurabi—one of the first written legal documents—opens with the Gods designating Hammurabi as the ruler and their representative on earth. This is an example of divine legitimization through which rulers can refer to intervening and moralizing gods to justify their authority and facilitate ruling.[1] It also illustrates how rulers can embed religion into institutions by transcribing it into the law. In modern times, the Sharia law exemplifies an extreme case of religion penetrating the state apparatus. Less extreme examples abound, such as official government departments of religion in the USA, Russia, and Cambodia, or inheritance laws based on religion in the Philippines, India, and Senegal. Relatedly, researchers have noted how institutionalization of religion has far-reaching consequences for socio-economic and political outcomes.[2] Yet, there is not much systematic empirical evidence on the roots of the institutionalization and persistence of religion, and its potential implications for autocratic institutions. This paper aims to fill this gap.

We study why religion continues to play such a central role in some societies, instead of dying out as the secularization hypothesis suggests,[3] and whether religion's position may shed some light on the prevalence of autocracies. We argue that the use of divine authority to justify political power could be one explanation. In addition to having laws prescribed by gods as did Hammurabi, rulers could co-opt religious clergy, support beliefs in religious doctrines by appealing to religious symbols and rituals, restrict the spread of ideas running contrary to the religious doctrines, or even declare themselves as God in extreme cases.[4] Rulers using religion to legitimize power have in turn incentives to secure the continuation of religion's focal position, thus entrenching religion and its institutionalization. Weber's (1922) stylized theory of legitimization suggests that rulers can legitimize their power through either democracy, aristocracy, or religion. When the choice falls upon referring to divine authority, Weber's categorization would suggest that the likelihood of legitimizing power through democracy will be lower, all other things equal.

To identify the extent of divine legitimacy and its importance for the persistence of religion, one would ideally need data on the use of divine legitimization in the past. These data do not exist. Instead, we exploit insights from the literature to form the following testable predictions. First, rulers of stratified societies have stronger incentives to use religion to legitimize their power, compared to rulers of egalitarian societies where democracy is more likely to be a sufficient legitimization tool (Weber, 1922; Platteau, 2017).[5] Even though democracy is less costly than other forms of legitimization in egalitarian societies, democratic rule does not maximize the ruler's likelihood of maintaining power in societies based on unequal power structures. Second, not all types of belief systems are useful

[1] Morris et al. (2015), Platteau (2008), Harari (2014), Cronk (1994), Irons (2001).

[2] Rubin et al. (2017), Kuran (2012), Platteau (2017), Iyer (2016), Becker et al. (2016), Kuran (2018), Putnam and Campbell (2012), Finke and Rodney (2005), Djupe and Calfano (2013), Hertzke et al. (2018), Jelen (2006), Bénabou et al. (2020).

[3] Marx (1844), Weber (1905); Durkheim (1912), Freud (1927). We are not the first to show results contradicting the secularization hypothesis. See Stark and Finke (2000), Glaeser and Sacerdote (2008), and Iannaccone (1998) for discussions.

[4] Morris et al. (2015), Cronk (1994), Rubin et al. (2017), Aldashev and Platteau (2014), Belloc et al. (2016), Chaney (2013), Bénabou et al. (2020).

[5] Stratification can be any type of hierarchy between people based on their wealth, social class, hereditary aristocracy, or resources.

for power purposes. Being in control of spirits that are indifferent to human affairs would not legitimize earthly powers. Instead, rulers choosing divine legitimacy have incentives to prop the development of religious systems based on the so-called high gods, i.e. interventionist and moralizing gods who punish non-compliers.[6] Third, rulers opting for religion as a means to legitimize their power have incentives to set up institutions that support these particular belief systems, namely religions with moralizing high gods, which leads to institutionalization of religion. These predictions can be set up schematically:

$$\text{Stratification} \Rightarrow \text{Religion with moralizing high gods} \Rightarrow \text{Religious institutions}$$

Note that both directions of causality between stratification and moralizing high gods are theoretically possible.[7] Therefore, we will use exogenous variation in stratification to provide evidence of a causal effect from stratification to high gods.

These predictions form the first two hypotheses that we set out to test empirically:

Hypothesis 1 Stratified societies are more likely to develop religions based on moralizing high gods as a means of divine legitimization.

Hypothesis 2 The societies that used religion for legitimacy in their past are more likely to have religion embedded in their institutions today.

Based on Weber (1922), we link these two hypotheses to democratic institutions:

Hypothesis 3 Societies that used religion for legitimacy in the past are more likely to be autocracies.

We combine data on religions in 1265 pre-modern societies across the world from Murdock's (1965) Ethnographic Atlas with current data on the prevalence of religious laws in 176 countries constructed by the Association of Religion Data Archives (ARDA). We first document that stratified societies were more likely to develop and maintain belief systems based on intervening and punishing gods. The data allow us to compare societies belonging to the same language group, of the same complexity level, subsistence method, development level, and based in the same continent. Thus, even for societies of similar culture, subsistence method, geographic location, and development stage, we find that the prevalence of high gods goes hand-in-hand with stratification. Compared to the mean,

[6] Others have pointed out the link between high gods and the historical trajectories and complexity of societies (Norenzayan, 2013; Beheim et al., 2019; Johnson, 2016. While Norenzayan (2013) argues that supernatural punishment may be the result of cultural group evolution, Johnson (2016) argues that it is the result of individual-level genetic selection pressures.

[7] A range of scholars have argued and provided evidence for the hypothesis that high gods solve free-rider problems in early societies before the invention of institutions (e.g. Purzycki et al. 2016). The literature is summarized by Norenzayan et al. (2016) who additionally argue that causality likely runs from the evolution of Big Gods to the emergence of large-scale societies. Other evidence suggested that complex societies might have preceded moralizing gods Whitehouse et al. (2019). However, Beheim et al. (2019) documented that this alternative direction of causality vanishes if one treats missing values correctly. The article by Whitehouse et al. (2019) has been retracted by *Nature* as a result. However, Whitehouse et al. (2021) respond with a corrected analysis arguing that beliefs in moralizing supernatural punishment only appear after the largest increases in social complexity.

intervening and moralizing gods are 30 percent more likely to be present in stratified societies than in unstratified ones.

One may conjecture that societies with high gods might have been more likely to develop stratification, in which case the results are mere correlations. For example, Norenzayan (2013) and Johnson (2016) argue for a link running from high gods to complexity. To identify the causality running from stratification to the development of belief systems based on high gods, we exploit a quasi-natural experiment that exogenously allocated varying degrees of stratification across societies. Most historical societies were agricultural, and research shows that past agricultural societies based on irrigation were more likely to develop into stratified societies compared to those with rain-fed agriculture (Bentzen et al., 2017). The reasoning is based on Wittfogel's (1957) hypothesis that control of vital water resources gave rulers immense power, and thus, rulers in societies reliant on irrigation had a much stronger power position compared to rulers in societies where agriculture was based on rain. Following Bentzen et al. (2017), we employ irrigation potential—based on soil and climatic characteristics—to isolate exogenous variation in societal stratification. Both reduced form and IV results are consistent with the baseline findings. Societies with greater irrigation potential in their past—hence greater stratification—are more likely to have had belief systems based on moralizing high gods compared to more egalitarian societies. One concern is that irrigation proxies for agriculture dependence, which may impact the emergence of high gods through other mechanisms than stratification—such as a given society praying for rain and good harvests. This cannot influence our results, as our analysis is restricted to agricultural societies. Among these societies, irrigation potential correlates *negatively* with agriculture dependence and thus—if anything—omitting agriculture dependence reduces the correlation between irrigation and high gods. In addition, our results are robust to accounting for agriculture dependence, agricultural suitability, and various climatic characteristics, such as precipitation, temperature, and soil quality. Lastly, we verify in a simple placebo exercise that irrigation potential predicts the prevalence of high gods only in stratified societies, increasing our confidence that stratification plays a crucial role in the relation between high gods and irrigation.

In keeping with *Hypothesis 2*, we find that a past in which religion was exploited for power legitimization ultimately translated into a larger likelihood of religion-based state laws today. Examples of such laws are restrictions on interfaith marriages, blasphemy laws, religious inheritance laws, and restrictions on women. Raising the likelihood of having had a history of beliefs in intervening gods by one standard deviation increases the extent of religious laws by 50% of the mean. Again, this result holds when comparing rather similar societies within the same continent, of similar development levels, and where the populations belong to similar religious denominations.[8] These findings are consistent with the hypothesis that certain rulers have historically employed religion as a tool to legitimize power, and, as a consequence, religion has become more embedded in the institutions of those societies. In line with the premise of persistence, we also document that this persistence is weaker when the existing power structure was disrupted by colonization.

We proceed to identify two implications of the institutionalization of religion. First, we document that societies where religion was used more extensively as a power tool are more autocratic today. This is consistent with Weber's (1922) theory that religion and democracy are two distinct tools of legitimization. We also show that stratification is associated

[8] The relationship is stronger among Christian and Muslim societies, and to a lesser extent Buddhist societies, and this tendency is absent among the few Hindu countries.

with autocracy only in those societies with greater divine legitimization—high gods. This indicates that religious belief systems may have played an important role in explaining why autocracies were more likely to emerge in stratified societies (as documented by Bentzen et al. (2017)). Second, we show that contemporary populations of countries with a greater share of religious laws and a history of divine legitimization are more religious. This is consistent with the idea that the persistence of religion may partly be explained by its institutionalization.

Our results firstly contribute to our understanding of the causes and consequences of divine power legitimization. Across 122 medieval Italian cities, Belloc et al. (2016) show that an increase in the authority of religious leaders influenced political authority. Chaney (2013) finds that Egypt's highest ranked religious authority was less likely to be replaced in periods of social unrest. Bénabou et al. (2020) theoretically show that the state is more likely to repress knowledge production to protect religious beliefs when the populace is more religious. However, empirical evidence of the actual use of religion for power purposes is scant. We empirically document the use of religion to legitimize power on a global scale within all major religions.[9]

Our framework also advances our understanding of why religion persists. From the outset, persistence of religion is not self-evident. For instance, early scholars, such as Freud, Weber, and Durkheim, predicted that religion would die out as societies modernize.[10] Religion may persist if it continues to provide benefits to its users. The religious populace could benefit from religion through education Becker and Woessmann (2009), pro-social behavior Norenzayan et al. (2016),[11] or religious coping Bentzen (2019); Pargament (2001). Other scholars have emphasized certain "costs" of religion such as lower innovation Bénabou et al. (2015), lower growth Campante and Yanagizawa-Drott (2015), less technical curriculum in schools Squicciarini (2020), or slowed production of science and modern growth Andersen and Bentzen (2022).[12] Such costs pose a puzzle as to why religion persists nevertheless. To provide an answer, instead of focusing on the potential benefits of religion for the *populace*, we focus on the benefits to the *rulers* in terms of power legitimization. Power legitimization and the following institutionalization of religion may therefore be one reason why religion has continued to play such a large role throughout human history and in many contemporary societies, despite modernization.

More specifically, we also contribute to the literature on the persistence of beliefs in high gods. For instance, Norenzayan (2013) argues that the emergence of punishing high gods solved free-riding problems in early societies, and thus, facilitated the emergence of large societies of cooperating strangers. In turn, these societies were quicker to invent institutions that supported cooperation, in some instances even rendering high gods redundant. We document that this potential reversal does not seem to manifest itself in aggregate numbers; societies based on historic beliefs in high gods are still among the most religious. A potential reason is that beliefs in high gods not only brought about cooperation, but also institutionalization of religion.

[9] Others have argued for the use of religion to legitimize power (Kuran, 2012; Rubin et al., 2017; Platteau, 2017). Our results attest that this tendency generalizes across the major religions.

[10] See e.g. Stark and Finke (2000), Glaeser and Sacerdote (2008), and Iannaccone (1998) for discussions.

[11] See also Purzycki et al. (2016) and Enke (2019) for a discussion of the relationship between religion, kinship structure and prosociality.

[12] See also Becker et al. (2021); Bentzen (2021); Iannaccone (1998) and Iyer (2016) for reviews of the literature.

This research also furthers our understanding of why some societies have democratized while others remain autocracies. A large body of previous research has examined the roots of democracy. Modernisation theory, arguably the dominant perspective on the causes of democracy, holds that participatory government is a by-product of economic development (Schumpeter, 2013; Lerner, 1958; Lipset, 1959). Other research links differences in contemporary democracy to factors in our past, such as medieval constitutionalism (Downing, 1989), state-building (Tilly, 1975; Bates, 1991; North, 1991; Finer, 1997), precolonial state development Hariri (2012), indigenous democratic practices Giuliano and Nunn (2013); Bentzen et al. (2019), or various geographic or climatic factors Wittfogel (1957); Haber and Menaldo (2010); Welzel (2014); Bentzen et al. (2017). We contribute to this literature by showing empirically how the emergence of contemporary autocracy is associated with divine legitimization.[13] We also qualify why autocracy was more likely to persist in stratified societies (as theorized by Wittfogel (1957) and documented empirically by Bentzen et al. (2017)), in that rulers of these societies had stronger incentives to exploit religion to justify their power instead of obtaining legitimacy by devolving power in a more democratic fashion. The finding that divine legitimation crowds out democratization is also consistent with the results of Barro and McCleary (2005) who show a relation between state religion and autocracy.

Finally, we provide a novel explanation for the phenomenon that redistribution is lower in more religious societies. The literature so far has viewed religion as a substitute for the welfare state providing insurance against adverse life events (Scheve et al., 2006; Huber and Stanig, 2011) or as a solution to cognitive dissonance (Benabou and Tirole, 2006). We examine the reverse causal mechanism: that rulers in unequal societies are more likely to support and institutionalize religion with increased religiosity as a consequence.

2 Background and framework

This section links historical examples of divine legitimacy and the institutionalization of religion to available theory and sets up testable predictions. First, we provide examples of divine legitimization and link these to general theories of legitimacy. Next, we argue that rulers using religion for legitimacy had incentives to institutionalize religion. We proceed to argue why religion as power legitimacy helps us understand the persistence of religion. Further, in order to set up testable predictions, we introduce the literature linking stratification and the emergence of high gods to the use of divine legitimacy. Lastly, we articulate the causal mechanism in focus in a simple framework.

Hammurabi was not the only ruler in history who instrumentalized religion as a means to legitimize his power. The Divine Right of Kings doctrine in medieval Europe proclaimed that God had bestowed earthly powers onto the king. Consequently, any attempt to go against the king runs contrary to the will of the God. This helps place some fundamental laws beyond challenge Harari (2014). Divine kings are not unique to Europe, Christianity, or to a specific time. They existed in Ancient Egypt, the Sumerian Kingdom, Japan, Tibet, Thailand, and within the Roman, Inca, and Aztec Empires, among other places.[14] Indeed, most states and chiefdoms have been found to justify political power

[13] Other scholars argued for such a relationship Rubin et al. (2017); Kuran (2012); Bénabou et al. (2020).
[14] Foster (2002), Kirch (1989), Trigger (1993).

through divine authority.[15] Some scholars even go as far as arguing that gods were originally developed to extend the notion that some have greater rights than others to design and enforce rules furthering the interest of one group at the expense of others Alexander (1987).[16] More recently, the inscription by the Russian Tsar Nicholas II on an imperial one-ruble silver coin exemplifies how institutionalized religion was at the time. The coin –dated 1898– reads "by the grace of God, Nicholas II, Emperor and Autocrat of All the Russias." Today, the inscription "In God we trust" still appears on American currency, and the official title of the Queen of the United Kingdom is "Elizabeth II, by the Grace of God".

Bisin et al. (2019) formally model religious legitimacy as a phenomenon inducing change in the power balance between political elite, religious clerics, and civil society. They argue that "clerics exercise this power by providing religious goods and services in larger quantities, which then favors religious practices and activities, propagating beliefs within the population that in turn justify the ruling of the political elite". We set out to test whether this tendency holds empirically across the globe and over time. The idea that religion could be instrumentalized to legitimize power further enters Max Weber's legitimacy theory, according to which leaders can gain legitimacy through legal authority (e.g., democracy), traditional authority (e.g., monarchy), or charismatic authority. Charismatic authority—such as divine legitimization— gives the ruler the right to lead by virtue of prophecies, magical powers, or heroism Weber (1922).[17]

The practice of divine legitimacy may have contributed to the institutionalization of religion, which in turn would contribute to explaining the persistence of religion. Given that beliefs in certain gods provided benefits in the form of power legitimization, the rulers had incentives to institutionalize religion to gain control over it and maintain these beliefs Cronk (1994). They could gain such control via co-opting and/or dominating the religious clergy, wielding religious authorities to coordinate beliefs about divine legitimacy, appealing to religious symbols and rituals, having laws prescribed by gods, or simply declaring themselves as God.[18] There are numerous examples of the ruling class or the state actively influencing the content of religion and the intensity of its dogmas.[19]

A priori, the influence of religion might not necessarily persist over time. For instance, beliefs in high gods might have facilitated cooperation among strangers in past societies that lacked modern institutions Norenzayan (2013); Johnson (2016). These societies could prosper and develop modern institutions faster than others, thus replacing the need for religion over time. Also, if there are costs associated with religion, such as lower innovation, growth, and technical schooling, this would not predict persistence of religion. However, religion might persist in places where its benefits outweigh its costs. When religion is used to the benefit of the ruler and becomes institutionalized, the influence of religion is more likely to persist to current day. Take one widely used method of divine legitimization, transcribing religion into formal laws, as did Hammurabi. Since laws are rather persistent over time, societies with more religion-based laws in the past will most likely also top the

[15] Shermer and McFarland (2004), Wright (2010).

[16] For instance, it is worth to note that the church had blessed the arrangement between the elite and the laymen as ordained by god in many parts of Medieval Europe, as well as other parts of the world such as India with the Caste system. Serfs and agricultural labourers worked for the nobles with no rights and no way of ever changing their lives, as God made them high or lowly and ordered their estate Holloway (2016).

[17] One could also argue that divine legitimacy is central in traditional authority, where tradition is what drives legitimacy. This tradition could be rooted in religion, which would thus indirectly explain legitimacy.

[18] Morris et al. (2015); Cronk (1994); Rubin et al. (2017).

[19] Aldashev and Platteau (2014), Rubin et al. (2017), Belloc et al. (2016), Chaney (2013).

rankings today with comparatively many religious laws.[20] All other things equal, we expect religion to be more likely to be institutionalized today in societies with a past of divine legitimization.

2.1 Testable predictions

We will test empirically whether divine legitimization a) was used to such an extent that it has left its footprint on societal level outcomes, b) can explain the institutionalization and persistence of religion, and c) the persistence of autocracy. Lacking data on the extent of divine legitimization throughout history, we base our predictions on i) the *incentives* to use divine legitimacy instead of other means for power legitimization, such as democracy, and ii) the type of religious beliefs useful for power legitimacy.

In stratified societies, where democratic legitimacy was too costly to the ruler, rulers had stronger incentives to use religion to legitimize their power, compared to rulers of unstratified societies (Swanson, 1960; Weber, 1922). Platteau (2017) argues that when power and wealth are concentrated in the hands of the few, the legitimacy of the regime cannot rest on the principles of democracy, and therefore, needs to rely on other sources, such as religion or coercion. He further argues that religious legitimacy was particularly widespread in traditional societies where religious authorities had the monopoly over the transmission of knowledge. Peoples et al. (2016) go as far as arguing that the absence of high gods in early human societies is an indication of the egalitarian nature of hunter-gatherers. Other scholars have also noted the link between stratification and divine legitimization.[21] For instance, the Kuna people of Central America had a well-developed hierarchical class system and moralizing gods engaged in human affairs (Swanson, 1960). Monotheism with its unique god above all other gods emerged in a time when political leadership had become highly hierarchical (Bottéro, 2000). Other examples are the stratified societies based on irrigation systems in the Mexican highlands, coastal Peru, Egypt, the Indus Valley, the Middle East, and China. Leaders of these highly stratified societies would gain the most from moral conventions enforced by high gods and their supernatural punishment (Winzeler, 2012). We conjecture that rulers of stratified societies faced greater incentives to use religion to legitimize power, compared to egalitarian societies.

Not all religions can be used for power purposes. Gods can be apt for legitimization of power only if they interfere in human affairs and punish misbehavior. Animistic spirits are indifferent to human affairs and do not punish misconduct.[22] Therefore, an association between Hammurabi and the spirits would not necessarily compel the Babylonians to obey his rules. Instead, Hammurabi and other rulers had incentives to support the development of intervening and moralizing high gods who punish non-compliers.[23] A high god is defined as a "spiritual being who is believed to have created all reality and/or to be its ultimate governor" Swanson (1960). Moralizing high gods interfere in human affairs by telling us what we should and should not be doing and by punishing misbehavior. Thus, divine legitimacy is more auspicious when endorsed by moralizing high gods. In contrast,

[20] Literature emphasizes institutions in general as a rather persistent component of societies Acemoglu et al. (2001); Rubin (2011).

[21] Marlowe and Hadza (2010), Marshall (1962), Norenzayan (2013), Watts et al. (1804), Swanson (1960).

[22] Animism is the oldest known belief system adhered by hunter-gatherer societies Peoples et al. (2016), suggesting that objects, places, and creatures possess a distinct spiritual essence Stringer (1999).

[23] Morris et al. (2015); Platteau (November 2008); Harari (2014); Cronk (1994); Irons (2001).

the gods of egalitarian hunter-gatherer societies of Kung bushmen and the Hadza people of Tanzania were morally indifferent to human affairs and thus would not be useful for legitimizing anyone's power Marshall (1962); Marlowe and Hadza (2010).

Monotheism is one type of religion with a moralizing god that might aid rulers establish power. Across 277 civilizations, Iyigun (2007) finds that civilizations that adhered to monotheistic religions lasted longer and ruled over larger geographic areas due to a symbiosis between centralized government and organized religion. Also, the Egyptian pharaoh, Amenhotep IV, is noted for abandoning traditional Egyptian polytheism and introducing worship centered on the high God Aten Allen (2005). The pharaoh declared that Aten was not merely the supreme God, but the only God, and that he, the pharaoh, was the only intermediary between Aten and his people.

Based on this literature, we predict that a) incentives for using divine legitimacy are stronger in stratified societies, compared to egalitarian ones and that b) rulers of these societies have vested interests in supporting and institutionalizing beliefs in high gods, rather than animistic beliefs.

2.2 A simple framework

To emphasize the causal mechanisms identified in the econometric analysis, we present a simple theoretical framework. The purpose is not to rule out certain causal mechanisms, but to zoom in on the causal mechanism identified empirically. In this theoretical framework, we assume that certain variables are exogenous, but the econometric analysis will allow for endogeneity and exploit the exogenous variation in some key variables. We also assume a rather narrow set of choices by the rulers, but the appendix shows that a more complicated model with more choices produces the same predictions. The econometric analysis allows for the full set of choices.

Figure 1 presents a decision tree of rulers choosing whether or not to justify their power by referring to divine authority. The game starts at a point in time when all societies were unstratified and possessed belief systems based on animism. This assumption does not describe all societies well, but fits well with the state of most societies before the arrival of agriculture (Peoples et al., 2016). This is a simplification for modeling purposes and we are not claiming that the rulers imposed new cultural/legitimization norms that had no history in that society. Rulers likely capitalized on the pre-existing norms and steered them in their favored direction. Indeed, culture and institutions most likely evolved in tandem Bisin et al. (2019); Henrich (2020).

Next, nature randomly allocates stratification to some societies. In our empirical analysis, we exploit a natural experiment that distributed more stratified agriculture to some societies, mimicking a random allocation by nature. Thereafter, ruler A chooses whether to legitimize his power through divine legitimization or more democratic means (high gods or no high gods).[24] At this point in history, "democracy" should not be understood as we perceive it today. Rather, it simply means devolving power. Divine legitimization involves supporting the development of intervening high gods, while choosing "democracy" does not necessitate high gods and is indicated in the figure by "No high gods", which means

[24] See Sect. 2 for examples of how a ruler can implement divine legitimization –e.g., via co-opting the religious clergy. See also Bisin et al. (2019).

continuation of animistic beliefs.[25] The cost of no high gods to rulers is normalized to zero in unstratified societies and δ in stratified societies. This assumption is based on Weber's (1922) arguments that democracy was the cheapest option for power legitimization in egalitarian societies, and Platteau (2017) and others' arguments that democracy was too costly in highly stratified societies. Divine legitimization costs γ, which can be thought of as co-opting or giving off some power to the religious clergy, appealing to religious symbols, or staging the ruler as God. The cost of divine legitimization is lower than δ, but larger than zero.

We have left out the third legitimization option emphasized by Weber (1922): traditional authority (e.g. monarchy). Rulers may even opt for another option altogether: coercion. Including either option leaves the model predictions unaltered as long as these alternative options incur some positive cost, cf. Figure A.1. Rulers of unstratified societies will continue to choose democracy, while rulers of stratified societies will now choose either divine legitimization or coercion/monarchy, depending on the costs. Furthermore, rulers in coercive states or monarchies will not institutionalize religion when divine legitimization was not chosen in the previous period. The empirical results are unaltered when accounting for these alternative options, cf. Table 5.

Next, ruler B decides whether or not to institutionalize religion, taking as given the extent to which beliefs in high gods exist in society. Institutionalization of religion costs $\tau > 0$. Rulers obtain utility u if they manage to legitimize their power, zero otherwise ($u > \tau$). Ruler A can obtain legitimacy by divine legitimization or democracy, but the costs of these differ across stratified and unstratified societies. In a society with divine legitimization, ruler B can only obtain legitimacy if he or she institutionalizes religion, while his or her legitimacy is independent of institutionalization of religion in democracies.

Solving the game by backward induction, ruler B will not institutionalize religion in societies based on animism, as institutionalizing animist beliefs does not grant the benefit of power legitimacy. In reality, institutionalized religion may, of course, have benefits in addition to power legitimacy. However, as long as these benefits do not differ systematically across stratification or democratization—which seems a reasonable assumption—the predictions of the model would be unaltered. However, when power legitimization is based on the divine, ruler B will choose to institutionalize religion as this is the only way to obtain legitimization. Ruler A will choose divine legitimization (high gods) in stratified societies and democracy (no high gods) in unstratified societies, as this grants him or her the highest payoff. Since divine legitimization is not possible without intervening high gods, this also means that high gods will be more likely in stratified societies than in unstratified societies. The equilibria of the game will be the prevalence of high gods and institutionalized religion in stratified societies, and no high gods (democratic legitimization) and no institutionalized religion in unstratified societies (as circled in Fig. 1). The purpose of our empirical setup is to test these predictions.

This framework illustrates the mechanisms of the causal direction from stratification to the persistence of high gods. By doing so, we do not take a stance on whether stratification or high gods came first. Crucially, in the empirical section, we can let nature randomly distribute stratification across societies to test the direction of causality. This means that

[25] We confirm empirically that punishing and intervening gods are necessary if the ruler wishes to exploit them to legitimize their power, while indifferent gods are just as useless for power purposes as having no high gods at all, see columns 7 and 8 of Table 3.

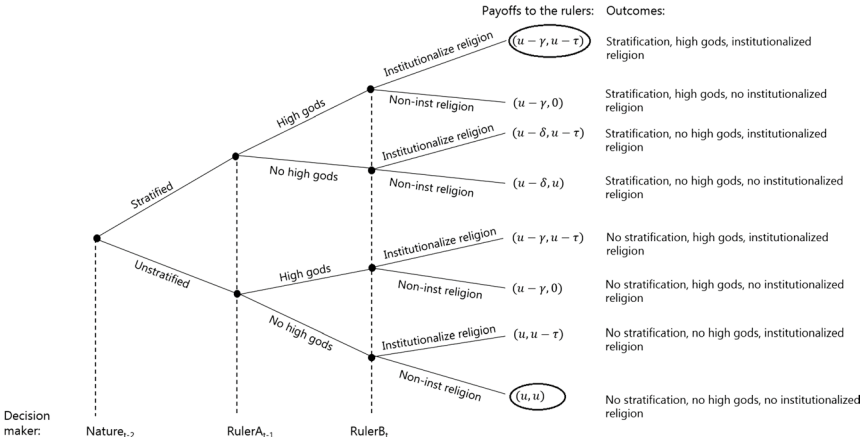

Fig. 1 The predictions of the framework in a decision tree. Notes This figure presents the narrative in Section 2 in a decision tree, where nature first randomly distributes stratification across societies. Next, ruler A decides whether to support the development of high gods or not. Last, ruler B decides whether to institutionalize religion or not. The payoffs are indicated in the second-to-last column, where ruler A obtains the first set of payofffs and ruler B the second set. The equilibria of the game are the circled payoffs.

our empirical analysis allows for both directions of causality, but we will exclusively be estimating one causal direction.

3 Empirical analysis

3.1 Data

We measure the extent of historic stratification and belief in moralizing high gods using data on 1265 pre-industrial societies across the globe from the Ethnographic Atlas Murdock (1965). The Ethnographic Atlas includes information gathered by ethnographers reflecting various characteristics of societies that pre-date modernization and European contact. Although most societies are measured in the 19th and early Twentieth century, these societies were chosen by ethnographers to maximize cultural independence from the surrounding world and to reflect independent cultural diffusion. Thus, the data are meant to measure societies millinea ago. Accordingly, the Ethnographic Atlas has been used in recent empirical research to capture ancient characteristics of societies Alesina et al. (2013); Bentzen et al. (2019); Giuliano and Nunn (2013); Michalopoulos (2012); Nunn and Wantchekon (2011).

Our main dependent variable measures the degree to which high gods were believed to moralize people's conduct and interfere in worldly human affairs.[26] The original measure ranges from 1 to 4, which we rescale into 0–1 to ease interpretation. It takes the value zero when high gods were absent (277 societies), 0.33 when a high god was present but not concerned with human affairs (248 societies), 0.66 when a high god was present and active in human affairs

[26] Variable v34 in the Atlas.

but not offering positive support to human morality (42 societies), and 1 when a high god was present, active, and specifically concerned with human morality (181 societies).[27]

Our main explanatory variable measures whether or not the society was stratified. The variable takes the value one if the society was stratified in any way (532 societies), and zero when unstratified (551 societies). Stratification can be based on an elite in control of land or other resources, hereditary aristocracy, social classes, or wealth.[28]

We measure current institutionalization of religion by the extent to which religion enters current laws. Data on religious laws are available for 176 countries from the Association of Religion Data Archives (ARDA). The database includes information on whether a given country had one or more of 51 different religious laws in their state apparatus at some point in time during the period 1990–2014. Examples of such religious laws are the presence of an official government department for religion, official government positions for clergy, religion-based laws on inheritance, restrictions on women, and the censorship of the press. We use the 51 laws separately as individual dummy variables and as an index of the degree to which a country's laws are influenced by or based directly on religious code. The latter variable takes the value 0 if "No religious laws are legislated as law", 0.33 if "Most aspects of law are secular, but there are isolated instances of religious legislation", 0.66 if "Substantial portion of laws are religious, or state law based in great part on religious law but is not 100 percent religious law", 1 if "State law is religious law".[29]

3.2 Empirical specification

To test formally whether more stratified societies were more likely to have intervening high gods, we estimate the following specification at the ethnographic society level:

$$High\ God_s = a + \beta Stratified\ society_s + \sum_k \alpha_k X_s^k + \gamma_l + \gamma_t + \varepsilon_s, \tag{1}$$

where $High\ God_s$ measures belief in interfering and moralizing high gods in society s and $Stratified\ society_s$ captures stratification in society s, based on either social stratification or the exogenous measure of potential for stratification captured by irrigation potential explained in Sect. 4.1. X_s^k is a k dimensional vector of controls. We use the same set of controls as Bentzen et al. (2017) plus controls that are specifically related to divine power legitimacy as suggested by Weber (1922) and outlined in the theoretical framework. γ_l and γ_t are language group and time fixed effects.[30] ε_s is the robust error term clustered at the language group level (except for Table A.4 due to too few observations).

[27] Michalopoulos and Xue (2021) exploit information from folklores to consistency check several measures from the Ethnographic Atlas, including the measure of high gods. They document that ethnographic societies with a tradition of high gods are significantly more likely to display punishment in their oral traditions, and episodes featuring rewards and supernatural entities are also more common. This increases our confidence in the high gods measure.

[28] Variable v66 in the Atlas.

[29] The coding of this variable was done by Fox (2011).

[30] Different societies were measured at different points in time. The time fixed effects correspond mostly to decades, and are meant to account for variation due to the differential timing. To construct the time fixed effects, we form time-intervals of at least 30 societies. When less than 30 societies are measured in a particular decade, we increase the time-period until 30 societies or more fall within the time-frame. There are 67 language groups in the main sample of column (3) of Table 1.

To test whether societies with a past of divine legitimization are more likely to have religion embedded in current institutions, we estimate the following specification at the country level:

$$Religious\ Laws_c = a + \beta High\ Gods_c + \sum_k \alpha_k X_c^k + \gamma_{cont} + \varepsilon_c, \tag{2}$$

where $Religious\ Laws_c$ measures the share of state laws that are based on religious laws in country c, and $High\ Gods_c$ is the measure of high gods from the Ethnographic Atlas aggregated to the country level.[31] X_c^k is a k-dimensional vector of controls. As these latter regressions are based on variation across countries, they potentially suffer from the standard issues regarding cross-country analysis. For instance, various factors differ across countries, and not just a history of high gods or irrigation potential. To tie our hands, we use the same set of control variables as in Bentzen et al. (2017). γ_{cont} are continent fixed effects. ε_c is a robust error term.

4 Results

We first test the prediction that intervening high gods were more prevalent in stratified societies. Panel A of Table 1 confirms this across ethnographic societies. The Ethnographic Atlas covers the entire globe and societies may differ along various dimensions. We show that the results are unchanged when comparing only societies within the same continent and measured within the same decade (column 2) and within the same language group (column 3). Adding these fixed effects, our specification explains 50 percent of the total variation in the spread of high gods. This limits the set of potentially omitted confounders drastically.

Nevertheless, societies may differ along important dimensions. Our results are robust to controlling for various measures of settlement complexity, agricultural activity, and geographic confounders (columns 4–8).[32] Some of these confounders, such as agriculture and settlement complexity, may remove part of the effect of stratification that we set out to identify due to their correlation with stratification. Thus, while accounting for potential bias caused by development stage, we may remove part of the stratification. However, it turns out that this does not matter for the robustness of our results. None of the controls

[31] We aggregate to the country level by averaging over the *High Gods* variable across ethnographic societies within country c: $High\ Gods_c = \frac{1}{N}\sum_{s=1}^{N} High\ Gods_{sc}$. Results are robust to other aggregation techniques (Table A.6).

[32] Settlement complexity is measured using the variable from the Ethnographic Atlas quantifying settlement patterns (v30). The variable has nine categories running from the lowest degree of complexity being nomadic or fully migratory to the highest degree being complex settlements. We define agricultural societies based on variable v28, which measures the intensity of agriculture. We define a society as agricultural if variable v28 is non-missing and includes anything but "no agriculture". What we define as agricultural societies thus includes societies based on casual agriculture, extensive or shifting agriculture, horticulture, intensive agriculture, and intensive irrigated agriculture. The rest of the geographic confounders are calculated using ArcGIS technology on agriculture suitability (Ramankutty et al., 2002), temperature, and soil constraints (Bentzen et al., 2017). For more details about the variables, see the Data Appendix.

Table 1 Stratification and intervening high gods across ethnic societies, OLS

Dep. Var. High Gods	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Stratification measured by societal stratification								
Stratified society	0.21**	0.15***	0.11***	0.10***	0.11***	0.11***	0.11***	0.11***
	(0.08)	(0.06)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)
Absolute latitude				0.00				
				(0.00)				
Agr suitability mean					−0.05			
					(0.12)			
Temperature						5.54		
						(5.26)		
Precipitation						−1.50***		
						(0.45)		
Soil constraints (%)						0.15		
						(0.13)		
Agriculture							0.12**	
							(0.06)	
Settlement complexity								−0.00
								(0.07)
Observations	697	696	680	680	680	649	680	680
R-squared	0.07	0.29	0.50	0.51	0.50	0.52	0.50	0.50
Mean Dep Var	0.378	0.377	0.376	0.376	0.376	0.384	0.376	0.376
Panel B: Potential Stratification measured by irrigation potential								
Irrigation potential (%)	0.31**	0.35***	0.28***	0.21***	0.23***	0.16*	0.28***	0.28***
	(0.15)	(0.11)	(0.07)	(0.05)	(0.07)	(0.08)	(0.07)	(0.06)
Observations	560	560	543	543	543	543	543	543
R-squared	0.07	0.27	0.47	0.50	0.48	0.49	0.47	0.47
Mean Dep Var	0.449	0.449	0.446	0.446	0.446	0.446	0.446	0.446
Continent FE	N	Y	N	N	N	N	N	N
Decade FE	N	Y	Y	Y	Y	Y	Y	Y
Language FE	N	N	Y	Y	Y	Y	Y	Y

OLS estimates across ethnographic societies. Robust standard errors clustered at the language group level are in parentheses. The control variables in Panel B are the same as those in Panel A. $* p < 0.10, ** p < 0.05, *** p < 0.01$

change the estimate on *Stratified society* significantly, indicating that the relation between stratification and high gods is unaffected by observed confounders.[33]

The estimate on the complexity level of societies is worth mentioning. The estimate is zero, meaning more complex societies are not more likely to have high gods. The simple correlation between high gods and complexity levels is positive as suggested by the literature, but turns insignificant when the measure of stratification is added. When we instead add dummies for each of the complexity levels, the two top-categories of complexity remain positive and significant (Table A.2). The estimate on *Stratified society* remains unchanged and significant at the 1% level when adding any of the nine dummies for settlement complexity.

We conclude that even for societies of rather similar culture, subsistence methods, and development stages, we find that prevalence of high gods goes hand-in-hand with being stratified. The degree of belief in high gods is 0.11 units higher on a scale from 0 to 1 in stratified societies compared to unstratified ones. This amounts to about 30% of the mean of the high gods variable.

4.1 Robustness and identification

Our baseline findings are not driven by individual observations (Fig. 2).[34] They are robust to including additional geographic and societal development controls, such as the variance of agricultural suitability, arable land, distance to the ocean, cereal as the major crop, agricultural dependence, agricultural intensity, animal husbandry dependence, hunting-gathering dependence, whether or not the local headman was elected, the degree of jurisdictional hierarchy beyond the local community level, and the size of the community (Table 2).

The results are not sensitive to different categorizations of the high gods measure and are robust to throwing away top or bottom categories (Table 3). Moreover, an essential

[33] It is important to note that our results are not an artefact of spatial correlation. We perform two exercises to address this. First, for our baseline specifications, Panel A of Table A.1 presents spatial correlation-adjusted Conley standard errors at various correlation ranges, assuming a linearly declining spatial weighting kernel Conley (1999). Standard errors are allowed to be correlated within the neighborhoods of 300, 500, 1000, or 2000 km. In comparison, for example, Nunn and Wantchekon (2011) set a cutoff of about 300 km in Africa, while Ashraf and Galor (2013) set a threshold of 500 km in their global analysis. We see in Panel A of Table A.1 that our results are robust to spatial correlation-adjusted Conley standard errors. If anything, our baseline language group-clustered standard errors are more conservative than Conley standard errors. Second, we generate spatially correlated noise at various correlation ranges to evaluate how well spatial noise can explain our dependent variable, High Gods, compared to our variable of interest, Stratified society. In our simulations, spatial noise of a given society i is correlated with the noise of all other neighboring societies within a given correlation range, where the weights of societies are inversely related to their distance from society i. Spatial correlation ranges are 300 km, 500 km, 1000 km, and 2000 km. Figure A.2 presents the distribution of the standardized effect of spatially correlated noise on High Gods from 1000 simulations in a specification akin to our baseline specification of column 3 of Table 1 (a regression of High Gods on spatially correlated noise, and language and decade fixed effects). The distribution of the spatial noise effect is centered around zero. Note also that, in the baseline specification, standardized coefficient on *Stratified Society* corresponds to 0.14 (with 0.11 unstandardized coefficient), whereas spatial noise has a maximum effect of about 0.03. In sum, there is no indication that our results suffer from spatial correlation.

[34] They are also not driven by specific religious denominations: class stratification raises the likelihood of beliefs in high gods among societies located in countries that are currently dominated by Christian, Muslim, or Buddhist majorities (positive composite effects in Table A.3). There is no impact in societies located in current Hindu majority countries (zero composite effect), which is likely due to their low numbers; 27 societies (4% of the sample) are located in countries that are currently dominated by Hindus (India and Nepal).

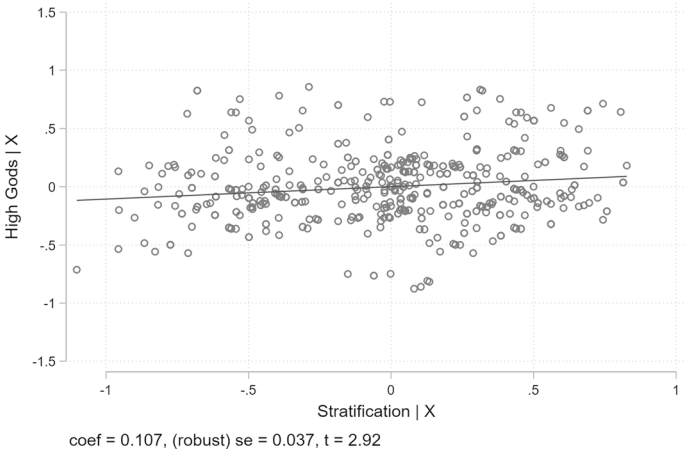

Fig. 2 High gods and stratification. Notes: This figure presents a partial regression plot from a regression of High Gods on Strati_ed society, controlling for decade and language fixed effects. The plot corresponds to column (3) of Table 1.

prediction from our framework is that gods that interfere with human affairs can be used to legitimize power, while indifferent gods cannot. To test this, we first exclude from the sample all societies with gods that intervene and punish, and run a regression of an indicator equal to one for societies with high gods that are not active in human affairs and zero if high gods are absent (column 7 of Table 3). We find that absence of high gods and beliefs in inactive high gods are equally likely in stratified or unstratified societies. Second, we create an active gods indicator that takes the value one when the gods are active in human affairs (moralizing or not), and zero when high gods are either absent or inactive in human affairs. We find that active and intervening gods are more prevalent in stratified societies (column 8 of Table 3). Third, we explore more detailed information coded by ethnographers for a sub-sample of the societies in the Ethnographic Atlas, the Standard Cross-Cultural Sample (SCCS). This dataset includes five additional variables relating to religion: whether or not a priest, witch or sorcerer, medium, healer, or shaman were present in a given society.[35] We find that stratified societies are more likely to have priests and beliefs in witches/sorcerers, while mediums, healers or shaman are equally likely in stratified and unstratified societies (Table A.4). As mentioned above, co-opting the priests was one method of divine legitimacy, thus rulers would have incentives to support the priests. The remaining four religious functions all belong to the more spiritual religious beliefs, although witches and sorcerers are the only ones dealing exclusively with punishment, while the others are mostly concerned with healing.[36] These results are consistent with our hypothesis that only beliefs in intervening and punishing gods are useful for power purposes.

When determining whether societal stratification *led to* a belief system based on intervening high gods, we face two major problems. First, causality may run from beliefs in high

[35] Variables v880, v881, v882, v883, and v884 in the SCCS.

[36] Mediums are people that can communicate with spirits. Shamans have a connection to the otherworld, have the power to heal the sick, communicate with spirits, and escort souls of the dead to the afterlife. Healing is the practice of prayer and gestures that are believed to elicit divine intervention in spiritual and physical healing.

Table 2 Stratification and belief in high gods, robustness to additional controls

Dep. Var. High Gods	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Stratified society	0.11***	0.11***	0.10***	0.10***	0.11***	0.11***	0.10***	0.08***	0.11***	0.09**	0.08**	0.07*	0.10***	0.08**
	(0.03)	(0.04)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)	(0.03)
Agr suitability variance		−0.00												
		(0.23)												
Arable land			−0.13											
			(0.10)											
Distance to the ocean				−0.06										
				(0.05)										
Cereal major crop					0.16***									0.13***
					(0.04)									(0.04)
Agriculture dependence						0.00								
						(0.01)								
Agriculture intensity							0.06							
							(0.04)							
Animal husbandry dependence								0.05***						0.04***
								(0.01)						(0.01)
Fishing dependence									−0.02**					0.00
									(0.01)					(0.01)
Hunting-gathering dependence										−0.03**				−0.01
										(0.01)				(0.01)
Local headman											0.02			
											(0.04)			
Jurisdictional hierarchy												0.16		
beyond local community												(0.11)		
Community size													0.00	

Table 2 (continued)

Dep. Var. High Gods	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
													(0.00)	
Observations	680	648	651	680	680	680	680	680	680	680	559	662	680	680
R-squared	0.50	0.50	0.50	0.50	0.52	0.50	0.50	0.52	0.50	0.51	0.48	0.50	0.50	0.54
Language and decade FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

OLS estimates across ethnographic societies. Robust standard errors clustered at the language group level are in parentheses. $* p < 0.10, ** p < 0.05, *** p < 0.01$

Table 3 Robustness to alternative measures of high gods

Dep. Var. Alternative measures of High Gods	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Stratified society	0.11***	0.19***	0.10***	0.20***	0.06**	0.26***	0.03	0.14***
	(0.03)	(0.06)	(0.03)	(0.06)	(0.03)	(0.10)	(0.03)	(0.04)
Observations	680	409	680	409	680	680	482	680
R-squared	0.50	0.51	0.46	0.43	0.41	0.49	0.40	0.43
High Gods measure	Baseline	Ex cat 1	Cat 3+4	Col 2+3	Cat 2+3+4	Cat 1+2	Ex cat 3+4	Active god
Language and decade FE	Y	Y	Y	Y	Y	Y	Y	Y

OLS estimates across ethnographic societies. Column (1) reproduces the baseline result with all four categories. Other columns include the following categories while constructing the dependent variable. Column (2) excludes category 1. Column (3) lumps categories 3 and 4 into one category. Column (4) is columns 2+3. Column (5) lumps categories 2, 3 and 4 into one category. Column (6) lumps categories 1 and 2 together. Column (7) excludes categories 3 and 4. Column (8) is an active god dummy lumping categories 3 and 4 together, and categories 1 and 2 together. Robust standard errors clustered at the language group level are in parentheses. $* p < 0.10$, $** p < 0.05$, $*** p < 0.01$

gods to societal stratification, e.g. through societal complexity that we may not have controlled for properly Norenzayan (2013); Norenzayan et al. (2016). Second, omitted factors not yet accounted for may have simultaneously influenced the development of both high gods and societal stratification. To address these issues, we exploit a quasi-natural experiment that exogenously allocated higher stratification to some areas and lower to others. Most historic societies were agricultural, and accordingly, controlling water supplies was a crucial source of power Wittfogel (1957). In support of the famous hypothesis by Karl Wittfogel, research shows that historical agricultural societies were more stratified if they were based on irrigation agriculture compared to rain-fed agriculture Bentzen et al. (2017). We exploit the degree to which agriculture was irrigation based or rain-fed to obtain exogenous variation in societal stratification. We cannot employ actual measures of irrigation, since these would suffer from similar endogeneity problems as those we set out to resolve. Instead, we generate an exogenous measure of potential for irrigation based exclusively on climatic and soil characteristics and use it as a proxy for exogenous stratification.

Our exogenous measure of irrigation potential is based on data from the Food and Agriculture Organization's (FAO) global Agro-Ecological Zones (GAEZ) 2002 database. FAO divides the globe into 0.083×0.083 grid cells (9×9 km at the equator). For each cell, FAO calculates how much an unlimited supply of water (i.e., irrigation agriculture) could potentially increase yields in addition to what could have been achieved under the assumption that rain is the only source of water (i.e., rainfed agriculture). We use the *Irrigation Potential* variable constructed by Bentzen et al. (2017), which measures the land area where agriculture is impossible without irrigation as a share of total arable land (under either irrigation or rain-fed conditions). Past agricultural societies with an irrigation potential equal to one were very likely to have relied on irrigation, since these areas had no rain, but had the proper soils suitable for irrigation. Likewise, societies with an irrigation potential of zero most likely relied on rain-fed agriculture. When using this variable, we restrict the sample to societies that were defined as agricultural in the Ethnographic Atlas (v28).

When we employ the measure of irrigation potential as an exogenous proxy for stratification (Panel B of Table 1), we find that higher irrigation potential increases the extent of intervening high gods, even within this sample of agricultural societies.[37] This indicates that societies with a more stratified form of agriculture, irrigation, were more likely to develop intervening high gods, compared to more egalitarian societies based on rain-fed agriculture. Alternatively, when we instead use irrigation potential as an instrument for stratification (Table A.5), the results are similar and stratification instrumented by irrigation potential predicts greater prevalence of high gods.

An important concern is whether irrigation potential influences beliefs in high gods through other mechanisms than stratification, i.e. the concern that the exclusion restrictions are violated. For instance, irrigation potential could proxy the degree of dependence on agriculture and perhaps individuals in agricultural societies were more likely to appeal to gods for rain and good harvests than hunter-gatherers were. Indeed, historic societies dependent on agriculture were more likely to have had belief systems based on high gods than those depending on other means of subsistence, cf. Table 4 (column 1). However, when using irrigation potential as a proxy or an instrument for stratification, we restrict the sample to agricultural societies only. The results are, therefore, unlikely to capture differences between agricultural and non-agricultural societies. Furthermore, the main results are robust to controlling for agricultural suitability or actual agriculture dependence as well as climatic characteristics, such as precipitation (Tables 1 and A.5). In addition, societies with higher irrigation potential are *less* dependent on agriculture, cf. Table 4 (column 2). This is unsurprising, as irrigation potential includes lands where agricultural yields can be doubled by irrigation *as a share of arable land*. These results dismiss alternative mechanisms involving agriculture dependence. Another potential violation of the exclusion restrictions, pointed out by Casey and Klemp (2021), is if irrigation potential influenced irrigation in the past before stratification was measured and this past irrigation influenced the emergence of high gods through other channels than past stratification. This is an additional reason for preferring the reduced form estimates in Panel B of Table 1 to the IV estimates in Table A.5.

Another potential mechanism could be religious coping, i.e. the tendency for individuals to use religion for comforting in times of stress. Perhaps irrigation increases such stress. We find this mechanism unlikely, as religion is used mainly for coping with unpredictable events, such as earthquakes, tsunamis, and volcanic eruptions, while predictable events, such as storms do not tend to instigate religious coping, but rather involve problem-focused coping aimed at solving the problem (Pargament, 2001; Bentzen, 2019; Lazarus and Folkman, 1984). Admittedly, we can never fully rule out other mechanisms. However, as an attempt to rule out mechanisms that do not involve stratification, we conduct the following simple placebo exercise in columns 3–4 of Table 4. We split societies into stratified and unstratified subsamples and document that irrigation potential predicts greater prevalence of high gods only in stratified societies and not in unstratified ones. We expect that the variation in actual stratification is higher among stratified societies than the unstratified ones, as stratification can take several forms along various lines, such as aristocracy or land holdings. These results indicate that irrigation correlates with high gods only in the sample with higher variation in actual stratification. In sum, these checks lend credence to

[37] This finding is not driven by spatial correlation (see Panel B of Table A.1).

Table 4 Exploring mechanisms

Dep var:	(1) High Gods	(2) Agr dependence	(3) High Gods	(4) High Gods
Agriculture	0.19***			
	(0.047)			
Irrigation potential		−1.88***	0.51***	−0.13
		(0.347)	(0.080)	(0.188)
R-squared	0.27	0.24	0.40	0.24
Observations	747	872	309	204
Sample based on agriculture	Full	Agricultural	Agricultural	Agricultural
Sample based on stratification	Full	Full	Stratified	Unstratified

OLS estimates across ethnographic societies with the set of simple controls: decade and continent fixed effects. Robust standard errors clustered at the language group level are in parentheses. $* p < 0.10, ** p < 0.05, *** p < 0.01$

our identification strategy of using irrigation potential as a source of exogenous variation in stratification.

An alternative means of legitimization could be coercion. Using a measure of slavery from the Ethnographic Atlas to capture coercion (v70), we show that although slavery is correlated with stratification, there is no significant causal impact of our exogenous stratification measure (irrigation potential) on the extent of slavery (Table 5).[38] Importantly, the effect of stratification on high gods remains significant when controlling for slavery with no significant slavery effect. These results imply that divine legitimization is less costly to rulers of stratified societies than coercion. Thus, the results are consistent with the idea that the elite chooses to refer to God for his rule rather than opting for coercion.

The results so far are consistent with the prediction that rulers in more stratified societies were more likely to support the development of beliefs in intervening high gods that moralize and punish people who do not obey. While the results are not a direct test of divine legitimization, they are certainly consistent with its existence: the type of gods that were useful to legitimize power (intervening high gods) emerged in areas where religion was a useful tool for power legitimization (stratified areas).

4.2 Current institutionalization of religion

We next turn to the prediction that divine legitimization persisted to date through the institutionalization of religion. Since intervening high gods were more useful for religious power legitimization than gods or spirits that did not intervene in human affairs, we expect that societies with a history of high gods over time developed institutions to support this form of power legitimization. Our measure of current institutionalization of religion

[38] Slavery is defined based on variable v70 in the Ethnographic Atlas, measuring the type of slavery. We define a dummy equal to zero if slavery is indicated as being "absent or nearly absent", and one if any of the other categories were reported. Thus, slavery is defined as being present if one of the following types of slavery existed: incipient or nonhereditary, slavery was reported but type not identified, hereditary and socially significant.

Table 5 Alternative legitimization methods

Dep. var.	(1) Slavery	(2)	(3) High gods	(4)
Stratified society	0.17***		0.09**	
	(0.05)		(0.04)	
Irrigation potential (%)		0.05		0.16**
		(0.07)		(0.06)
Slavery			0.07	0.12***
			(0.05)	(0.04)
Observations	1003	760	636	481
R-squared	0.49	0.43	0.51	0.50
Language and decade FE	Y	Y	Y	Y

OLS estimates across ethnographic societies. Robust standard errors clustered at the language group level are in parentheses. All regressions include language and decade fixed effects. The sample is restricted to agricultural societies in columns (2) and (4). $* p < 0.10, ** p < 0.05, *** p < 0.01$

is based on a variable—the prevalence of religious laws—which is only available at the country level. Our baseline specification aggregates the information from the ethnographic societal level to the country level by taking simple averages across the societies within the borders of current countries.[39]

We find that countries with a history of intervening high gods are more likely to have religious laws in their state apparatus today (Fig. 3 and Table 6).[40] The results in Table 6 hold up to including continent fixed effects, absolute latitude, and year of measurement controls (columns 2–4). Perhaps, more advanced societies were more likely to believe in high gods, and later on, to rely on religiously based laws for other reasons. We account for this by controlling for past development measured by reliance on agriculture, current development measured by GDP per capita, and whether the country is communist (columns 5–7). Lastly, to check whether our results are driven by Muslim countries, we add a dummy for Muslim majority countries, column 8. Islam accounts for half of the observed impact of high gods on the prevalence of religious laws, which squares well with the fact that Allah is a moralizing and intervening god and Islam is a legalistic religion. A positive and significant association between high gods and religious laws remains, indicating that the theory extends beyond Islam. This conclusion is supported by Figure 3, which shows that the relation between a past of high gods and the degree of religious laws is not driven by specific countries.[41] Our baseline result in column (2) indicates that countries where all

[39] For instance, the Ethnographic Atlas holds information on high gods for two societies in Thailand, Lawa and Siamese. The high god measure for Lawa is zero, meaning that high gods were absent and that for Siamese is 0.33 meaning that a high god was present but not concerned with human affairs. The country-level measure of high gods for Thailand equals 0.167 accordingly. Results are robust to various aggregation methods from the ethnographic societies to countries (Table A.6).

[40] These results are not driven by spatial correlation (see Table A.7 and Figure A.3).

[41] Results are robust to controlling for other denominations and various geographic measures (Table A.8). The result holds for Christian, Muslim, and, to a lesser extent, for Buddhist majority countries (Table A.9). Again, the impact is absent in Hindu-majority countries, which may be due to there being only 2 countries with a Hindu majority (India and Nepal).

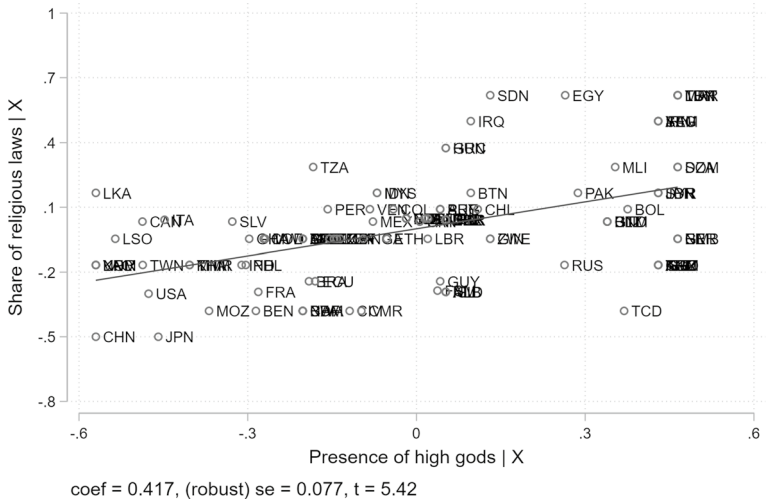

Fig. 3 Degree of religion based laws today and past high gods. Notes: This figure presents the added variables plot of the relationship between past High Gods and the Share of Religious Laws as part of state laws today, conditional on continent fixed effects. The plot corresponds to the regression in column (2) of Table 6.

Table 6 Share of religious laws and historic high gods across countries, OLS

Dep. Var. Religious Laws	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
High Gods	0.29***	0.42***	0.42***	0.43***	0.40***	0.41***	0.42***	0.22***
	(0.06)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.08)
Year of ethnographic measure			−0.00					
			(0.00)					
Absolute latitude				−0.00				
				(0.00)				
Avg agriculture suitability					−0.09			
					(0.10)			
Communist dummy						−0.05		
						(0.15)		
(log)Real GDP/cap, 2000							0.03	
							(0.02)	
Muslim majority								0.23***
								(0.07)
Observations	119	119	119	118	118	119	118	119
R-squared	0.16	0.33	0.33	0.33	0.34	0.33	0.34	0.40
Continent FE	N	Y	Y	Y	Y	Y	Y	Y
Mean Dep Var	0.375	0.375	0.375	0.379	0.379	0.375	0.376	0.375

OLS estimates across countries. Robust standard errors are in parentheses. $* p < 0.10$, $** p < 0.05$, $*** p < 0.01$

past societies had beliefs in intervening gods are 0.42 units, on a scale from 0 to 1, more likely to have a state law that is religious law today compared to countries where no past societies had these beliefs. This impact amounts to more than the mean of the religious laws variable. The change in the extent of high gods from no societies in a country with these belief systems to all societies with beliefs based on high gods is unusually large, though. Comparing instead countries in the first quarter to the third quarter of the distribution of beliefs in high gods, the third quarter will be 85% of the mean of the extent of religious laws more likely to have religious laws in their state apparatus. This is a substantial impact, which is perhaps not that surprising as beliefs in intervening gods seem to be a fundamental prerequisite for elevating laws to the divine.[42]

The results imply that power structures based on divine authority have persisted from our past to the present. If so, we would expect persistence to be weaker if existing power structures were disrupted, by e.g. colonization. To explore this, we adopt the empirical strategy by Bentzen et al. (2019), who document that, across ethnographic societies, indigenous democratic practices are important in the formation of current representative democracy, but such persistence was less likely when the existing power structure was disrupted by colonization. Using the same measures of disruption, we document in Table A.10 that persistence of divine authority is reduced when the country was colonized by Europeans (column 1), had a higher fraction of European language speakers (column 2), or were ruled by either European or USSR settlers for more than 100 years (column 3). We perform the test by adding an interaction term between the measure of high gods and the particular disturbance. While the interaction term is estimated rather imprecisely, it is negative throughout and the composite impact of high gods is significant only for 80% of the sample; the part of the sample where disturbance is lowest. For two of three disturbance measures, the impact of high gods is not significant at the 1% level for the 10% most disrupted countries. These results are consistent with the idea that power structures based on divine authority persist more in societies that were not too disturbed by the imposition of alternative power structures.

Figure 4 provides estimates from separate regressions of each law on high gods. For 46 out of 51 laws, the likelihood of having religious laws today is significantly higher in countries with a high gods heritage. Thus, the tendency for greater reliance on religious laws in societies with a history of high gods is not driven by a few laws. The most affected laws are concerned with restrictions on interfaith marriages, blasphemy laws, religious inheritance laws, restrictions on women, official government positions for the clergy, and anti-religious press censorship (Fig. 4 and Table A.11).

4.3 Addendum: implications for modern-day autocracy and religiosity

In this section, we investigate two implications of institutionalized religion: lower likelihood of democratization and strengthened religious beliefs today. We commence with the former. When connecting our historical analysis to modern democracy, we are implicitly also testing whether a link exists between accounts of early proto-democratic practices and modern democracy. We thus tap into the debate about whether democracy is merely a by-product of economic development (Schumpeter, 1942; Lerner, 1958; Lipset, 1959) or

[42] These results are robust to weighting by population size. For example, the baseline coefficient on High Gods, in column 2 of Table 6, increases to 0.68 (s.e.: 0.11).

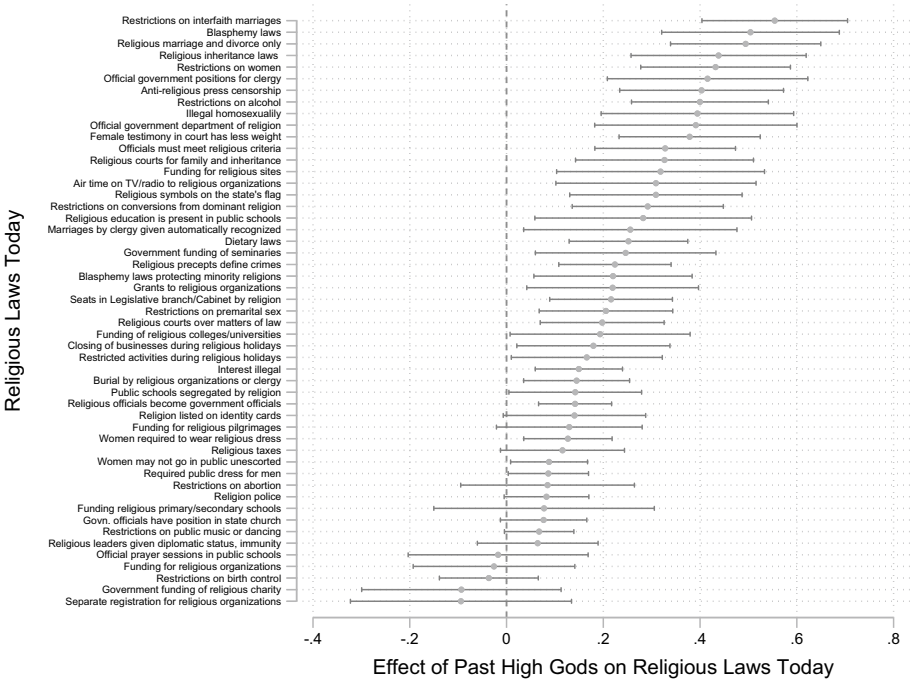

Fig. 4 Persistent influence of past high gods on the likelihood of various religious laws today. Notes: This figure presents the effect of past High Gods on the likelihood of 51 different religious laws being present today across countries, conditional on continent fixed effects. The parameter estimates are shown together with 90% confidence intervals.

whether its roots can be traced further back in history (Downing, 1989; Acemoglu et al., 2008; Hariri, 2012; Bentzen et al., 2017; Grzymala-Busse, 2020). In support of the latter, Stasavage (2020) points to two recent papers by Giuliano and Nunn (2013) and Bentzen et al. (2019). These papers use information from the Ethnographic Atlas on the selection of community leaders and show that indigenous democratic practices at the local-level predict the extent of national democratic institutions today. Therefore, national-level democracy was easier to achieve in places with traditional democratic institutions at the local level. This is evidence that pre-modern institutions are linked to the emergence of modern institutions. Here, it is important to note that early democratic practices—such as assemblies or leadership succession by election—were not limited to Europe. These kinds of practices can be traced back to societies before the modern state in most parts of the world (Muhlberger and Paine, 1993; Sen, 2003; Sabetti (2004).[43]

In contrast, if early rulers used divine legitimization to entrench their authority, this could crowd out early proto-democratic formations. Following Weber's (1922) arguments, when the legitimation of authority is based on the divine, other forms of democratic means are foregone. Subsequently, rulers with strong divine legitimacy would be better able to fend off later waves of democratization, as political institutions are rather persistent and difficult to

[43] Bentzen et al. (2019) also show that there is nothing particularly 'European' about the historical link from early sub-national institutions to modern national institutions.

change once in place Putnam (1993); Acemoglu et al. (2001). In short, religious power legitimization perpetuates more autocratic regimes. This is also in line with Barro and McCleary (2005) who document a positive association between state religion and autocracy.

There are examples of democracy flourishing when rulers did not have a tight clasp on the religious authority to use for their support. For example, when the clergy and other ecclesiastical institutions managed to escape the influence of the political ruler in eleventh-century Europe, the ruler could not entrench himself through divine legitimization. As a consequence, this had a positive effect on the emergence of town councils as a form of early urban democratic practice (Doucette and Møller, 2021). Whereas in places where the king kept its grip on the church, he maintained his princely rule with the tradition of authority from the church at the expense of self-governing councils (Doucette and Møller, 2021). Grzymala-Busse (2020) also argues that the church played an important role in the emergence of the modern state. In particular, she writes that "in an era of weak coercive power and low human capital, the Church had the wealth, spiritual authority, and expertise to fundamentally mold politics" (Grzymala-Busse, 2020), p.20).

Other scholars have also attempted to test the link between religion and democratic institutions empirically. Across 122 medieval Italian cities, Belloc et al. (2016) show that an increase in the authority of religious leaders reduced the likelihood of transition from feudal authoritarianism to a communal civic system. Chaney (2013) finds that Egypt's highest ranked religious authority was less likely to be replaced in periods of social unrest. In this section of the paper, we test whether these examples generalize to the globe and persist to current day. Admittedly, not all explorations in this section are necessarily causal and should be interpreted with caution. They, nevertheless, provide thought-provoking correlations.

To investigate the implications for modern democracy, we use the polity2 measure from the Polity IV Project, ranging from −10 (autocratic) to 10 (democratic). To avoid short spells of regime instability, we average the democracy score over 1990–2010. Panel A of Table 7 shows the impact of each link in our hypotheses on the extent of democracy across countries. We control for continent fixed effects and the Muslim majority dummy (the only significant control in Table 6). Columns 1 and 2 show that societies with more religious laws are more autocratic today. Moving from a country where no state laws are based on religion to a country where the state law is religious law reduces average democracy by 7 units (more than twice the mean). The result is not driven by few observations (Fig. 5).

Columns 3 and 4 show that countries with a past of high gods are more likely to have become autocracies today. The estimate on *High Gods* turns insignificant when adding the Muslim majority dummy, which reflects the fact that Allah is one high god accounting for half of the effect. The Sobel-Goodman mediation test suggests that religious laws account for 51 percent of the impact of belief in high gods on autocracy. Columns 5 and 6 document that higher irrigation potential reduces the likelihood of democracy. The Sobel-Goodman mediation test shows that 22–33% of this effect likely runs through religious laws. In support, columns 7 and 8 show that irrigation potential increases the likelihood of autocracy only in societies with a past of high gods.[44] This is consistent with the argument that rulers in stratified societies had

[44] Irrigation potential is marginally good for democracy in 10 countries without a history of high gods (China, Fiji, South Korea, Laso, Lesotho, Nepal, New Zealand, the Solomon Islands, Sri Lanka, and Vietnam). This positive effect is mainly due to increased prosperity in irrigation societies: the estimate on irrigation potential turns insignificant when accounting for the complexity of the historic societies or current GDP per capita.

Table 7 Additional outcomes of democracy and religiosity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Dep. Var. Average Democracy (1990–2010)								
Religious laws	−6.98***	−4.48***						
	(1.51)	(1.62)						
High Gods			−4.24**	−1.97			−0.14	0.47
			(1.66)	(2.03)			(2.01)	(2.17)
Irrigation potential (%)					−5.79***	−3.55*	8.90**	8.71**
					(1.54)	(1.93)	(4.23)	(4.13)
Irrigation potential × High Gods							−16.50***	−15.53***
							(5.00)	(5.11)
Muslim majority		−2.91**		−2.69*		−2.87**		−1.18
		(1.17)		(1.42)		(1.38)		(1.43)
Observations	160	160	115	115	160	160	115	115
R-squared	0.47	0.49	0.43	0.45	0.48	0.50	0.49	0.49
Continent FE	Y	Y	Y	Y	Y	Y	Y	Y
Mean Dep Var	2.875	2.875	2.827	2.827	2.862	2.862	2.827	2.827
Sobel Goodman (religious laws) share			0.51	0.51	0.33	0.22	NA	NA
Panel B: Dep. Var. Importance of God in People's Lives								
Religious laws	0.37***	0.22***						
	(0.08)	(0.07)						
High Gods			0.35***	0.23**			0.28***	0.21**
			(0.08)	(0.09)			(0.10)	(0.10)
Irrigation potential (%)					0.26***	0.04	−0.25	−0.26
					(0.07)	(0.07)	(0.29)	(0.27)
Irrigation potential × High Gods							0.38	0.26
							(0.30)	(0.30)
Muslim majority		0.18***		0.16***		0.26***		0.17***
		(0.04)		(0.05)		(0.06)		(0.06)
Observations	101	101	70	70	104	104	69	69
R-squared	0.58	0.63	0.65	0.69	0.52	0.60	0.66	0.69

Table 7 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Continent FE	Y	Y	Y	Y	Y	Y	Y	Y
Mean Dep Var	0.666	0.666	0.702	0.702	0.669	0.669	0.705	0.705
Sobel-Goodman (religious laws) share			0.34	0.24	0.70	NA	NA	NA

OLS estimates across countries. Robust standard errors are in parentheses. $* p < 0.10, ** p < 0.05, *** p < 0.01$

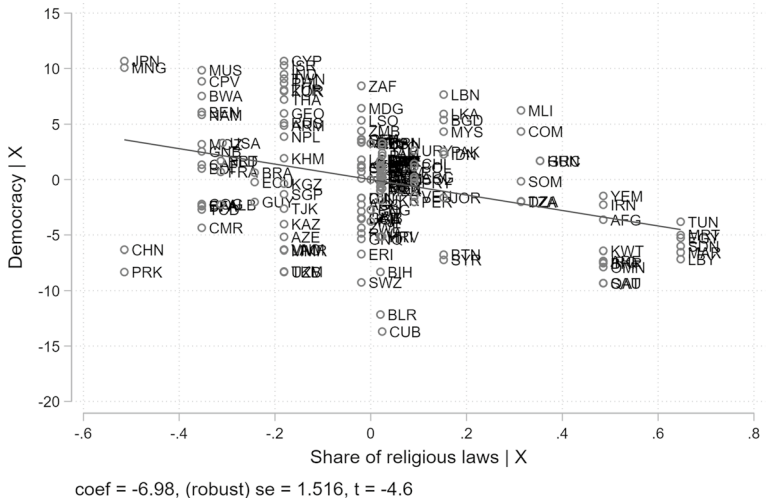

Fig. 5 Religious laws and Democracy. Notes: The figure shows the added variables plot of the relation between religious laws in the state apparatus and the degree of democracy. Corresponds to column (1) of Panel A of Table 7.

incentives to support the development of high gods, which in turn gave them greater powers to rule.[45] This further qualifies the explanation that autocracies emerge in stratified societies by showing that religion is used more extensively to justify power in these societies.

We finally turn to implications for religious beliefs. Religious beliefs are a prerequisite for the system of divine legitimization to continue to function. To refer to gods for power purposes, the populace must believe in their existence, which is in turn perpetuated by the elite (the ruler and the clergy). For instance, Aldashev and Platteau (2014) note that some states intentionally choose to influence the contents of religion and the intensity of its dogmas. The empirical question then is whether these elevated beliefs persist to current day. To evaluate the impact of divine legitimacy on the general importance of religion among the broader population, we use data from the pooled World Values Survey and European Values Study. These surveys hold data on demographics, socio-economic characteristics, and various dimensions of cultural values and religiosity for 505,048 individuals from 109 countries interviewed over the period 1981–2014. Panel B of Table 7 shows regressions with a widely used measure of religiosity based on answers to the question "How important is God in your life?"[46] We find that religiosity is higher in countries with a higher share of religious laws and a greater prevalence of high gods in the past. These results are not only driven by Muslim countries. Also, past stratification captured by irrigation potential raises religiosity, mainly mediated by religious laws (70%). This result is mainly

[45] One concern is that high gods is a function of irrigation potential, and thus, the interaction simply signals some non-linear effect of irrigation potential. This does not seem to be driving the results. Adding a squared term or the logarithm of irrigation potential does not alter the results.

[46] There are various questions on religiosity, but Inglehart et al. (2003) single out six questions that capture the global variation in religiosity. All six are shown in Table A.12, which documents that the conclusions hold for most measures.

explained by the difference in the fraction of religious laws in Muslim countries compared to the rest. As a further validation check, the interaction between irrigation potential and high gods in columns 7 and 8 is insignificant and the impact of irrigation potential is purely driven by the extent of high gods. This means that irrigation potential has no direct impact on current religiosity after accounting for its impact on a past of high gods. These results support the idea that a past of high gods and institutionalized religion translate into more religious populations today.

5 Conclusion

Historical examples abound of rulers using religion to gain unchallenged authority. We document that this tendency, termed divine legitimacy, occurred across the globe within all major religions. We further show how the use of religion for power can explain why religion still plays a central role in many contemporary societies despite modernization. Rulers that legitimize their power by referring to the divine have incentives to institutionalize religion, which makes religion more likely to persist to current days. Divine legitimacy may ultimately lead to the persistence of autocracy, since divine legitimacy is an alternative to democracy, thus mechanically lowering the likelihood of democratization. In addition, rulers relying on divine legitimacy have incentives to set up institutions to support religion, in turn strengthening the use divine legitimacy and autocracy.

Lacking direct data on divine legitimacy, we rely on the historical narrative and the literature to set up the following predictions: a) Rulers have incentives to refer to God to legitimize their power, particularly so in stratified societies, b) Gods that interfere in human affairs are useful for legitimizing power, while indifferent spirits are not, c) Rulers have incentives to institutionalize religion if they base their legitimacy on the divine. In line with the predictions, we document empirically that pre-modern societies with a more unequal distribution of resources are more likely to develop interfering and punishing Gods and less likely to develop indifferent spirits that cannot be exploited to legitimize power. We proceed to show that these societies are more likely to have religiously based state laws, and hence a greater penetration of religion in institutions. Lastly, we document that societies that used divine legitimacy in their past are more autocratic and their populations are more religious today.

In a world where religion and populist policies are gaining increasing support in some societies, it is worthwhile to understand the roots of such tendencies. While religion may surely bring positive deeds, such as stress-relief, it may also carry along such costs as strengthened autocracies. The multiple dimensions of religion –a set of personal beliefs, a set of doctrines cast from above, an institution, a worldview, for instance– make it possible that it can be both a tool for comfort and personal strength at the same time as being a tool to obtain unquestioned power.

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