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Lessons from Delphi: Religious markets and spiritual capitals☆

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ABSTRACT

We develop a generalized theory of religious markets and apply its insights to archaic Greece, ancient Israel, and modern America. Our starting point is a simple game-theoretic model in which secular leaders enhance their power by influencing the location of sacred places. The model includes standard equilibria – such as pure competition and state-sponsored monopoly – as well as a novel equilibrium, which we call the *neutral nexus*, wherein a sacred place gains widespread authority precisely because it lies beyond the centers of secular power. The nexus can promote cooperation, innovation, and exchange, especially where markets are weak and power is fragmented. It can also sustain random divination – a surprisingly effective way to manage conflict and risk. The sanctuary of Delphi illustrates the real-world relevance of the neutral nexus, as does Israel's tabernacle of Shiloh.

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1. Introduction

Contemporary models of religious markets have yet to advance much beyond Smith's (1981 [1776]) classic contrast of established churches and independent sects. In fact, religious markets have been analyzed in a similar manner to markets for many goods and services – either as monopolies (where political sponsorship provides the effective barrier to entry) or highly competitive (eschewing oligopolistic models, which rarely exist in religious markets). There is good reason that studies of religious markets have taken this approach. Historically, monopoly and (close to) perfect competition have been the two most common types of markets, with the former pervading medieval Europe, the Islamic world, and Latin America, and the latter found in contemporary Europe and the U.S.

Yet, is it possible that other types of market structures exists? Religious markets provide an excellent laboratory for the study of non-traditional markets, as political authorities have historically had a keen interest in regulating religious

authorities. And indeed, this paper suggests that the literature on religious markets – and the broader literature on market structures in general – has "missed" an equilibrium. Using a simple game theoretic model, we analyze the situation in which numerous political authorities are legitimized by religious actors who are geographically disparate. Our model is able to capture the classic monopoly and perfect competition cases – the former may emerge when one ruler is powerful enough (and all leaders visit the religious site in his territory) and the latter can emerge when the cost of coercion of the citizenry is sufficiently large and the ruler does not attempt to co-opt religious authority. The model also sheds light on the conditions under which a third type of equilibrium, which we call the *neutral nexus*, emerges. This equilibrium involves spiritual "capitals" arising in places *beyond* all centers of secular power. We suggest that this is an equilibrium *precisely because* the spiritual location is not dominated by secular power. This type of equilibrium can emerge when a cluster of polities share a common culture and close ties and no one political authority dominates. The positive network externalities associated with an independent legitimizing force allow the neutral religious player to thrive despite the fact that it is not loyal to any one political authority.

The sanctuary of Delphi in ancient Greece illustrates the neutral nexus. Delphi also helps us better understand the economic and political roles of religious institutions in pre-market societies. The vast network of shrines and sanctuaries in ancient Greece seem to have substituted for the invisible hand of modern markets – strengthening Greek identity, limiting political conflict, and promoting inter-state cooperation, communication, and exchange. More generally, it sheds light on a market structure different from the types studied in introductory economics classes – one that served the Greeks quite well for centuries.

2. The basic theory

2.1. Sacred places: special, common, and socially sustained

Studies of the sacred must address two seemingly contradictory facts. On the one hand, the sacred is *special*, distinct from everyday life. On the other hand, the sacred is remarkably *common*, present almost everywhere.

The distinctive character of the sacred manifests itself in a rich vocabulary of contrasts: spiritual versus material, divine versus human, heavenly versus earthly, holy versus mundane, supernatural versus natural, and much more. The separation of sacred and secular reflects and reinforces the notion that sacred resources transcend the limits of everyday life, thereby operating like a powerful (but risky) alternative technology.

Distinctive geography can certainly contribute to a sense of the sacred. People often see the hand of God in thundering waterfalls, towering cliffs, ancient forests, and deep dark caves. But we cannot push this line of argument too far because humans display an amazing capacity to invest *any* location with special significance.

The world is positively littered with sacred places, to say nothing of sacred rituals, objects, and events. For every holy hilltop that is near the heavens but not far from the road there is a blessed bough in a hidden grassy vale. There seems to be no limit to when or where people encounter supernatural beings and forces.[1]

If people have the capacity to invest *any* location with sacred significance then what, if anything, limits the geography of the sacred? And what forces influence the emergence of spiritual capitals – places that whole nations or cultures view as supremely important sources of supernatural power or information? Cognitive and evolutionary approaches may help explain the pervasive persistence of religion, but they tell us little or nothing about where and when religious institutions actually arise. Traditional research in the psychology of religion fares no better. One is tempted to invoke chance alone – a spiritual random walk, with each step determined by some new exogenous event or random revelation. We can do much better, however, by adding a third insight to our list of fundamental facts.

The sacred is a *social* construct sustained by *groups*. People are vastly more likely to accept supernatural claims if they regularly interact with others who accept the same claims. The evidence on this score is overwhelming, running the gamut from history to psychology and from ethnographic studies to population surveys. The social side of faith helps explain why sacred places manage to be both peculiar *and* pervasive.

Game theory can help us understand how interactions elevate ordinary locations to sacred status. Consider, for example, a simple coordination game in which each of N people must choose among an infinite number of alternative spiritual "strategies" and each person's payoff grows with the number of other people who choose the same strategy. The game has infinitely many solutions, all of which are Nash equilibria, and the only difficulty is choosing an (essentially arbitrary) shared strategy, when any will suffice. As in Schelling's classic example of two people meeting in New York City, the natural solution is to rally around a distinctive "focal point" – even if its special features have no intrinsic relevance to the game and its payoffs.[2] Worshippers may thus be drawn to mountaintops or other extraordinary locations, but even an ordinary meadow will suffice *if* they can simply agree on which meadow. The ultimate outcome might well be determined by any

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[1] Some cognitive psychologists and evolutionary biologists ascribe this tendency to the structure of our brains. Boyer (2001) thus find innate reasons for the persistence of supernaturalism, the structure of religious institutions, the presumed attributes of divine beings, and even the character of fundamentalism.

[2] Schelling (1978) postulates a situation wherein two friends have agreed to meet somewhere in New York City on a particular day but have failed to discuss the time or place. This seemingly insoluble problem admits a simple solution for people familiar with the city's (semi-sacred) geography: Stand under the giant wall clock at Grand Central Station at exactly twelve noon.

number of odd and idiosyncratic factors, especially if the players lack strong *ex ante* preferences. But once a group locks in on a shared spiritual strategy, their "path dependent" destination will tend to remain a permanent part of their sacred cosmos.[3]

Schelling-style coordination is, however, only part of the story. It captures the situation confronting the multitude of minor players – typical citizens with no real capacity to influence collective outcomes and no strong preference for one equilibrium over another. But major players can radically alter their payoffs by influencing sacred outcomes. For heads of state, heads of religions, and other elites, the game looks more like a "battle of the sexes" or the prisoners' dilemma.

2.2. Modeling the competition for sacred space

To better understand the impact of major players, consider a region divided into N independent "polities" each of which occupies a separate domain and is governed by a separate ruler or ruling elite. Within each ruler's domain, D_i, there exists at least one or more sacred places, represented by the vector S_i. There also exist sacred places at independent locations beyond the domain of any ruler, so the entire collection of sacred places can be represented by the vector $(S_1, \ldots, S_N, S_{N+1}, \ldots, S_{N+M})$. Sacred places supply supernatural products in exchange for gifts and sacrifices.

Rather than model citizens as independent actors, let us assume that rulers correctly anticipate their citizens' responses to any given situation and that citizens cannot directly interact with the rulers or citizens of other domains. Hence, each domain has just one strategic player – a ruler who subsumes within himself all relevant means and motives.

Sacred places can enhance a ruler's power insofar as their pronouncements justify his actions, broaden his support, or undermine his opposition. Rulers can decide where they and their citizens will worship, but compliance is costly. Let C denote the cost of achieving compliance, and assume that rulers benefit only to the extent that they and their citizens worship at the *same* place.[4] Rulers can also influence the *content* of sacred products, but this too is costly especially at places outside one's own domain. Hence, for any given expenditure on influence, an "inside" ruler will obtain a net payoff, $I–C$, greater than that received by an "outside" ruler, $O–C$. Note that I and O include the ruler's optimal influence expenditures.

Assume also that an "inside" ruler can extract a tax, t, from each outside ruler who visits a sacred place within his domain. This might take the form of a direct tribute to the local ruler or a share of all gifts to the sacred institution. Finally, we assume that more legitimacy accrues to the pronouncements of a sacred place visited by more outside rulers – in part because outsider visits yield resources that can be invested in reputation, but also because citizens interpret outsider visits as evidence that a place's pronouncements are genuinely sacred (or, at least, less tainted by manipulation).

Let n_i denote the number of "outside" rulers visiting the sacred place within i's domain. Assume that the legitimacy function is positive only when more than one ruler visits a sacred place, or $\ell(1) = 0$. Also assume that the legitimacy function is strictly concave and increasing and that "staying home" is always preferable to being a lone outsider. Hence: $\ell''(\cdot) < 0$, $\ell'(\cdot) > 0$, and $\ell(1) + O_{ij} < I_{ii}$. It follows that ruler i's overall payoff is $I_{ii} - C_i + t \cdot n_i + \ell(n_i)$ if he plays "insider" and visits the sacred place within his own domain, and his payoff is $O_{ij} - C_i - t + t \cdot n_i + \ell(n_j)$ if he plays "outsider" and chooses to visit some other sacred place j. We include the expression "$t \cdot n_i$" in both expressions to admit the possibility that outside rulers worship within i's domain even when i worship's elsewhere.

To keep things as simple as possible, let us focus on one-period games in which all rulers have identical I, O, and C values and choose their actions simultaneously.[5] Let us also ignore the role of influence, or more precisely, the impact that one ruler might have on the optimal influence expenditures of other rulers. We then obtain just four classes of Nash equilibria:

1. *Global dominance*: All rulers visit the sacred space within some particular "dominant" ruler i's domain. Each non-dominant "outside" ruler $j \neq i$ receives $O - C + \ell(N-1) - t$, while the dominant "inside" ruler i receives $I - C + \ell(N-1) + t \cdot (N-1)$. The non-dominant ruler's j can receive no more than $I - C$ from deviating, so equilibrium is sustainable if and only if $I < O + \ell(N-1) - t$, which always holds if the legitimacy function, $\ell(\cdot)$ is sufficiently large as N grows.
2. *Local dominance*: Each ruler visits the sacred space within its own domain. The equilibrium exists for any value of N since each ruler receives $I - C$ and deviating yields no more than $O - C - t$ which is by assumption less than $I - C$.
3. *Neutral nexus*: All rulers visit a single sacred space, S_{N+k}, that lies beyond any of their domains. Each ruler can obtain no more than $I - C$ from deviating, so equilibrium is sustainable as long as $I < O + \ell(N-1)$, which always holds if the legitimacy function, $\ell(\cdot)$ is sufficiently large as N grows.
4. *Secularization*: Rulers "opt out" of the game, because the cost of compliance, C, exceeds the benefits associated with feasible alternatives. A necessary but not sufficient condition for this equilibrium to hold is $I < C$. Citizens freely choose their own places of worship, and the ruler's payoff is zero.[6]

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[3] See Chwe (2001) for an analogous argument about the emergence of "rational rituals."

[4] We can generalize the model by broadening the concept of "place" to include all the sacred "outlets" associated with a particular "firm" – e.g., all the congregations within a particular hierarchical denomination.

[5] We could complicate the game substantially by introducing payoff heterogeneity amongst the players. Such a complication would increase the parameter set over which certain equilibria hold, but would not augment the existence of the "classes" of equilibria we find here. We thus employ homogenous players for the sake of analytical clarity.

[6] Note that the term "secularization" refers primarily to the process of removing things from ecclesiastical possession, influence, or control.

We thus rule out the vast majority of all potential strategies. For example, a situation in which every ruler visits within some *other* ruler's domain cannot be an equilibrium, because each ruler would have incentive to deviate to his own domain. There also cannot be an equilibrium where more than one, but not N, rulers visit any domain. To see this, consider a domain, call it D, which k rulers visit, where $1 < k < N$. Each ruler who visits D (except for the ruler who's domain is D) receives $O + \ell(k) - t - C$, meaning that it must be that $O + \ell(k) - t > I$ if this were to be an equilibrium. But, it must also be the case that the $N - k$ rulers not visiting D must have utility of at least $O + \ell(k) - t - C$ from visiting the domain they visit, which cannot be their own in equilibrium (since $O + \ell(k) - t > I$). However, this means that any of the k rulers visiting D (except for the one who's home is D) can make more by either going to another domain, since the other rulers make at least $O + \ell(k) - t - C$ by doing so. Finally, it impossible for the rulers to divide themselves across two or more neutral places, as there will always be incentive for a ruler at a less populated neutral place to deviate to a more populated neutral place.

Yet, the model is too simple and the Nash criterion too weak to determine when a particular class of equilibria is more likely to "win out" over the others. To obtain further insights, we need to revise our model in the light of history.

2.3. "Established" churches: the standard case

Consider how outcomes are likely to change when some rulers are more powerful than others but none can profitably annex any other domain. The ideal position remains that of dominant player in the class one equilibrium (wherein all other rulers visit the sacred space in the dominant ruler's domain). But it seems likely that the more powerful rulers gain more from spiritual dominance, if only because they can more readily reward or punish others.[7] Thus as one ruler becomes increasingly powerful relative to the others, the outcome is all but inevitable. We summarize the results in the following series of observations:

Observation 1a. Secular rulers will seek to augment their power through control of the sacred and, in particular, through control of sacred locations.

Observation 1b. In the absence of an ongoing struggle for power, centers of sacred power will move to centers of secular power or vice versa.

Observation 1c. A "sacred capital" is most likely to arise within the domain of a ruler that enjoys substantially more power than other rulers.

This certainly describes the standard situation, whether in ancient Egypt, biblical Jerusalem, 4th century Rome and Constantinople, medieval Rome, or 19th-century Salt Lake City.[8] From ancient times through the present, we observe palace and temple in close proximity whenever a strong central government rules an entire region. History records numerous attempts at the cartelization or cooptation of religious powers, or failing that, their wholesale replacement with new alternatives (most notably the Church of England under Henry VIII).

Geographic proximity allows the political leadership to exert influence over the religious leadership, and visa versa. Citizens are less likely to oppose secular leaders who appear to enjoy a supernatural mandate. In practice, however, the religious leadership receives a *quid pro quo* in the form of secular support for its "established church" and suppression of all competing faiths and institutions.[9]

Yet there are limits to the linkage of sacred and secular. The countervailing forces include: (a) demand for a greater range of products than any one "church" can supply (due to natural variation in people's preferences and socio-economic circumstances); (b) a large (actual or latent) supply of alternative spiritual producers and products (due to the near absence of scale economies and natural barriers to entry in the spiritual sector); (c) disappointed customers (because state-run religions do a relatively poor job satisfying popular demand for spiritual goods and services); and (d) problems of credibility (because even the most poor and ignorant populace tends to discount the self-serving claims of secular rulers and their spiritual collaborators).[10]

In practice, therefore, even the smallest and most "primitive" cultures maintain a formal separation of sacred and secular power. Priesthood and royalty almost always occupy separate classes, no matter how closely they collaborate. And even the strongest state-sponsored church constantly battles the threat of schism, foreign faiths, upstart sects, folk religions, and self-employed suppliers of sacred services.[11]

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[7] Formally, we are assuming that secular power varies across rulers, perhaps in relation to their domain's population or wealth, and that the benefits from I is an increasing function of ruler i's (secular) power.

[8] The medieval struggle for secular control over sacred authority reached its peak when the French king captured the pope and moved the papacy to Avignon, where it remained from 1302 to 1378. From that date until 1417 there were two popes, one in Rome and one in Avignon, and from 1409 to 1415 there actually were three.

[9] For more on the problematic link between church and state, see Smith's (1981 [1776]) penetrating analysis of Europe's established churches.

[10] For more on the theoretical and historical limits to religious monopoly, see Finke and Stark (1988), Iannaccone (1991), and Iannaccone et al. (1997).

[11] The battles between Irish-Catholic and English-Protestant factions in Ireland provide a recent example of ongoing conflict between the governments and one or two major opponents. In this context, religion becomes a major source of countervailing power, especially when the state has a history of trying to fully co-opt the religion or there exist competing religious factions.

The preceding generalizations apply not only to "class one" equilibria in which a single location functions as the spiritual capital for many domains, but also to the "class two" equilibria in which each domain maintains its own spiritual capital. Though we have modeled each domain as an irreducible unit, real-world domains comprise many different subgroups (including families, clans, neighborhoods, and villages), most of which can function independently. Indeed, virtually all real-world polities have arisen through the deliberate (and often violently coercive) fusion of pre-existing subgroups. Hence, within each of the many separate domains of a "class two" equilibrium, there typically exists a small-scale version of the "class one" equilibrium. And over time most multi-state "class one" equilibria evolve one or more nations or empires in which the formerly independent states function as subsidiary units and the sacred capitals function as established religions.

2.4. Free market faiths: the American alternative

The United States represents a very different solution to the problem of church and state. A "class-one" system was totally unacceptable to thirteen fiercely independent and religiously diverse colonies. Nor was there ever much chance of unification around a neutral "class three" nexus. Each colony had already developed its own sacred domain, and the colonies already had political and economic institutions that worked well *without* much input from religion.[12]

The framers of the US Constitutions therefore decreed that "Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof." Although we now equate this phrase with "the separation of church and state," its original import was quite different. The First Amendment did not mandate disestablishment or freedom of religion; it merely kept *federal* government out of the process. Each state could regulate religion within its own boundaries, and many states did, in fact, maintain their own established churches well into the 19th century. The Constitution favored a "class two" equilibrium, where "local dominance" prevails.

But the equilibrium proved unstable. Some colonies had disestablished their churches even before joining the union, and others had granted religious freedom from the start. Cross-state migration and the growth of new denominations weakened popular support for established churches in the remaining states. Moreover, the nation's political and economic institutions worked well and enjoyed substantial legitimacy, so secular elites had little incentive to "purchase" sacred support. Stated in the language of our model, the political benefits from establishment fell and the compliance costs rose. By the early-1800s, virtually all states had abandoned establishment. The US became the world's first *laissez faire* religious market, the sacred became a fully independent "industry," with overall rates of religious diversity, innovation, participation all grew sharply (Iannaccone et al., 1997).

Observation 2a. The benefits from religious establishment tend to decrease as secular support for political and economic institutions increases.

Observation 2b. The costs of religious establishment tend to increase as the population becomes more diverse.

Observation 2c. As secular control over sacred decreases, religious markets become more diverse, sacred authority becomes less concentrated, and sacred activity becomes less centralized.

2.5. Neutral nexus: an overlooked equilibrium

Since the late-1980s, a sizeable literature has emerged contrasting religious outcomes under (American-style) "religious competition" versus (European-style) "religious monopoly." Together with other forms of imperfect competition, the (commercial) market metaphor suggests that these models provide a fairly complete description of the figurative and literal religious landscape. But commerce-based models ignore at least one important alternative. This case, which we shall call the *neutral-nexus*, falls more within the realm of political economy than the theory of the firm. It is, as we shall later show, epitomized by the Delphic Oracle.

Consider the situation confronting a group of autonomous "polities" that share a common culture, close economic ties, and occasionally depend upon each other for mutual defense. This situation arose among the city states of ancient Greece, the Etruscan city-states prior to the founding of Rome, in Mayan civilizations, and many other cultures and eras (Renfrew and Cherry, 1986). The ruling class of each polity seeks to maintain its power and when possible to extend its power through annexation or domination of other polities. Such situations approximate a multi-person prisoners' dilemma, which readily degenerates into nonstop conflict.

As Morgan (1990) notes, "in the context of inter-state competition, sites like Olympia, Delphi, Dodona or Delos, located in the marginal areas and outside the direct control of any single major power, would have been inviting places for states to meet and exercise their rivalries without threat of interference." Such sites can benefit the entire region – even the competing rulers – as long as they remain independent and neutral. Continued independence is, however, far from automatic. If secular rulers routinely seek to co-opt the sacred sites within their borders, how much more will they value control of one that enjoys

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[12] One might describe the US Constitution as a framework for strengthening, structuring, and legitimating the political and economic ties that already coordinated activities across the colonies – a framework that gave each state tremendous control over its internal affairs while also insuring the "neutrality" of the federal nexus.

trans-national authority? But mutually advantageous equilibria are sustainable when no single state can stand against an alliance of other states.

A sacred place constitutes a natural "focal point" by virtue of its special character – after all, "special" is what the sacred is all about. It provides a potentially neutral meeting place and a hub for aggregating and disseminating information as people travel between it and other places. Trans-national status provides more spiritual authority and legitimacy than can be produced by any single state-based "church," making it more likely that many states will come to its defense if one state or group of states seeks to take control.

The neutral-nexus equilibrium is Pareto superior to the "local dominance" equilibrium in which each player visits a space in its own domain. How do players reach this equilibrium? History suggests that the outcome is most likely when the polities share a common culture (including shared language, customs, and beliefs), are of similar size and strength, have similar social and political structures, and benefit from exchange of goods and information.

Observation 3a. When a cluster of polities share a common culture and close ties, a free-standing sacred center can operate as a welfare-enhancing "neutral nexus" – a hub of exchange, coordination, and integration. It thus becomes an *independent sacred capital.*

Observation 3b. A sacred capital is unlikely to remain independent if it lies within the domain of a powerful state. Hence, independent sacred capitals are usually located along borders or within relatively weak states.

Exactly the same logic applies to top-level *political* capitals in multi-state nations. Colonial representatives selected Washington DC as the locale for federal government precisely because it lay outside the borders of powerful states like Virginia, Pennsylvania, and New York. The choice of neutral turf reduced the likelihood that any one colony would wield excessive influence over matters of concern to all – and this choice was deemed important even though the Constitution already included special provisions to limit the power of the federal government over the affairs of individual states and other provisions to limit the influence of large states within the federal government. The same logic can be seen at work in the choice of Australia's capital of Canberra and Canada's capital of Ottawa.

3. Putting the theory to work: Delphi

Sacred institutions can help people coordinate their knowledge and activities; and if ever there was a culture in need of coordination it was Archaic Greece (800-480 BCE). The civilization that emerged from the quasi-feudal world of "Dark Age" Greece comprised hundreds of autonomous tribes and city-states – each fiercely independent, highly competitive, and frequently at war. No system of governance operated above the local level, nor was economic activity organized through market exchange.[13] Yet these small and scattered groups of farmers and artisans created a body of painting, poetry, drama, sculpture, architecture, literature, philosophy, political theory, science, mathematics, technology, and warcraft equaling than that of any ancient empire. The "invisible hand" of ancient Greece remains something of a mystery, but religion certainly played a major role, and no religious institution was more important than the sanctuary of Delphi (Fig. 1).

In many respects, Greek religion mirrors the character of Greek social and political life. Greek supernaturalism encompassed numerous independent shrines and temples, varieties of rituals, many methods of divination, a vast and changing body mythology, and a huge unstable pantheon of divinities, who though capable of concerted action were always competing, often in conflict, and occasionally at war. Yet it is widely believed that this cultic chaos enhanced Greek identity, stabilized social and political institutions, and promoted inter-state cooperation, communication, and exchange.

In the midst of so much conflict and competition, how did the sanctuary of Delphi acquire preeminent status? And why did that status grow as economic and military power became increasingly concentrated around Corinth, Athens, Thebes, and Sparta? The ancient Greeks had an easy answer: Delphi was the "navel" of the earth and universe, a holy site established by the gods, and the Oracle thus spoke with divine authority from the dawn of history. It is tempting to recast these stories as evidence of some pre-historic "lock in," whereby Delphi's sacred status became self-reinforcing long before the rise of city-states.

But in the case of Delphi, parables of path dependence are as misleading as Homeric myth. Archeological evidence shows that the area around Delphi was uninhabited for centuries prior to the mid-9th century, that the Delphic sanctuary did not exist before the early-8th century, and that it only served local and regional interests until the late-8th century. Moreover, divination by oracle was a relatively late addition to the cultic activities at Delphi, beginning around the end of the 8th century, and no temples or other large religious structures were built at Delphi before the mid-7th century (Morgan, 1990, pp. 106–108, 132–137, 146–148).

Not only does Delphi rise much later than claimed by myth, it actually rises later than many other sacred places in Greece. We see temple construction all over 8th century Greece but largely *within* the bounds of major city-states. Construction at

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[13] As Engen (2001) emphasizes in his summary of contemporary scholarship, the production, distribution, and consumption of goods and services in Archaic and Classical Greece (776–480 BCE, and 488–323 BCE) were too deeply "embedded" within the institutions of social, political, and religious life to sustain an independent economic sector, much less a system of market exchange coordinated by prices, profits, and private property. Market exchange became much more prevalent in the third-century Hellenistic era.
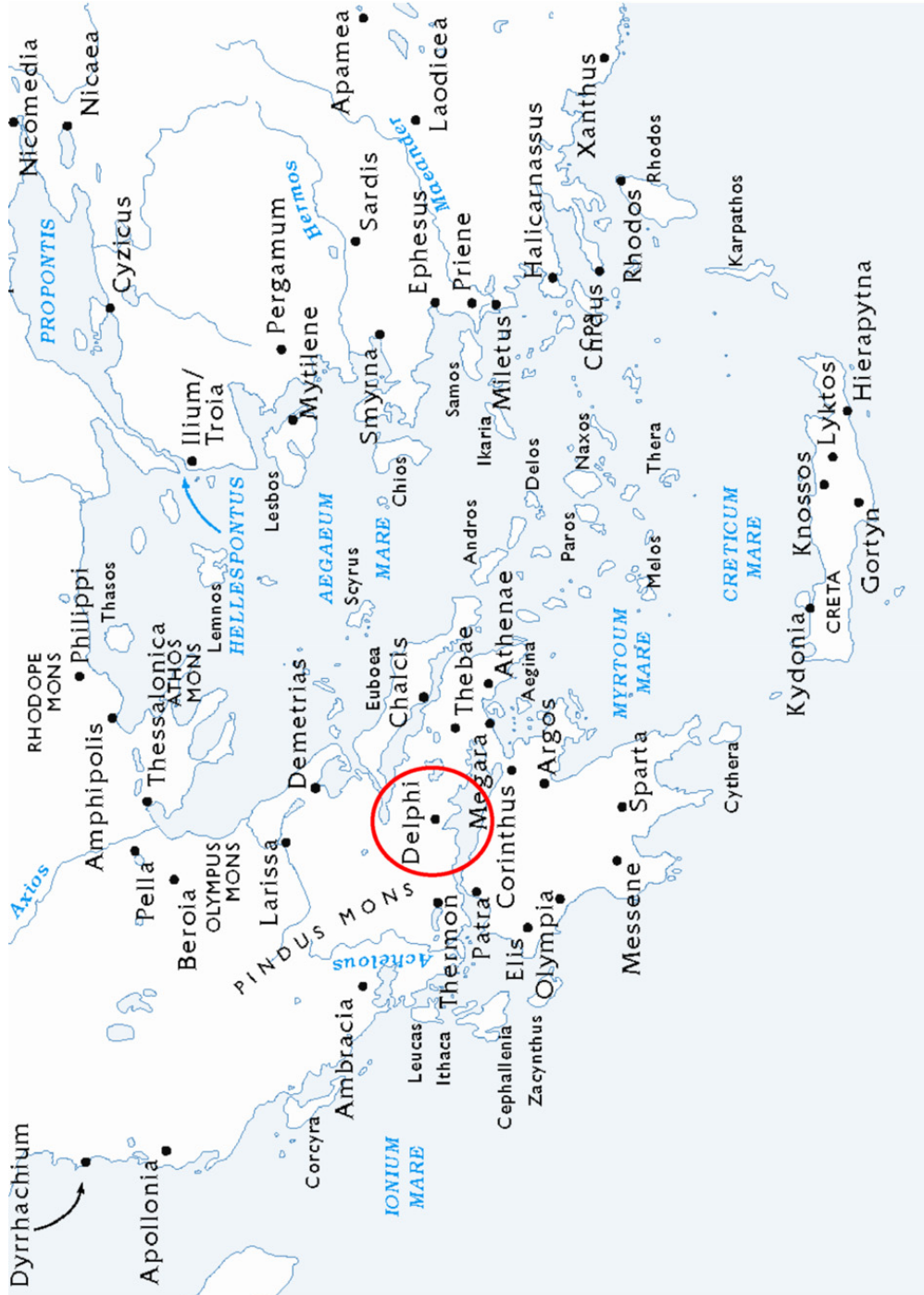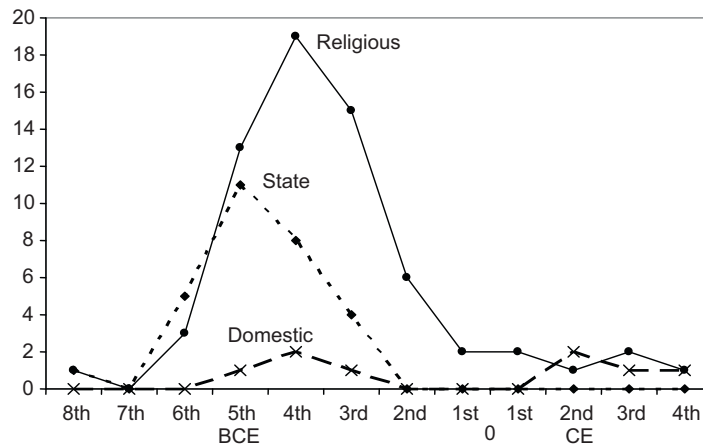
Fig. 1. Ancient Greece.

Fig. 2. Oracular inquires by time and topic.

the inter-state sanctuaries of Delphi, Olympia, and Delos begins nearly 100 years later and those first temples are relatively small (Morgan, 1990, pp. 5–7, 16; Snodgrass, 1986, p. 55).

To make sense of the sequence, consider again our model of sacred spaces. As each new city-state was born, whether by conquest or coalition, from the feudal clans of Dark Age Greece, its first priority was the creation of a unified new identity, social order, and political system. The odds of success almost certainly grew if the community could establish a local center of cultic activity – a real-world analog of our formal model's second equilibrium.[14] The "establishment" of state religion is thus literally written in stone, for as classicist Morgan (1990, p. 5) notes, "large monuments such as temples or treasuries" clearly signify "the harnessing of cult activity to the advantage of participants states, which often coincided with the formalisation of ritual into a state system." This form of establishment occurred again (and again, and again) all across Greece, in an environment that did not favor scale (due to the many hills and islands) but did facilitate imitation and innovation (due to common culture and gains from trade). The initial result was an 8th century landscape littered with local temples, festivals, rituals, myths, and divinities but all derived from a single "religious market" based on common language, history, geography, technology, mythology, art, and more.[15]

As the city-states grew in area and population, interactions among them became more extensive, beneficial, *and* dangerous. A different geography or different level of technology might have led to centralization, but communities remained small and independent. The "visible fist" of empire was held at bay, while an "invisible hand" of cultural institutions guided cooperation, competition, and even conflict. Sacred activities and institutions played a key role in this process as well, but only if located *beyond* the controlling influence of the great states. It is therefore no coincidence that Delphi and Olympia, the two greatest "pan-Hellenic" sanctuaries, were both located in remote areas far from any major city-state – marginality was, in fact, central to their success.[16]

How did Delphi become truly "pan-Hellenic"? The decisive shift occurred around 600 BCE, when an inter-state league (known as the *Amphictyony*) freed Delphi from all local control.[17] Soon thereafter, the league instituted a major quadrennial festival organized along the lines of the games in Olympia. Oracular divination became much more important, especially in affairs of state, and the number of inquiries appears to have skyrocketed (Fig. 2).[18] States spent huge sums erecting statues and "treasuries" at Delphi to commemorate victories and give thanks to the oracle.

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[14] Morgan (1990, pp. 7–15) provides numerous examples of cultic centers located in places that helped to consolidate the political structure of individual states.

[15] According to Morgan (1990, p. 2), "competitive emulation is a striking feature of the early Greek world . . . [including] the adoption of tyrannical government and the hoplite model of warfare or, more tangibly, via architectural imitation. Sanctuaries of all sorts were central to this process, both as symbols of state achievement and identity to be noted and copied, and as contexts for the controlled expression of inter-state rivalries."

[16] The remote and undesirable character of the tiny island of Delos, yet another pan-Hellenic sanctuary, is emphasized in the *The Homeric Hymn to Delian Apollo* (ll. 51–61): "Delos, if you would be willing to be the abode of my son Phoebus Apollo and make him a rich temple –; for no other will touch you, as you will find: and I think you will never be rich in oxen and sheep, nor bear vintage nor yet produce plants abundantly. But if you have the temple of far-shooting Apollo, all men will bring you hecatombs and gather here, and incessant savour of rich sacrifice will always arise, and you will feed those who dwell in you from the hand of strangers; for truly your own soil is not rich." (Source: http://www.templeapollo.com/homer_delian.html, 6/29/2010).

[17] According to Parke (1967, p. 65) "the Delphians came to occupy a position unique in Greece. They ceased to be reckoned as members of their old tribal unit . . . and stood apart from any local association. They owned no extensive lands, but lived off the profits of the temple and its visitors. They acquired a kind of Panhellenic status through the inter-tribal structure of the Amphictyony. At the same time they retained complete control of the oracle itself. The priestly officials continued to be drawn exclusively from the Delphians. . . . the [Delphic] Pythian oracle became even more widely recognized as the chief center of its kind in the Greek world."

[18] The data for Fig. 2 are complied from Fontenrose's (1978) exhaustive catalog of oracular responses preserved by ancient sources. Fontenrose carefully categorizes responses by probable date, topic, consultor, and historical reliability. We include all responses deemed "historical" or "quasi-historical," and exclude all deemed "legendary."

Taken together, these many changes really did turn Delphi into a nexus for sharing information, resolving conflicts, legitimating policies, and much more. People from all over Greece travelled to Delphi, Olympia, and the few other pan-Hellenic sanctuaries to worship and sacrifice to the gods, attend athletic and artistic competitions, and hear public lectures. Though constantly warring at other times and places, the Greek city-states refrained from fighting within the domain of sanctuaries and suspended military action to facilitate travel to and from the sanctuaries during festivals. Individual city-states erected public buildings known as *treasuries* at Delphi and Olympia, to display official proclamations, commemorate victories, thank the gods, and house valuable offerings including a tenth of the spoils of battle. Delphi's neutrality and relative security made it an ideal place for deposits of wealth. Indeed, it is claimed that because of the protection provided by the Amphictyonic League, Delphi "appears to have become the great bank of Greece" (Gilbart and Michie, 1968, p. 3). These costly monuments must also have functioned as credible signals and commitment devices. A city-state would surely fight harder to defend an outcome celebrated in stone before all of Greece.

But of course it was the Oracle that constituted Delphi's most distinctive feature and most important contribution to inter-state relations. Modern scholarship has largely refuted many popular notions concerning the Oracle, most notably the myth that the Priestess answered inquiries in a frenzy or trance, speaking nonsense that others reworked into enigmatic prophesies. In the typical consultation, representatives of a city-state or powerful individuals would approach the Oracle with a clear inquiry and receive a clear answer, usually a simple "yes" or "no" (Bowden, 2005, p. 19; Morgan, 1990, p. 151) Access to the Oracle was limited, with priority accorded to leading states, and the Oracle only spoke on the seventh of each non-winter month. In contrast to other oracles which operated in similar ways but served local populations, consultations with the Delphic Oracle primarily concerned matters of state. The dominance of state over domestic inquiries stands out in Fig. 2, which tabulates statements by type and date. City-states sought Oracle help with difficult policy decisions that were controversial, costly, and had impact beyond the boundaries of a single state – including, for example, decisions about boundaries, wars, law codes, constitutions, tyrants, famine, and the founding of new colonies. The Oracle thus functioned as a divine court of appeals (Wilson, 2006).

Scholars have wondered how Delphi managed to function so effectively and for so long. Our answer ties back to our multi-player model of sacred spaces. As long as the major city-states of ancient Greece remained small, autonomous, and relatively equal, they all benefitted from the sort of "neutral nexus" that could only exist beyond their individual boundaries. Though the archeologists and classicists have not employed the language of game theory or religious markets, the most careful recent work strongly affirms our basic argument.[19] Snodgrass (1986, p. 53) concludes that "Delphi was evidently acting as the main central clearinghouse for information of a geographic and political kind which was of potential value to many different cities and their governments [and] was also being used as an instrument of persuasion by pressure groups." And Morgan (1990, p. 183) emphasizes "[t]he location of the Delphic oracle outside the boundaries of consulting states almost certainly ensured its continued popularity by removing it from the direct control of any single interested party." As for the seemingly magical character of Delphi's authority, we do better to invoke self-interest than superstition:

> How was Delphi able to embark on this career in the first place? Like the Pope, it had no divisions, yet the most powerful cities felt the need of its sanction. . . . The explanation must surely be that a culture so politically fragmented as Archaic Greece was very much in need of a common arena . . . The alternative of direct interaction, when there were more than two hundred separate polities . . . would have required an extremely elaborate network of communications. (Snodgrass, 1986, p. 54)

The magic did not last forever. As can be seen in Fig. 2, the Oracle's rapid 7th-century rise was mirrored by an equally rapid 4th-century fall. In part, Delphi fell victim to its own success. "Sacred Wars" were fought by states seeking to control the Oracle and plunder the treasuries. But with the help of member states, Delphi repeatedly rebuilt itself and reasserted its independence. Delphi's final fall occurred only after it came under Philip of Macedon's protection (and influence). A unified Greece had little need for a remote nexus, and the unifying power had no interest in neutrality. Nor did Alexander or the Romans have any desire to make Delphi a center of state religion. The marginal location that served it so well in the days of city-states doomed it to obscurity in the era of empires.[20]

4. Extensions

4.1. From ancient Greece to early Israel

Readers might suspect that Delphi fits our argument simply because the latter was invented to explain the former. Let us pause therefore to consider the role of sacred shrines in ancient Israel, a culture quite different from that of ancient Greece.

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[19] De Geus (1976, p. 195), however, explicitly invokes the notion of a strategic equilibrium, noting that "The [Greek Amphictyony] partners joined in association against a possible or actual enemy from without, but their first object was to be safe from one another. One might call such a league the cultic confirmation of a political equilibrium." The spirit of Nash strikes again.

[20] Political inquiries all but vanished by the time the Aetolian League took control of the Oracle at the beginning of the third century. Religious inquires persisted longer, but eventually gave to private inquiries. By the time Plutarch (senior priest at Delphi) wrote his famous essays on the Oracle around 100 CE, Delphi had become a political and cultic backwater, used primarily for mundane private inquiries and as a location for issuing proclamations or publishing legislation (Parke, 1967).

We readily acknowledge the debates that rage over biblical history, and we know that some distinguished scholars go so far as to deny the very existence of ancient Israel.[21] Our goal, however, is simply to note the many ways in which the traditional narrative of Jewish history parallels our abstract models of sacred space.

The basic story is well known, recounted in the first half of the Hebrew Bible. The Israelites escape Egypt under the leadership of Moses, receive God's law at Mount Sinai, and eventually settle in the land of Canaan (later known as Israel and Palestine). They exist in a loose confederacy of twelve tribes for about 400 years, and become a united kingdom around 1000 BCE, first under Saul, then David, and then Solomon. Much more follows, but our concern centers on the relationship between religious and political authority in the era of tribal confederacy and early monarchy.

Note first the importance of geography. By virtue of its fragmented terrain and absence of major rivers, the land Canaan was poorly suited for centralized government, especially in the hill country that formed the backbone of Israel.[22] Except when a powerful Egyptian or Mesopotamian empire managed to dominate from a distance, Canaanite society was fragmented and tribal. And as in ancient Greece, these units were fiercely independent, highly competitive, and frequently at war. In this respect, the tribes of Israel were just like their neighbors. Only when confronted with external enemies did they rally (under the leadership of a "Judge") to mutual defense, and even then the typical union was fleeting and limited to only a few tribes.

The tribes of Israel thus formed a classic "peer polity," united by language, customs, and religion. Coordination was achieved principally through a shared religion, which included a shared cycle of holy days, shared rituals, shared rules of conduct, and above all shared sanctuaries operated by priests drawn from the tribe of Levi. The religious power of the Levites was offset by the fact that they had no tribal land of their own and lived in special cities scattered throughout the twelve other tribes. Israel's preeminent shrine was the tabernacle, located for most of its history in the city of Shiloh – and Shiloh was remotely located in the hill-country of Ephraim. It had no it had no military value, nor was it a center of population, farming, or trade.

The tabernacle housed the Ark of the Covenant, the place of God's literal presence and hence the ultimate focal point for the people and their God. It was at Shiloh that Israel's tribal leaders assembled to make many of their most difficult and important inter-tribal decisions, including the initial division of tribal lands (Joshua 18:10) and the identity of Israel's first king (I Samuel 10: 17–24) – both of which were determined by the casting of lots.

The tribal confederacy eventually gave way to monarchic centralization legitimized through control of the sacred. Saul, the first king of Israel, attained only limited control over the tribes and reigned from Gibeah while the tabernacle remained far away in Shiloh. (Interestingly, Saul's greatest sin involves a usurpation of sacred authority reserved for the priests.) Centralization increased greatly under King David who extended the kingdom to all of the tribes, imposed taxes and military conscription, established Jerusalem as the nation's new center.

In contrast to the remote city of Shiloh, Jerusalem was a large and important fortress town even before it became capital of David's twelve-tribe Kingdom. David moved the tabernacle from Shiloh to Jerusalem, and his son Solomon replaced the (portable) tabernacle with a grand temple, forbade worship anywhere else, thereby bringing the priestly authority of the Levites and their shrines into permanent union with the secular power of the monarchy.

Whether actual events, semi-historical legend, or outright myth, this much is clear: The biblical narrative captures the same themes that appear in our abstract models and in Greek history. The stories of Israel highlight the political importance of sacred centers, the value of an independent spiritual capital in times of fragmented power, and the inevitable transition to "established" religion and church-state alliance as power becomes centralized. A single explanatory framework fits both Delphi and Shilo despite the fact that the ethical and theological worldview of Jewish monotheism is far removed from that Greek paganism.[23] The correspondence is so tight that a few substitutions suffice to convert a leading scholar's summary statement about Delphi into an equally accurate statement about Shiloh.[24] The original summary reads as follows:

> The *Delphians* came to occupy a position unique in *Greece*. They . . . stood apart from any local association. They owned no extensive lands, but lived off the profits of the temple and its visitors. They acquired a kind of *Panhellenic* status through the inter-tribal structure of the *Amphictyony*. At the same time they retained complete control of the *oracle*

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[21] Among these "Biblical minimalists" are Lemche (2008), Thompson (1999), and Finkelstein and Silberman (2001). For alternative views, see Dever (2003), Anderson (1986), and Gottwald (1985, pp. 261–324). If the biblical narratives are entirely devoid of history, then it becomes very difficult to explain how a decentralized, centuries-long process of writing, compiling, and revising numerous fictional fragments produced a mythic history that captures so many modern social-scientific insights.

[22] It also occupies the strategic corridor between Egypt and Mesopotamia, regions whose great plains and rivers do sustain major empires. So Canaan is economically important to both these areas but hard to control by either one, and Canaanite tribes and kingdoms often flourish and maintain a substantial degree of autonomy by forming alliances that play one great power against another. Things go to hell, however, when the balance of power is lost and Northern powers (first Assyrians, and later the Babylonians) take over, destroy the temple, and deport much of the population. Jewish culture survives because the religion becomes fully "portable," no longer linked to any particular place, not even a moveable tabernacle and ark. See Anderson (1986).

[23] Indeed, Burkert (1985) emphasizes the near impossibility of even describing Greek "religion" in a manner that is comprehensible to people whose thinking has been shaped by Western (Judeo-Christian) traditions.

[24] We are by no means first to note correspondences between the Delphic Amphictyony. In fact, most mid-20th century scholarly work on the early history of Israel was shaped by Noth's (1958) "amphictyony hypothesis." But the theories of Noth and his contemporaries are much too elaborate (for example, emphasizing leagues of exactly 12 members), credit leagues with far too much permanence and influence, and view them as the *source* of pan-Israelite and pan-Hellenic identity. For a critique of Noth, see de Geus (1976).

itself. The priestly officials continued to be drawn exclusively from the *Delphians*. . . . *Delphi* could stand as the god's mouthpiece in addressing all the *Greeks*. (Parke, 1967, p. 65)

To summarize the situation at Shiloh, just swap proper nouns:

The *Levites* came to occupy a position unique in *Israel.* They . . . stood apart from any local association. They owned no extensive lands, but lived off the profits of the temple and its visitors. They acquired a kind of *pan-Israelite* status through the inter-tribal structure of the *covenant.* At the same time they retained complete control of the *tabernacle* itself. The priestly officials continued to be drawn exclusively from the *Levites*. . . . *Shiloh* could stand as the god's mouthpiece in addressing all the *Israelites.*

4.2. The mechanisms of divination

Though we have devoted much of this paper to the Delphic Oracle, we have skirted questions about the Oracle's method of divination and its capacity to induce compliance. We conclude with some observations based on historical sources, anthropological field studies, and economic theory.

We can dispense immediately with the notion that the Oracle's pronouncements were sustained by mere credulity. The inquiries concerned matters of life and death and inevitably created powerful factions of winners and losers. Moreover the inquirers were the elites members of a culture whose understanding of power relations and political institutions embodied more rationality, reflection, and cynicism than the world had ever before seen (and their cynicism extended to the gods, whom they viewed as selfish, flawed, and fickle).[25]

A more attractive notion, and certainly one with some merit, is that Delphi (and oracular divination in general) derived some of its perceived value and legitimacy from the diviners' capacity to pool information or balance interests. Monthly audiences and quadrennial festivals attracted representatives of many different groups, and savvy priests could gather information up to the actual moment of prophesy. But the visiting parties were well-equipped to gather their own information and negotiate their own deals, and any opportunity to influence the oracle via bribes, threats, or information would certainly be embraced by all clients, encourage rent-seeking on the part of Delphi itself, and (probably) undermine the legitimacy of the entire operation.[26]

The best research on Delphi leads us to emphasize *randomness* together with a tendency to affirm the status quo. Moreover, we are struck by how many mechanisms of divination (across a wide range of eras and cultures) include random components – most notably in the casting of lots, but also in the rule-based interpretation of cracks in animal bones, the shape or condition of animal organs, the wafting of smoke, and so forth. Anthropologists have long noted the potential value of decision making mechanisms that incorporate randomness, especially in the sort of strategic situations modeled by modern game theory (Moore, 1957). And behavioral psychology strengthens this position further still by demonstrating the cognitive biases that plague even the most intelligent, educated, and modern members of our race.[27]

Delphi's clients were elite actors, well-versed in politics, and willing to resort to war. They approached the Oracle with precisely those questions that they had *failed* to resolve via laws, customs, negotiations, payments, threats, lower-level venues, rational reflection, and the like.[28]

In this context, the optimal mechanism might well be semi-random, especially if it favored the status quo. In fact, the parties might tolerate nothing less, since "rational" processes would be more readily subject to manipulation, hence less likely to be trusted, and thus more likely to unravel (especially since the oracles neither had, nor were permitted to have, enforcement powers of their own).[29]

Semi-random divination is a terrible substitute for standard strategy and tactics, both on the battlefield and off; but it can be a terrific complement in those mixed-strategy moments where a success depends on committing yourself to an essentially arbitrary course of action.[30] The higher the stakes, the more success requires full commitment of all one's resources. And the more it depends on the concerted, confident action of many players, the greater the value of a widely accepted randomizing device.

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[25] No one familiar with the political life of ancient Athens can believe that its leaders and citizens were cowed by tradition or superstition at Delphi while simultaneously employing sophisticated democratic and constitutional methods for their most important decisions at home. Rather, democratic methods were neither effective nor enforceable across states, nor probably were any other seemingly rational decision methods.

[26] We read of many attempts to manipulate the Delphic oracle, including the Spartan Admiral Lysander's bribes to obtain oracular support for his military plans during the Peloponnesian war (431–404) and the Spartan King Agesipolis shopping among oracles during the Corinthian War (387). Xenophon also tells of individuals posing loaded questions, by asking how best to honor the gods on a given a voyage, rather than asking "if" it should be undertaken.

[27] Although Slaughter (1981), Vollweiler and Alison (1983), and other anthropologists have disputed the particulars of Moore's argument, the value of randomization in many contexts is impossible to dispute.

[28] Anthropologists have noted that divination is frequently mandated when groups must agree to important and potentially controversial matters such as land disputes, property or inheritance disagreements, hunting in times of hunger, war, and accusations of serious crimes, especially "in societies that lack an effective central political authority" (de Waal Malefijt, 1968, pp. 225–227).

[29] Warneryd (2010) offers a different rationale for the use of private randomizing religious rituals under conditions of asymmetric information.

[30] Anthropologists have shown that divination is present to varying degrees in all cultures and all religious traditions (de Waal Malefijt, 1968). Although the Delphic oracle enjoyed preeminent status in matters of state, the Greeks and Romans employed divination in countless other settings, including the battlefield.

The problem is finding a mechanism whose inherent randomness is matched by its perceived legitimacy, so that it is likely to be accepted even by losers – either because they themselves have faith in the mechanism or, more likely, because they know that others believe or are committed to behave like believers. Randomization becomes problematic when it is openly acknowledged as such; hence the value of randomizing mechanisms grounded in tradition, associated with the supernatural, widely accepted, accompanied by spectacle, known for independence and neutrality or at least resistant to manipulation by competing clients.

We should not assume that divination is dead merely because we no longer trust our fate to temple priests. A sacred aura pervades our own systems of arbitration. Judges wear robes and preside over highly ritualized events. They are insulated from ordinary politics, are enjoined to interpret the law in a "blind" and neutral manner, and are granted neither legislative nor executive power. The US Supreme Court meets in a building designed to look like a Greek temple, and it hears cases only after all other alternatives have been exhausted. The court cannot be compelled to take a case; nor can it be forced to follow precedent. Yet the nation's most powerful political actors routinely accede to court rulings, even when they impose great costs upon constituencies, overturn established practices, and turn on five-to-four votes.

5. Conclusion

The economics of religion has grown rapidly in recent years, but thinking on religious markets has yet to advance much beyond Adam Smith's analysis of monopoly churches and competing sects. We have identified a third market structure, distinct from both European-style monopoly and American-style competition.

Our analysis began with a simple model of sacred space. Because all places are potentially sacred [31] the actual location of major shrines and sanctuaries is largely determined by social, political, and economic conditions. Thus the central problem of sacred geography is *coordination* rather than *inspiration*.

When sacred and secular powers interact, the most common result is a marriage of church and state. The dominant religious center moves to the political center, or vice versa, and each supports the other. We observe this market structure across Europe in the era of established churches and in the vast majority of empires, kingdoms, and centralized states throughout history. A radically different equilibrium emerges when sacred and secular powers occupy separate spheres and religious firms compete freely. The United States has been a leading example of this market structure for most of two centuries.

A third equilibrium emerges in some "peer polity" cultures – most notably those of ancient Greece and early Israel. The key component in this structure is a shared sacred capital, separate from all centers of secular power. The extraordinary achievements of the Greek city-states testify to the potential power of this neutral nexus – a power that resides in the nature of the network itself, rather than the presumed character of gods or precise content of rituals. Divination is one of the more valuable products of such systems, especially when it serves to resolve conflict in a manner that is both random and authoritative.

All this is good news, not only for the economics of religion but also for economics in general. In macro, micro, history, and (especially) development, contemporary economics continually confronts beliefs, institutions, and culture. But our methods are not well suited to outcomes that depend critically upon precise content beliefs, the unique character of institutions, and the specific components of culture. Our study of sacred space strongly affirms the value of simple models, abstract ideas, and general methods. We thus advance toward the goal envisioned by Chwe (2001, pp. 96, 99) in his closing comments on rational rituals: "The explicit application of game theory to symbolic action and culture . . . should not be considered a diversion or a side application but rather a necessary step in game theory's own internal agenda. . . . [In] pursuing the logical consequences of 'material' rationality, game theory finds culture."

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[31] "Sanctuaries are found all over the Greek world . . . inside and outside a city's walls, deep in the countryside, on mountaintops, on riverbanks and promontories, near springs of water . . ." (Pedley, 2005, p. 1).

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