Missing Discussions: Institutional Constraints in the Islamic Political Tradition

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ABSTRACT

Institutional constraints to counter potential abuses in the use of political power have been viewed as essential to well functioning political institutions and good public policy outcomes in the Western World since the time of ancient Greece. A sophisticated intellectual tradition emerged to justify the need for such constraints. In this paper we identify a new puzzle: such an intellectual tradition did not exist in the Islamic world, even if the potential for abuse was recognized. We develop a model to explain why such ideas might not have emerged. We argue that this is due to the nature of Islamic law (the Sharia) being far more encompassing than Western law, making it easier for citizens to identify abuses of power and use collective action to discipline them. We study how the relative homogeneity and solidarity of Islamic society fortified this logic.
1 Introduction

Political institutions matter for public policy. Though systematic empirical evidence for this claim is relatively recent (e.g. Persson and Tabellini, 2004), it was recognized in an intellectual tradition reaching as far back as Plato and Aristotle. In particular, this tradition provided mechanisms via which power, unconstrained by institutions, would lead to abuses and undesirable policy outcomes. These mechanisms shaped the way the “founding fathers” thought about the logic of the US Constitution (Hamilton et al., 2008). Moreover, North and Thomas (1973), North and Weingast (1989) and Acemoglu et al. (2005) argued that the “rise of Europe” was based on the creation of such political institutions.

In this paper we identify a new puzzle: A similar intellectual tradition never arose in the Islamic world. This is despite the fact that Muslim thinkers were concerned about abuses of power and had access to much of the discussion of institutional political constraints by classical Greek philosophers (for example Plato’s Republic and Laws, and Aristotle’s Ethics, even if not his Politics). Of course, positive theories exist that aim to explain the absence of ruler-constraining institutions in the Islamic civilization (Lewis, 1982; Huntington, 1996; Kuran, 2012; Blaydes and Chaney, 2013; Rubin, 2017; Bisin et al., 2021). What this research does not explain however is why notions of institutional constraints on rulers did not develop even in theory in the millennium from the rise of Islam in the 7th century to the 18th century, prior to the emergence of broader modernization and Westernization currents in the Ottoman Empire and Iran.¹

In this paper we establish this puzzle and develop a model which formalizes a mechanism that helps to make sense of it. We argue that the broad scope of Islamic law, the Sharia, made institutional constraints seem less necessary by making a ruler’s transgressions more transparent, thereby facilitating revolt against bad rulers. This mechanism is made more relevant by the assumption of homogeneous preferences among the Muslim population: in the Islamic normative tradition, all (are supposed to) want Sharia to be implemented. The resulting effectiveness of collective action stymied the development of ideas about institutional constraints.

To document this puzzle we show that Muslim thinkers, jurists, philosophers failed to develop, even in theory, ideas about the necessity of institutional mechanisms that aimed to constrain rulers. This cannot be attributed to an absence of innovation or ignorance of related ideas. The innovativeness of Islamic society generally in the Middle Ages is well documented with scholars such as Ibn Haytham (Alhazen), for example, making fundamental discoveries in optics (see Mokyr, 1990 for other examples). Additionally, as we noted, the central ideas from the Western tradition were available to the Muslim world and cited by scholars. How can we make sense of the absence of discussions on institutional constraints on rulers in the Islamic political thought for over a millennium?

In our model, government policies are divided into two categories: those that are prescribed by divine law, and those that are not. For example, divine law may prescribe a 10 percent tax

¹Since the 19th century, reformers in the Islamic world have attempted to constrain their rulers, with varying degrees of success (Mardin, 1962; Findley, 1980; Keddie, 1983; Bayat, 1991; Afary, 1996; Deringil, 1998; Hanioglu, 2008; Martin, 2013).
on particular goods, but may not specify whether the revenue should be spent on improving roads or education. The scope of divine law varies across societies. Some do not have divine law (e.g., the Roman Republic and Ancient Greek city-states); some have divine law with a broad scope (e.g., most Islamic societies – Hallaq 2009, 2014 – and some Jewish societies in antiquity); in others, divine law has a limited scope in public policy (e.g., most Christian societies).

The society is divided into a majority (believers) and a minority (non-believers) with a conflict of interest in public policy. Critically, when a government policy is prescribed by divine law, believers know the right policy for them. When divine law is silent, they remain uncertain about the right policy, i.e., the policy that is congruent with their preferences. When the scope of divine law is broader, it prescribes a larger fraction of government’s policies: At one extreme, divine law has no scope, and hence non-existent in public policy; at the other extreme, divine law specifies all public policies.

There are also two types of rulers: majority-congruent (henceforth, congruent) and majority-incongruent (henceforth, incongruent). Rulers know the payoff consequences of policies. A congruent ruler has the same policy preferences as the majority and always chooses the right policy for them. An incongruent ruler has different policy preferences than the majority. Citizens are uncertain about the ruler’s types.

A basic mechanism throughout history to hold rulers accountable is collective action. After a government policy is implemented, citizens can revolt. A successful revolt over turns the policy. Thus, while revolting against an incongruent policy may be beneficial for the majority, revolting against a congruent policy is damaging. Moreover, revolting has direct opportunity costs, and citizens face coordination and information frictions.

To model institutional constraints on rulers, we follow the dominant tradition in Western thought by developing a simple model of a “mixed constitution”, or, more specifically, the separation of powers. The majority can constrain a ruler ex-ante by dividing state authority between two rulers. Dividing authority creates deadweight loss due to increased bureaucracy and frictions in decision-making. However, it tends to reduce the citizens’ uncertainty about the congruence of government policies and it improves the chances of success if a revolt is attempted.

We study the implications of the model for the relationships between institutional constraints, the scope of divine law, societal homogeneity and solidarity (“asabiyah” in Ibn Khaldun’s terminology), and political stability. Our notion of homogeneity captures the similarity of policy preferences, especially, when policies fall under the scope of divine law (e.g., all want the implementation of Sharia). As we will discuss, while Islamic law was not monolithic, differences among mainstream interpretations were small compared to the wide range of possible laws that could be. This underlies why, as late as the 20th century, many jurists’ chief concerns about the codification (and hence unification) of laws in Iran was that the codes conform to Islamic law—see, for example, the discussions surrounding Nuri’s Article 2 in the Iranian Constitutional Revolution (Bayat, 1991; Afary, 1996). We

\[2\] For our interpretation, what matters is perceived homogeneity from the perspective of thinkers in a tradition, e.g., Muslim thinkers in the Islamic normative tradition.
model solidarity as the “pleasure in agency” (Wood, 2003; Morris and Shadmehr, 2023) an individual receives from participating in a successful revolt against a ruler perceived to be deviating from what is socially desirable.³

Our main result is that when the scope of divine law is broader, the added benefits of institutional constraints on rulers are smaller. A broader scope of divine law reduces the uncertainty among majority citizens about the correct government policy, facilitating collective action and reducing the gains from institutional constraints. Moreover, we show that the marginal effect of (a broader scope of) divine law is larger when the society is more homogeneous or when there is more solidarity amongst society. A broader scope of divine law enables citizens to better know when their rulers deviate from the right policy; however, this knowledge helps them only if they can mobilize, and their mobilization capacity depends on their homogeneity and solidarity. This implies a complementarity between the scope of divine law on the one hand and homogeneity and solidarity on the other.⁴

Our interpretation of these results is that the characteristics of Islamic civilization (in particular, a law with a broad scope stemming from the Quran, Hadiths, and early traditions), combined with the nature of society, meant that it was less desirable to construct institutional constraints on rulers along the lines advocated in the West in one form or another from Plato and Aristotle onwards. Given the costs of such institutions, revolt was a more effective disciplining device. We argue that this is a potential explanation for the lack of an intellectual tradition proposing institutional constraints. Islamic intellectuals and scholars were perfectly aware of the problem of tyranny, but saw the desirable solution as being different.

An interesting comparison, as we will discuss, is with Jewish civilization. Here, as in Islam, the scope of divine law was also broad, and the discussion of institutional constraints on rulers was absent throughout the first and second temple periods from the founding of the state up until its absorption into the Roman empire.⁵ In contrast, in the Greek and Roman civilization, in which there was no divine law, and in the subsequent Christian civilization, in which the scope of divine (canon) law was far narrower,⁶ arguments for institutional constraints on rulers were more common—even if in rudimentary forms in some periods.

The model has further implications for the relationship between institutional constraints and political stability. Consistent with Blaydes and Chaney (2013)’s empirical evidence (see

³Ibn Khaldun conceptualized asabiyyah, often translated as “group feeling” in the following way: “group feeling gives protection and makes possible mutual defense, the pressing of claims, and every other kind of social activity” (Ibn Khaldûn, 2015, p.107).

⁴In contrast, the direct effect of homogeneity or solidarity on gains from institutional constraints depends on whether a higher capacity for revolt is more valuable in the presence of such constraints. This, in turn, depends on modeling assumptions about institutional constraints. In our main model, institutional constraints and mobilization capacity (and hence, homogeneity and solidarity) are substitutes; in our alternative model in Section B of the Online Appendix, they are complements. Our main results are robust to these modeling choices.

⁵A specific example is during the Hasmonean dynasty (Bickerman, 1962; Stern, 1968).

⁶As Bernard of Clairvaux wrote in Treatise on Considerations in the mid-12th century, “True, thy [(the pope’s)] palace is made to resound daily with noisy discussions relating to law, but it is not the law of the Lord, but the law of Justinian” (Tierney, 2010, p.92).
also Finer, 1999, p.703), we show how a positive correlation between institutional constraints and stability can arise when both revolt and institutional constraints are endogenously determined in equilibrium. Moreover, we study how the inertia for institutional change depends on the scope of divine law and the societal homogeneity. This result offers insights into the effect of changes in the environment (e.g., beginning or ending of wars) that influence the costs of institutional constraints.

Substantively, our paper is related to the literature on religion and politics in general, and the comparison between Islamic and Western civilizations in particular. Blaydes and Chaney (2013) argue that because Muslim rulers initially had significant resources, they could capture and use foreigners as a military force (mamluks). In contrast, because European rulers were weak, they had to rely on local elites for military support. Thus, the European elite could constrain their rulers, while the Muslim elite could not. Similarly, Crone and Hinds (1986, p.106-7) argue that “no caliph had to negotiate in order to get revenue, taxes being paid overwhelmingly by non-Muslims... the leverage which medieval dukes and barons had against the impoverished kings of western Europe simply was not available”. Blaydes and Chaney (2013) provide evidence that from about the 11th century, the average ruler duration became shorter in the Muslim world than in the European world. They attribute this divergence to the absence of constraints on Muslim rulers. Like theirs, the relative absence of institutional constraints on rulers in the Islamic world is the starting point of our analysis. However, while their theory focuses on why Muslims had relatively less ability over the centuries to constrain their rulers, our focus is on the relatively lower demand for such institutional constraints and the puzzling absence of discussions of institutional constraints in Islamic and Jewish traditions.

More broadly, an emerging literature explains “the long divergence” in economic performance or cultural dynamics by highlighting different aspects of Islamic law and its scholars. Kuran (2012) argues that the rigidity of Islamic law (e.g., on inheritance and contracts) delayed the development of business practices and structures (e.g., corporations), causing a divergence in economic development between the West and the Islamic world. The key influence of law on politics is through its impact on economic power. Similarly, Rubin (2017) argues that the rigidity of Islamic law compared to the law in the Western tradition caused stagnation in the long run. He further discusses how the origins of Islam caused Muslim rulers to follow Islamic law to acquire legitimacy and explores the self-enforcing dynamics of this legitimation path. Bisin, Rubin, Seror and Verdier (2021) formalize and expand those dynamics to study the long-run evolution of culture and institutions. In their model, institutional concessions to religious elites raise tax revenues through their legitimation efforts and institutional concessions to secular elites raise tax revenues through their tax collection efforts. Concessions to religious elites lead to a more religious culture, which, in turn, increases the returns from such concessions. The long-run outcomes of the resulting dynamics tend to be theocracy or a secular regime—see also Auriol et al. (2023).

We share with this literature (and with many historians) the premise that the legitimacy (and hence, longevity) of Islamic rulers depended on following Islamic law and that Islamic law, despite its diversity, limited the range of legitimate policies compared to the West. However, our focus is on establishing and making sense of a novel puzzle: the missing discussions of
institutional constraints in Islamic political thought. Our explanation is based on the direct influence of Islamic law on the development of institutional constraints on rulers (in Islamic normative tradition), unmediated through its effect on the relative power of various social groups. In our analysis, it is not the specific nature of the laws (e.g., contract law) that underlies the logic. Rather, the key is the expansive nature of Islamic law, which covers a wide range of public policy issues, thereby reducing the uncertainty of the optimal policy from the believers’ perspective and facilitating revolt. Our framework highlights that the development of institutional constraints may be more closely related to the scope of the divine law than to secular politics. The large number of religious scholars and the devout segments of the population, or a Muslim thinker in the Islamic normative tradition, likely had very different policy preferences than those in a secular republic or a liberal democracy; but they, too, surely did not want their rulers to deviate from those preferred policies. We provide a potential explanation for why it made sense to them to focus on revolt as the preferred means of holding rulers accountable.

In terms of political theory, our paper follows the tradition of Macpherson (1962) which sees political ideas, or the lack of them, as being embedded in the social context. Macpherson argued that the types of arguments for political institutions that Hobbes and Locke proposed presupposed “a certain model of society” and a model that “did correspond in large measure to seventeenth century English society” (Macpherson, 1962, p.16). He characterized this as a market-based society of possessive individualists, a situation where men “continually expected to be invaded by others” (Macpherson, 1962, p.46). Indeed, Hobbes’ “state of nature is a statement of the behavior to which men... would be led if all law... were removed” (Macpherson, 1962, p.22) (see Ashcraft, 1986 for a major development of this approach). It follows from this logic that Islamic society, being different from the society that Hobbes or Locke studied, would automatically come up with different ideas about the desirable structure of political institutions. Most clearly it did not make sense to imagine a state of nature where there all law was removed, since God had provided the law at the foundation of the Islamic state. Moreover, Islamic society was not the hyper-individualistic society Hobbes and Locke considered. Our model helps to understand how these differences meant that Islamic thinkers did not innovate the types of ideas that Hobbes and Locke did.7

Our theoretical model has two building blocks: institutional constraints on the executive, and the possibility of revolt by the citizens. Both aspects have been previously studied in economics and political science. Persson, Roland and Tabellini (1997) study a democratic setting in which institutional constraints on the executive divide power between two politicians. They construct equilibria in which the conflict of interest created by the division of powers enables voters to discipline the politicians. A similar disciplining mechanism is at the core of Acemoglu, Robinson and Torvik (2013), where the legislator can reallocate the rents accrued to the ruler, thereby reducing the ruler’s rents. In Aghion, Alesina and Trebbi (2004), institutional constraints are modeled as the fraction of voters needed to block a government policy. Institutional design trades off higher extents of expropriation by bad rulers

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7This approach is not uncontroversial. Strauss (1959) for example, argued that political theory dealt with timeless universal questions such as the nature of sovereignty which were not closely connected to context. Skinner has proposed a middle ground where political ideas are grounded in certain types of context, see his essays and the discussion in Tully (1988).
and the chances of reforms, which may be blocked by a minority. In Meng (2020, Ch.2) institutional constraints are defined as processes that reduce the ruler’s future bargaining power, similar to democratization in Acemoglu and Robinson (2006).

We are agnostic about the exact mechanism through which institutional constraints improve accountability. In our main model, by separating the power between two rulers, institutional constraints ensure that congruent policies will be implemented whenever at least one ruler is congruent. This can be interpreted as providing information about the congruent policy and lowering the threshold of successful revolt as in Aghion et al. (2004), or as an unmodelled way that separation of powers reduces rent-seeking in the spirit of Persson et al. (1997). In our model in Section B of the Online Appendix, the presence of a congruent ruler does not lead to congruent policies by assumption. Instead, the equilibrium behavior of rulers reveal information about the policy, so that institutional constraints only provide the information necessary for revolt. Our focus is on comparing revolt and institutional constraints as two distinct ways of holding rulers accountable and providing novel comparative statics on the societal characteristics (e.g., the scope of the divine law) that affect the tradeoff between these two channels.

A key feature of our model is that a broader scope of divine law makes the ruler’s transgressions more apparent and alleviates the collective action problem among citizens. This feature is reminiscent of Weingast (1997)’s argument that constitutions and social consensus can act as focal points to help societies solve coordination problems. While we model information and coordination frictions in collective action, we abstract from identity and conversion, or the role of leaders (religious or secular) in instigating or controlling revolt in Islamic societies, which have been studied elsewhere (Chaney, 2013; Auriol and Platteau, 2017; Saleh and Tirole, 2021). We take a global games approach to the coordination problem among citizens (Carlsson and van Damme, 1993; Morris and Shin, 1998, 2003). Like Boleslavsky, Shadmehr and Sonin (2021), citizens have common value uncertainty (here, about the optimal policy) and they have correlated private costs, and we use their equilibrium characterization for the coordination subgame of our model.

The paper proceeds as follows. In the next section, we develop our model and derive the main results. Section 3 presents the evidence on the absence of arguments for constraining power in Islamic societies. Section 4 examines the ancient Jewish tradition and also summarizes some of the key works and arguments in the western tradition stemming from the ancient Greeks. Section 5 concludes. The Online Appendix examines the robustness of main results to alternative modeling choices.

2 Model and Theoretical Analysis

Players There is a unit measure of citizens and a ruler. Each citizen belongs to one of the two groups: majority and minority, with conflicting policy preferences. The size of majority is $M \in (1/2, 1]$ and the size of the minority is $1 - M$.

There are two types of rulers: majority-congruent and minority-congruent rulers. A majority-congruent ruler’s preferences are aligned with the majority, while a minority-congruent ruler’s
preferences are aligned with the minority. A ruler is minority-congruent with probability \( q \in (0, 1) \) and is majority-congruent with probability \( 1 - q \).

**Actions** The ruler chooses a binary action \( a \in \{0, 1\} \), representing government policy. After observing the ruler’s action, citizens simultaneously decide whether to revolt. The revolution succeeds if and only if the measure of revolters exceeds the regime’s strength \( T \in (1/2, M) \). If the revolt succeeds, denoted by \( r = 1 \), the ruler’s action is reversed, so that government policy \( a \) becomes \( 1 - a \). If the revolt fails, the ruler’s policy is maintained. Thus, the final government policy is \( d(a, r) = a(1 - r) + (1 - a)r \).

**Payoffs** Citizen’s policy payoffs depend on their group (majority or minority), the final government policy \( d \), and the state of the world \( s \in \{0, 1\} \). A minority citizen receives a policy payoff 1 if the final government policy is \( d = 1 \), and otherwise, a policy payoff of \(-1\). In contrast, a majority citizen receives a policy payoff 1 if the final government policy matches the state of the world, and otherwise, a policy payoff \(-1\).

Let \( k \) be the measure of revolters. Table 1 (Table 2) illustrates citizen \( i \)’s payoffs when \( i \) is a member of the majority (minority), where \( T \in (1/2, M) \) is the regime’s strength, \( \gamma \in (0, 1) \) is pleasure-in-agency rewards from revolting, and \( c_i \geq 0 \) is citizen \( i \)’s direct costs of revolting.

<table>
<thead>
<tr>
<th>Revolt</th>
<th>k ≥ T</th>
<th>k &lt; T</th>
</tr>
</thead>
<tbody>
<tr>
<td>No revolt</td>
<td>(1 + ( \gamma )) - ( c_i ), -1 - ( c_i )</td>
<td>1, -1</td>
</tr>
</tbody>
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Table 1: Majority citizens’ payoffs.

<table>
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<tr>
<td>No revolt</td>
<td>(1 + ( \gamma )) - ( c_i ), -1 - ( c_i )</td>
<td>1, -1</td>
</tr>
</tbody>
</table>

Table 2: Minority citizens’ payoffs.

The majority-congruent ruler is nonstrategic, always taking the action that matches the state of the world. The minority-congruent ruler’s payoff, \( u \), depends on his action, the state of the world, and whether or not a successful revolution occurred against him. In particular,

\[
u(a, r, s) = (a + (1 - a)\delta_s) (1 - r), \quad \delta_s \in (0, 1)\]

That is, the minority-congruent ruler receives 0 if there is a successful revolt against him. Otherwise, he receives a payoff 1 if he takes action 1, and a payoff of \( \delta_s \) if he takes action 0 in state \( s \). We set \( 0 = \delta_0 < \delta_1 < 1 \), so that he has more incentives to take action 0 in state 0 than in state 1, and he has more incentives to take action 1 overall.
Information  It is common knowledge that $Pr(s = 1) = Pr(s = 0) = 1/2$. The ruler always observes the state $s$. Citizens do not observe the ruler’s type, and they observe the state with probability $p \in [0, 1]$. For exposition, let $\hat{s}$ be a commonly-observed truth-or-noise signal of the state:

$$\hat{s} = \begin{cases} s, & \text{with prob. } p \\ \emptyset, & \text{with prob. } 1 - p \end{cases}$$

An interpretation is that there are various policy issues, ranging from criminal law (e.g., punishment for burglars) to public finance (e.g., the expenditure of revenue from conquests). A policy issue may be preordained/canonical or non-preordained/secular. When a policy issue is preordained/canonical, the majority has better information about the “right policy” for them. The probability that a preordained issue arises is $p \in [0, 1]$. Thus, a higher $p$ captures a larger scope of the law.

The costs of revolting $c_i$ are correlated among citizens. In particular, $c_i = \bar{c} + \rho \epsilon_i$, $\rho > 0$, where $\bar{c} \sim H = U[0, 1]$ and $\epsilon_i \sim iid F$, with $F(0) = 0$ and corresponding log-concave pdf $f$. A citizen $i$’s cost $c_i$ is citizen $i$’s private information. We take a global games approach to equilibrium selection, focusing on the equilibrium outcomes in the limit when $\rho$ is vanishingly small ($\rho \to 0$).

Timing  The timing of the game is as follows.

1. The nature determines the realizations of ruler’s type, the state of the world $s$, signal $\hat{s}$, the common value of costs $\bar{c}$, and idiosyncratic elements of costs $\epsilon_i$’s.

2. The ruler observes his own type, the state $s$, and $\hat{s}$. Each citizen $i$ observes $\hat{s}$ and her private cost $c_i$.s.

3. The ruler chooses government policy $a$, which the citizens observe.

4. Citizens simultaneously decide whether or not to revolt.

5. Success of revolution is determined, payoffs are received, and the game ends.

Strategies and Equilibrium  A majority-congruent ruler is a behavioral type who always chooses $a = s$. A minority-congruent ruler’s strategy is a mapping from the state of the world $s$ and signal $\hat{s}$ to the probability of taking action 1: for every possible history $(\hat{s}, s) \in \{(0, 0), (1, 1), (\emptyset, 0), (\emptyset, 1)\}$, the minority-congruent ruler’s strategy specifies $\sigma(\hat{s}, s) \in [0, 1]$. A strategy for citizen $i$ is a mapping from her group membership, signal $\hat{s}$, government policy $a$ and her private costs $c_i$ to a decision whether to revolt. We characterize Perfect Bayesian Equilibria in the limit when $\rho$ approaches 0.

Preliminary Analysis  Because a minority citizen prefers $d = 1$, she revolts only if $a = 0$. Moreover, because $T \in (1/2, M)$, she revolts only if she believes that some members of the majority revolt as well when $a = 0$. For this to be part of an equilibrium, the (minority-congruent) ruler must sometimes take action 0 when the state is 1, and receive a payoff of
0. If, instead, the ruler takes action \( a = 1 \), his payoff will be 0 if and only if the probability of successful revolution is 1. As we will show in Proposition 1 below, this probability is always strictly less than one due to coordination and information frictions. Therefore, a ruler never takes \( a = 0 \) when the state is 1, and consequently a minority citizen never revolts in equilibrium.

We now focus on the decision of majority citizens; henceforth, by citizen, we mean a majority citizen. Let \( q' \) be a citizen’s posterior belief that the ruler’s action \( a \) does not match the state of the world \( s \). The majority citizens’ payoffs (Table 1) and information structure maps into the coordination problem analyzed in Proposition 1 of Boleslavsky, Shadmehr and Sonin (2021) by setting \( u_r = u_0 = 1, \delta = \gamma, \theta = T \), and normalizing the size by \( M \). Because the game has only one-sided limit dominance, there is always an equilibrium in which no one revolts. As in Boleslavsky, Shadmehr and Sonin (2021), we focus on symmetric cutoff strategy equilibria with cutoffs strictly greater than 0, when they exist. Given a posterior \( q' \), we have:

**Proposition 1.** In the limit when \( \rho \rightarrow 0 \), the likelihood of successful revolution is \( \beta(q', M, \gamma) = H((1 - T/M)\gamma(2q' - 1)) \).

The likelihood of successful revolution \( \beta(q', M, \gamma) \) has natural properties: (1) it is increasing in the size of the majority \( M \), implying it is easier in a more homogeneous population. (2) It is increasing in the pleasure-in-agency rewards \( \gamma \), implying revolt is more likely to be successful in societies where the level of solidarity is higher. (3) It is increasing in the citizen’s posterior that the ruler chose a policy that did not match the state. In particular, citizens have a dominant strategy not to revolt when \( q' < 1/2 \); there is a successful revolution only if citizens believe that the ruler has likely taken the wrong (majority-incongruent) policy.

**Equilibrium Characterization** To characterize equilibrium outcomes, recall that (1) \( \sigma(\hat{s}, s) \) is the minority-congruent ruler’s strategy given signal \( \hat{s} \) and state \( s \), (2) \( \hat{s} = s \) captures preordained policy issues and \( \hat{s} = \emptyset \) captures non-preordained policy issues, and (3) \( \beta(q', M) \) is the probability of a successful revolt given a posterior belief \( q' \) that the ruler’s action does not match the state \( (a \neq s) \). First, consider preordained policy issues, so that citizens observe the state \( s \), and hence they know whether it matches the ruler’s action \( (q' \in \{0, 1\}) \). When \( s = 1 \), so that there is no conflict of interest between the ruler and citizens, the ruler chooses action 1. When \( s = 0 \), so that there is conflict of interest, the ruler faces a trade-off. Take action 1 and risk revolution for a high payoff of 1, or take the safe action 0 and receive a low payoff of \( \delta_0 \) with certainty.\(^8\) From Proposition 1, the probability of a successful revolt following action 1 is \( \beta(1, M, \gamma) \). Thus, the ruler takes action 1 whenever \( \delta_0 < 1 - \beta(1, M, \gamma) \).

Next, consider non-preordained issues, so that \( \hat{s} = \emptyset \), and hence citizens has to infer whether the state matches the ruler’s action in equilibrium. Let \( q'(a) \) be citizen posterior that the

\(^8\)When the ruler takes \( a = 1 \), minority members do not take part in the revolution because they strictly prefer to keep \( a = 1 \). Therefore, the only citizens who may participate in a revolt are the majority citizens, and Proposition 1 applies. On the other hand, if the ruler takes \( a = 0 \) when \( \hat{s} = 0 \), majority members do not take part in the revolution. Foreseeing this, minority members deduce that a revolution will never be successful, and so they do not take part either.
state does not match the ruler’s action $a$:

\[ q'(a) = Pr(s \neq a | a) = \frac{Pr(s \neq a, a)}{Pr(a)}. \]

Observe that $q'(a) \leq 1/2$ if and only if, in equilibrium, $Pr(s \neq a, a) \leq Pr(s = a, a)$. A majority-congruent ruler’s action always matches the state. Thus, in equilibrium, a sufficient condition for $Pr(s \neq a, a) \leq Pr(s = a, a)$ is that the minority-congruent ruler takes action 1 with a weakly higher probability in state 1 than in state 0; that is, $\sigma(\emptyset, 1) \geq \sigma(\emptyset, 0)$. This is ensured by $\delta_0 > \delta_1$, so that the ruler has more incentives to take action 1 in state 1 than in state 0. Now, because $q'(\hat{s} = \emptyset, a) \leq 1/2$, no one revolts and the probability of successful revolution is 0 for any $a$ (Proposition 1). Given that there is no risk of revolution in taking action 1, the minority-congruent ruler always takes action 1.

The majority citizen’s expected policy payoff can then be calculated from this equilibrium characterization. Thus, we have proved the following Proposition.

**Proposition 2.** In equilibrium,

\[
\sigma(\hat{s}, 1) = \sigma(\hat{s} = \emptyset, 0) = 1 \quad \text{and} \quad \sigma(\hat{s} = s, 0) = \begin{cases} 0 & ; \beta(1, M, \gamma) > 1 - \delta_0 \\ 1 & ; \beta(1, M, \gamma) < 1 - \delta_0 \end{cases}
\]

There is a revolt only if $\hat{s} = 0$ and the ruler takes action 1. This revolt succeeds with probability $\beta(1, M, \gamma)$. Moreover, the expected policy payoff for a majority citizen is

\[
\begin{cases} 1 - q(1 - p) & ; \beta(1, M, \gamma) > 1 - \delta_0 \\ 1 - q(1 - p \beta(1, M, \gamma)) & ; \beta(1, M, \gamma) < 1 - \delta_0 \end{cases}
\]

To simplify exposition, in the main text, we focus on the citizens’ policy payoffs. In Section A of the Online Appendix, we show that our results go through if the costs of revolt are included in the payoff of majority citizens. In particular, we show that accounting for the expected costs of revolt in citizen payoffs amounts to substituting $\beta$ with $\beta_c(\beta) = \beta - \beta^2/4$ when calculating expected payoffs. This allows us to extend our qualitative results and comparative statics when payoffs are inclusive of revolt costs.

### 2.1 Institutional Constraint, Revolt, and the Scope of Law

We now introduce institutional constraints to the model. These institutional constraints are aimed to increase the likelihood of majority-congruent government policies. We consider a particular form of institutional constraints that divide decision-making power between multiple rulers. This approach is reminiscent of separation of powers, but we are not concerned with executive versus legislative or judicial powers per se. For example, the presence of two Roman consuls is an example of this power-sharing institutional setting among rulers.

**Model** The model is the same except that there are two rulers, ruler 1 and ruler 2, whose types (denoted by $t_1$ and $t_2$) are independent. Nature determines the state $s$, the signal $\hat{s}$, the
rulers’ types, the common value $\bar{c}$ and the idiosyncratic values $\epsilon_i$’s of revolution costs. All the fundamentals and noises are independent of each other. The state is observed by both rulers, and the signal is observed by all. Moreover, a ruler observes his own type and the type of the other ruler,$^9$ and a citizen $i$ privately observes her own revolution cost $c_i = \bar{c} + \rho \epsilon_i$. Ruler 1 moves first, choosing $a_1 \in \{0, 1\}$. Then, ruler 2 observes $a_1$ and chooses $a_2 \in \{0, 1\}$. Absent revolt, the government’s aggregate policy is a function of the rulers’ actions, $A = y(a_1, a_2)$. Upon observing the rulers’ actions $a_1$ and $a_2$, citizens simultaneously decide whether to revolt. If the revolution succeeds, denoted by $r = 1$, the government’s aggregate policy is reversed. If the revolution fails, denoted by $r = 0$, the government’s aggregate policy is maintained. Thus, the final government policy is $d(a_1, a_2, r) = A(1 - r) + (1 - A)r$. Payoffs are realized and the game ends.

A majority-congruent ruler is the same behavioral type as before. A minority-congruent ruler has the same payoffs as before, and if a revolution succeeds, both rulers receive 0. That is, the minority-congruent ruler’s payoff $u$ is:

$$u(a_1, a_2, r, s) = (A + (1 - A)\delta_s)(1 - r)$$

Citizens’ payoffs are identical with the previous model, with the government’s aggregate action $A$ replacing the ruler’s action $a$. There is a deadweight loss $\mu \in [0, 1]$ due to institutional constraints, subtracted from the citizens’ policy payoffs. The deadweight loss is associated with direct inefficiencies, delays, or administrative costs of institutional constraints such as power-sharing.

To proceed with the analysis, we must specify how the actions of two rulers $(a_1, a_2)$ are combined into a government’s aggregate policy $A$. Naturally, if both rulers take the same action, the aggregate government policy is the same as individual actions. When the rulers’ actions differ, we take a certain stance. We assume that if one ruler takes action 0 and the other takes action 1, the government’s aggregate policy will be 0: $A = \min\{a_1, a_2\}$. When actions differ, citizens will know that at least one of the rulers is minority-congruent. Moreover, the division in the government weakens the rulers. Motivated by these observations and that minority-congruent rulers have more incentives to take action 1, we assume that the majority succeeds in making the aggregate government policy 0. Another rationale is that when one of the rulers is majority-congruent, he will help the majority with government resources and ensure that a revolution attempt succeeds. In Section B of the Online Appendix, we present an alternative model of institutional constraints where $A = \max\{a_1, a_2\}$, and discuss which one of our main insights remain robust to the alternative specification.

**Strategies and Equilibrium** Let $g$ denote the type of a majority-congruent ruler and $b$ denote the type of a minority-congruent ruler, so that $t_j \in \{g, b\}$, for $j \in \{1, 2\}$. As before, a ruler $j$ with type $t_j = g$ always chooses $a_j = s$. Let $\sigma_1$ be the strategy of ruler 1 with type $t_1 = b$, and $\sigma_2$ be the strategy of ruler 2 with type $t_2 = b$.

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$^9$In Section C of the Online Appendix, we present a model where the rulers do not observe each others’ types. That model has multiple equilibria, and the forward induction refinement yields a unique equilibrium outcome described in Proposition 3.
The strategy \( \sigma_1 \) is a mapping from the state of the world \( s \), signal \( \hat{s} \), and ruler 2’s type \( t_2 \) to a probability of taking action 1: \( \sigma_1(\hat{s}, s, t_2) \in [0, 1] \). The strategy \( \sigma_2 \) is a mapping from the state of the world \( s \), signal \( \hat{s} \), ruler 1’s action \( a_1 \), and ruler 1’s type \( t_1 \) to the probability of taking action 1. Given that ruler 2 observes \( a_1 \), ruler 1’s type \( t_1 \) is not payoff-relevant, and hence we drop it from the arguments of \( \sigma_2 \), writing \( \sigma_2(\hat{s}, s, a_1) \in [0, 1] \). As before, a citizen i’s strategy is a mapping from his group membership, signal \( \hat{s} \), actions \((a_1, a_2)\) and her private costs \( c_i \) to a decision whether to revolt; and we characterize Perfect Bayesian Equilibria in the limit when \( \rho \) approaches 0.

**Equilibrium Characterization under Institutional Constraints** First, consider pre-ordained policy issues, so that \( \hat{s} = s \). When at least one ruler is majority-congruent, or when \( s = 1 \) (so that there is no conflict of interest), the aggregate policy will match the state. When both rulers are minority-congruent and \( s = 0 \), the minority-congruent rulers face a trade-off. As in Proposition 2, both of them take action 1 whenever \( \beta(1, M, \gamma) < 1 - \delta_0 \).

Next, consider non-pre-ordained issues, so that \( \hat{s} = \emptyset \). Let \( Pr(t_1, t_2)(A) \) be the probability of \( A \) conditional on rulers’ types \((t_1, t_2)\), and let \( q'(a_1, a_2) \) be the citizen posterior that the state does not match the aggregate policy \( A \): \( q'(a_1, a_2) = Pr(s \neq A|a_1, a_2) \). Suppose \( s = 1 \). The majority-congruent ruler takes action 1. If \( a_1 = 1 \), the minority-congruent ruler 1 takes action 1, because action 0 will yield a payoff of 0 whereas action 1 yields a strictly positive payoff; even if a revolution attempt follows, it fails with a non-zero probability. Due to the same reasoning, the minority-congruent ruler 1 also always chooses \( a_1 = 1 \) when \( s = 1 \). This implies that \( Pr(t_1, t_2)(A = 1|\hat{s} = \emptyset, s = 1) = 1 \) in any equilibrium. Moreover,

\[
q'(1, 1) = \frac{Pr(a_1 = a_2 = 1, s = 0)}{\sum_s Pr(a_1 = a_2 = 1, s)} = \frac{Pr(a_1 = a_2 = 1|s = 0)}{1 + Pr(a_1 = a_2 = 1|s = 0)} < \frac{1}{2}
\]

That is, \((a_1, a_2) = (1, 1)\) does not provide sufficient information in favor of \( s = 0 \), and no revolts follow this action profile. This implies \( \sigma_2(\emptyset, 0, b) = 1 \) in any equilibrium: upon observing \( a_1 = 1 \), if ruler 2 takes action 0, he at most gets \( \delta_0 \); however, if he takes action 1, he will receive \( 1 > \delta_0 \). Knowing that the minority-congruent ruler 2 will follow suit, the minority-congruent ruler 1 also takes action 1 even when \( s = 0 \): \( \sigma_1(\emptyset, 0, b) = 1 \). Thus, \( Pr(t_1, t_2)(A = 1|\hat{s} = \emptyset, s = 0) = 1 \). This also implies \( q'(0, 0) = 0 \), therefore, majority citizens do not revolt following \((a_1, a_2) = (0, 0)\) and, because minority citizens cannot successfully revolt on their own, there are no revolts.

It remains to analyze what happens when \( s = 0 \) and rulers have different types. Suppose ruler 1 is majority-congruent, and ruler 2 is minority-congruent. If \((a_1, a_2) = (0, 1)\) is observed on the equilibrium path, majority citizens will deduce that \( s = 0 \): \( q'(0, 1) = 0 \), and they will not revolt because the aggregate action is 0. Because minority citizens cannot successfully revolt on their own, we conclude that there are no revolts following this action profile. Thus, ruler 2 is indifferent between the two actions, which is consistent with observing \((a_1, a_2) = (0, 1)\) on the equilibrium path: there is an equilibrium where \( \sigma_2(\emptyset, 0, 0) > 0 \). Alternatively, if \((a_1, a_2) = (0, 1)\) is never observed on the equilibrium path, Bayesian updating does not

---

10When ruler 2 is indifferent between actions 0 and 1, he may condition his action on \( t_1 \), but as we will see, that will not matter for the equilibrium government policy \( A \) or citizen decisions.
restrict $q'(0, 1)$. If $q'(0, 1)$ is high enough, ruler 2 is deterred from taking action 1, which is consistent with never observing $(a_1, a_2) = (0, 1)$ on the equilibrium path: there is an equilibrium where $\sigma_2(\emptyset, 0, 0) = 0$.\footnote{The equilibrium analysis simplifies even further if the minority-congruent ruler has a tie-breaking rule that favors $a_j = 0$ when he is indifferent. This can be microfounded by assuming that the minority-congruent ruler $j$ obtains the payoffs associated with $A$ if he takes action $a_j = A$, and 0 otherwise; or considering a infinitesimal positive payoff from taking $a_j = A$.} Regardless, in any equilibrium, the aggregate action is 0 and there are no revolts: the majority-congruent ruler 1 will discipline the minority-congruent ruler 2. The same logic applies when the order is reversed.

The following Proposition summarizes these results.

**Proposition 3.** Recall that $A$ is the aggregate government action, and $Pr_{(t_1, t_2)}(A)$ is the probability of $A$ conditional on rulers’ types $(t_1, t_2)$. In equilibrium,

$$Pr_{(t_1, t_2)}(A = s) = 1, \text{ if } (t_1, t_2) \neq (b, b).$$

Otherwise,

$$Pr_{(b, b)}(A = 1|\hat{s}, s = 1) = Pr_{(b, b)}(A = 1|\hat{s} = \emptyset, s = 0) = 1$$

and

$$Pr_{(b, b)}(A = 1|\hat{s} = s, s = 0) = \begin{cases} 1 & ; \beta(1, M, \gamma) < 1 - \delta_0 \\ 0 & ; \text{otherwise.} \end{cases}$$

There is a revolt only if $\hat{s} = 0$ and both rulers take action 1. This revolt succeeds with probability $\beta(1, M, \gamma)$. Moreover, the expected policy payoff for a majority citizen is

$$\begin{cases} 1 - q^2(1 - p) - \mu & ; \beta(1, M, \gamma) > 1 - \delta_0 \\ 1 - q^2(1 - p\beta(1, M, \gamma)) - \mu & ; \beta(1, M, \gamma) < 1 - \delta_0. \end{cases}$$

Proposition 3 shows that institutional constraints disciplines a bad ruler when he is matched with a good co-ruler, and does not change his behavior when his co-ruler is also bad.

Combining Propositions 2 and 3 enables us to compare the marginal change in a majority citizen’s policy payoff from institutional constraints, and study how it varies with the environment.

**Corollary 1.** The value of institutional constraints is:

$$\begin{cases} (1 - p)(q - q^2) - \mu & ; \beta(1, M, \gamma) > 1 - \delta_0 \\ (1 - p\beta(1, M, \gamma))(q - q^2) - \mu & ; \beta(1, M, \gamma) < 1 - \delta_0. \end{cases}$$

When the policy issue is not preordained, which happens with probability $1 - p$, both rulers must be minority-congruent for the final government policy to be $A = 1$ in state $s = 0$. Thus, the marginal benefit of institutional constraints is is $(1 - p)(q - q^2)$. When the policy issue is
preordained, but the probability of successful revolt is sufficiently high \((\beta(1, M, \gamma) > 1 - \delta_0)\),
the threat of revolt suffices to discipline the minority-congruent rulers and there is not
marginal benefit to institutional constraints. However, when the probability of successful
revolt is lower \((\beta(1, M, \gamma) < 1 - \delta_0)\), so that minority-congruent rulers risk revolt, again in-
stitutional constraints imply that both rulers must be minority-congruent and the revolution
fails for the final government policy to be \(A = 1\) in state \(s = 0\). Thus, the marginal benefits
of institutional constraint is \(p(1 - \beta(1, M, \gamma))(q - q^2)\).

Overall, institutional constraints benefit the majority both when the policy issues are preor-
dained and when they are not, but with a higher margin for non-preordained policy issues:
\((q - q^2)\) when the policy issue is not preordained and 0 or \((1 - \beta(1, M, \gamma))(q - q^2)\) when it
is preordained. Thus, a wider scope of the law (higher \(p\)) tend to reduce the added value of
institutional constraints. We now state our main formal result.

**Proposition 4.** There is threshold \(p^*(M, \gamma, q, \mu)\) such that a majority citizen’s policy payoff
is higher without institutional constraints if and only if the scope of the divine law \(p > p^*\),
where

\[
p^*(M, \gamma, q, \mu) = \begin{cases} 
1 - \frac{\mu}{q(1-q)} & ; \beta(1, M, \gamma) > 1 - \delta_0 \\
\frac{1}{\beta(1,M,\gamma)} \left(1 - \frac{\mu}{q(1-q)}\right) & ; \beta(1, M, \gamma) < 1 - \delta_0.
\end{cases}
\]

Moreover,

1. If \(p^*(M, \gamma, q, \mu) > 0\), then \(p^*(M, \gamma, q, \mu)\) is decreasing in \(M\) and \(\gamma\); strictly so if and
only if \(\beta(1, M, \gamma) < 1 - \delta_0\).

2. \(p^*(M, \gamma, q, \mu = 0) \geq 1\). For \(\mu > 0\), \(p^*(M, \gamma, q, \mu)\) has an inverted U-shape in \(q\), with

\[
\lim_{q \to 0^+} p^*(M, \gamma, q, \mu) = \lim_{q \to 1^-} p^*(M, \gamma, q, \mu) = -\infty.
\]

The threshold \(p^*\) follows from Corollary 1 and results 1 and 2 follow from the inspection of \(p^*\).
The majority can discipline the government to some extent solely by revolt or the threat of
revolt. They can also combine this accountability instrument with institutional constraints
at a cost. If these costs were negligible \((\mu \approx 0)\), they would always do so. When the costs
are higher, they must trade off the added benefits of institutional constraints against their
costs. These benefits are higher when the scope of the law is narrower \((p\) is lower), when the
society is more heterogeneous \((M\) is lower), or when the society has less “solidarity” \((\gamma\) is
lower). All these reduce the effectiveness of the revolt accountability channel by intensifying
information and coordination frictions involved in collective action. That is, the marginal net
gain from institutional constraints are lower when the revolt channel of disciplining rulers
works more effectively. In this sense, institutional constraints and revolt are substitutes.
Figure 1 illustrates \(p^*\) as a function of the degree of homogeneity in society \(M\). The majority
do not set up institutional constraints above the curve, where \(p\) and \(M\) are higher. Like the
effect of homogeneity \(M\), higher solidarity sentiments \(\gamma\) lower \(p^*(M)\), as the dashed curve in
Figure 1 illustrates.
Figure 1: $p^*(M; q, \mu)$, where $\beta(1, M^*, \gamma) = 1 - \delta_0$ and $p = 1 - \mu/(q(1 - q))$. Parameters: $\mu = 0.2$, $q = 0.5$, $T = 0.6$, $\delta_0 = 0.7$, and $\gamma = 0.9$. The dashed curve corresponds to $\gamma = 0.95$.

Increases in the likelihood that a ruler is bad $q$ first raise and then reduce the added value of institutional constraints. When rulers are almost surely good $q \approx 0$ or almost surely bad $q \approx 1$, institutional constraints have little marginal effect. The effect is maximized when there is also maximum uncertainty about the ruler’s type $q = 1/2$. Figure 2 illustrates.

In Proposition 4, we focused on the threshold of the scope of the law $p$. We can also focus on the threshold of the costs $\mu$. From Corollary 1, we have:

**Proposition 5.** There is a cost threshold such that the majority citizen’s policy payoff is higher without institutional constraints if and only if $\mu > \mu^*$, where

$$
\mu^*(\beta, p, q) = \begin{cases} 
(1 - p)(q - q^2) & ; \beta > 1 - \delta_0 \\
(1 - p\beta)(q - q^2) & ; \beta < 1 - \delta_0,
\end{cases}
$$

where $\beta = \beta(1, M, \gamma)$. Moreover,

1. $\mu^*$ is strictly decreasing in $p$, and weakly decreasing in $\beta(1, M, \gamma)$ (and hence in $M$ and $\gamma$); strictly so when $\beta < 1 - \delta_0$.

2. Suppose $\delta_0 < T/M$, so that there is sufficient conflict of interest that the threat of revolt does not deter the minority-congruent ruler ($\beta < 1 - \delta_0$). Then,

$$
\frac{\partial^2 \mu^*(\beta, p, q)}{\partial p \partial \beta} = -(q - q^2) < 0.
$$

Higher scope of the law $p$, societal homogeneity $M$ or solidarity $\gamma$ all improve the majority’s ability to control the ruler via revolt channel, thereby reducing the marginal value of institutional constraints, and hence the cost threshold below which they are adopted. Importantly, the second part of Proposition 5 highlights the complementarity between the scope of the law $p$ on the one hand and homogeneity $M$ and solidarity $\gamma$ on the other (recall that $\beta$ is
increasing in both $M$ and $\gamma$). Higher homogeneity and solidarity both increase the likelihood of successful revolution. Higher scope of the law enable majority citizens to better assess whether a successful revolution, which overturns the status quo, will be beneficial. These two channels complement each other: higher scope of the law is valuable because it enables citizens to better know when their rulers deviate from the right policy, but this knowledge helps them if only if they can mobilize, and their mobilization capacity depends on their homogeneity and solidarity.

Increases in the marginal costs of institutional constraints $\mu$ obviously tend to reduce their use. For example, in the Roman Republic, in which two consuls shared the highest executive office, the Senate, during times of crisis such as military defeats, sometimes authorized a “dictator” to reduce the costs of institutional constraints, including joint decision-making. Events such as foreign wars and natural disasters tend to raise $\mu$ and reduce institutional constraints on rulers. Which conditions are more conducive to the dismantlement of institutional checks due to such events? To glean insights, we introduce uncertainty about $\gamma$ and discuss the probability of adopting institutional constraints due to an exogenous change in the cost of institutional constraints.

**Proposition 6.** Suppose $\gamma \sim U[0,1]$. Let $Q = \Pr_\gamma(\mu \leq \mu^*(\gamma))$ be the probability that institutional constraints improve the majority citizen’s policy payoff. Suppose $\delta_0 < T/M$, so that there is sufficient conflict of interest that the threat of revolt does not deter the minority-congruent ($\beta < 1 - \delta_0$). Then,

\[
Q(\mu'; M, p) = \begin{cases} 
1 & ; \mu' \leq 1 - (1 - T/M)p \\
\frac{1-\mu'}{(1-T/M)p} & ; 1 - (1 - T/M)p \leq \mu' \leq 1 \\
0 & ; 1 < \mu', 
\end{cases}
\]

where $\mu' = \mu/(q - q^2)$. Moreover,

1. $Q$ is decreasing in $p$ and in $M$; strictly so when $\mu' \in (1 - p(1 - T/M), 1)$.
Proposition 6 provides insights into the effect of changes in the costs of institutions. It may be more realistic to focus on settings where society’s potential for collective action is high enough, so that the society may or may not adopt institutional constraints depending on the level of solidarity $\gamma$: $1 - p\beta(1, M, \gamma) < \mu / (q - q^2)$ for $\gamma = 1$. Thus, consider a reduction in the costs of institutional constraints from $\mu_2$ to $\mu_1 > 1 - p(1 - T/M)$, e.g., due to peacetime. This drop in costs leads societies with lower levels of $\gamma$ to adopt institutional constraints. But, as part 2 of the Proposition shows, this change tends to be smaller when the scope of the law $p$ is larger. This is because solidarity and the scope of the law are complements in disciplining the rulers: the disciplining value of higher $\gamma$s are larger when the scope of the law $p$ is higher, and hence the added-value (marginal benefits) of institutional constraints are smaller. Therefore, societies with high scope of law are less responsive to a decrease in $\mu$. Conversely, an increase in costs from $\mu_1 > 1 - p(1 - T/M)$ to $\mu_2 > \mu_1$ will cause the dismantling of institutional constraints by less when in societies with a larger scope of law $p$. That is, higher scope of law generates inertia in the institutional constraints that aim to control rulers. The same logic applies to the degree of homogeneity of the society $M$.

Taking the emergence of institutional constraints as exogenous, for a given set of parameter values, the probability of revolt attempt ($p\hat{q}/2$) and successful revolt ($p\hat{q}\beta/2$) are both lower with institutional constraints, where $\hat{q} = q^2$ and $q$, with and without institutional constraints, respectively. This observation captures Blaydes and Chaney (2013, p.24-5)’s argument that the development of feudalism (and hence some form of executive constraints) in Europe led to its higher political stability compared to the Islamic societies. However, our analysis highlights that the adoption of institutional constraints as means to hold rulers accountable may be the consequence, not the cause, of the ability of the society to mount revolts. More broadly, institutional constraints and political stability (the likelihoods of revolt attempts and successes) arise jointly in equilibrium. To see this, consider two societies $W$ (for West) and $E$ (for East), which are identical in all aspects except the scope of the law, with $p_W < p^* < p_E$. In this case, society $W$ adopts institutional constraints, but society $E$ does not. The likelihood of successful revolt in $W$ is smaller than that in $E$: $q^2\beta p_W/2 < q\beta p_E/2$. The reason is twofold: (1) conditional on an incongruent government policy, revolt attempts are more likely in society $E$ (revolt are attempted when deviations are observed, which happen with probabilities $p_W < p_E$); (2) the likelihood of deviations (i.e., incongruent government policies) are higher in society $E$, which has not adopted institutional constraints ($q^2 < q$). But as our analysis highlights, society $E$ may forgo institutional constraints exactly because it is more effective at holding rulers accountable through collective action. The following proposition formalizes this logic. It highlights how the substitutability of revolt and institutional constraints can predict a negative correlation between institutional constraints and political stability (i.e., revolt attempts and successes), both of which are determined jointly in equilibrium. In the proposition, we focus on the comparative statics with respect to our main variable of interest $p$, fixing all other parameters (e.g., $q$, $M$, $\gamma$).
Proposition 7. Suppose that $p^* \in (0, 1)$ and that $\delta_0 < T/M$, so that there is sufficient conflict of interest and the threat of revolt does not deter the minority-congruent ruler ($\beta < 1 - \delta_0$). Focusing on the scope of the law $p$ as the only source of variation, the equilibrium probabilities of revolt attempts and successful revolt are both lower in societies with institutional constraints. Formally,

$$E[pq/2 \mid p > p^*] > E[pq^2/2 \mid p < p^*] \quad \text{and} \quad E[pq\beta/2 \mid p > p^*] > E[pq^2\beta/2 \mid p < p^*],$$

for a given $q$ and $\beta = \beta(1, M, \gamma)$.

The endogeneity of institutional constraints is captured in the conditioning on the subset of parameters in which institutional constraints are or are not adopted (i.e., the added-value of institutional constraints exceeds their cost, $p > p^*$, or not, $p < p^*$). This result is consistent with Blaydes and Chaney (2013)’s empirical evidence and with Finer (1999)’s observation that, from the 7th to the 10th century, the likelihood of turmoil in Caliphate was higher compared to Byzantium Empire: “On average, Byzantium suffered a violent incident every 16.7 years while the Caliphate did so every 7.4 years - at more than double the rate” (p.703).

3 Institutional Constraints on Rulers in the Islamic Tradition

As the prophet, Mohammad (d. 632) was the leader (imam) of the Islamic community (umma). The Constitution of Medina also recognizes Mohammad as the ultimate judge and arbitrator in case of disagreements among the members of umma (Watt, 2003, p.130-4; Lecker, 2004). The tribal nature of early Muslim society and Mohammad’s emphasis on building consensus through consultation (shurā), combined with his prophetic charisma, would alleviate concerns about the concentration of coercive power. Upon Mohammad’s death, Abū Bakr (d. 634) took over as the imam and adopted the title of caliph (khalifa, meaning “successor” or “deputy”). The rebellion and killing of the third caliph, ‘Uthman (d. 656), led to a legitimacy crisis, which evolved into the First Civil War (656-661) during the fourth caliph, ‘Ali (d. 661). In turn, ‘Ali was assassinated and his challenger Mu’awiyah (d. 680), a kinsman of ‘Uthman and the governor of Syria, became the next caliph.

Concerns about tyranny of rulers became widespread by the time of Mu’awiyah. Mu’awiyah established hereditary succession (and hence is known as the first caliph of the Umayyad dynasty) and centralized power. By the late 7th century, the fourth Umayyad caliph ‘Abd al-Malik (d. 705) “wanted his subjects to believe that the power and the kingship…was a possession…granted by God and inalienable according to the divine will. The corollary of the assertion…was that disobedience to the caliph and his subordinate officers was a refusal to acknowledge God and so tantamount to unbelief” (Lambton, 1981, p.46; see also

\footnote{12\text{For example, in the Battle of Uhud Mohammad followed the tactical advice of his companions contrary to his own judgment and the battle was lost.}}\footnote{13\text{In Arabic, khalifa has a double meaning, both as “successor” and as “deputy”. Watt (2003, p.33) and Crone (2004, p.18) argue that caliph meant successor early on—see Crone and Hinds (1986, Ch.2) for a discussion.}}
Black (2011, p.18) and Donner (2011, p.82-4)). The title *caliph* referring to the deputy of God (*khalifat Allâh*), as opposed to the deputy of God’s messenger (*khalifat rasûl Allâh*), appeared on coinage for the first time during ‘Abd al-Malik’s reign (Anjum, 2012, p.47; based on Shahin (2009)). The claims of the Umayyad caliphs and their sumptuous lifestyle were sharp departures from the behavior of Mohammad and his immediate successors. Various revolts broke out over “the Umayyad manner of distributing revenues... maltreatment of the Prophet’s family, tyranny and the like” (Crone and Hinds, 1986, p.64).

However, we have no record of discussions about institutional constraints on rulers in that period. This puzzling absence persists during the Abbasid dynasty, which followed the Umayyads in 750, and throughout various dynasties and kingdoms in the following millennium. First, we establish this puzzling absence. Then, we argue that the comprehensive nature of Islamic law facilitates disciplining rulers by revolt (at least it was so perceived), thereby reducing the marginal gains from imposing institutional constraints.

To establish this puzzle, following Rosenthal’s (1971, p.17-33; see also Lambton (1981)) classic categories, we divide political writings in Islamic civilization into three groups, depending on whether their primary foundation is Islamic law, philosophy, or advice-giving in the manner of Mirrors of Princes.14 We provide brief discussions of a few well-known examples in each category to touch on the political themes that Muslim thinkers engaged with and to demonstrate the absence of discussions about institutional constraints on rulers in those works. Such discussions are also absent in more comprehensive surveys of Islamic political thought (Rosenthal, 1958; Lambton, 1981; Crone and Hinds, 1986; Black, 2011; Crone, 2004; Cook, 2014).

Obviously, the corpus of Islamic writings with direct political implications is vast. For example, the above categories do not include the writings and traditions of mystic orders that sometimes had direct political implications (Babayan, 2002; Moin, 2012). However, mystic orders with their emphasis on the spiritual (and sometimes temporal) leaders with divine inspiration tended to be even less concerned with institutional constraints.

While many scholars have studied the absence of institutional constraints on Islamic rulers in practice (Lewis, 1982; Huntington, 1996; Kuran, 2012; Blaydes and Chaney, 2013; Rubin, 2017; Chaney, 2022), the literature has not identified the puzzling absence of discussions about institutional constraints in theory. Some came close. For example, Crone (2004, p.277) keenly observes: “it was the scholars who formulated the law that the imam was meant to execute; by their own account, it was also they who elected and deposed him on behalf of the community. One would have thought that there was only a short step from all this to the view that the scholars should also monitor his performance, for example by forming independent councils authorized to signal when the rules had been breached, to strike out illegal decisions, and to block their execution. Small though the step may seem, however, there were few who took it.” Crone (2004) goes on to provide a few, short-lived, attempts on the eve of the Abbasid revolution, in North Africa and in Spain, to form councils

14 Naturally, many writings have multiple elements. For example, religious considerations and orthodoxy are intertwined with politics, justice, and stability in Nizam al-Mulk’s *Süasat Nâmîh*, in contrast to Machiavelli’s instrumentalist approach to Christianity in *The Prince*. However, the dominant theme of each work is typically clear.
that would rule along with the rulers. None of these attempts gained significant traction and they stand as exceptions proving the rule. Roy (1994, p.61) notes that the “poverty of Islamist thought on political institutions is striking, considering the emphasis Islamism places on politics”. Overall, institutional constraints on rulers or “republics…were ignored by the normative tradition” (Cook, 2014, p.312; Crone, 2004, p.279). These scholars do not offer an explanation for these “missing discussions” in the Islamic normative tradition.

One may be tempted to attribute this absence to Muslim thinkers’ limited access to the Greco-Roman philosophical writings or history. For example, while Plato’s Republic and Laws and Aristotle’s Ethics were familiar to Muslim philosophers, it seems that they did not have access to a translation of Cicero’s De re publica, or Aristotle’s Politics where theories of mixed constitutions were more explicitly advocated (see Melamed (2011) for a recent review). However, this view would imply that, without the help of the Greeks’ discoveries, many generations of Muslim thinkers somehow could not take what Crone calls “a short step” toward even a theoretical discussion of institutional constraints on rulers. Their “political horizon…did not reach to suggesting reforms or offering alternative institutions,” as Halbertal and Holmes (2017, p.166) describe some of their earlier Jewish counterparts in antiquity. We believe that this view is highly implausible. The vast territory of the Islamic Empire included people of various geographical and religious backgrounds, some of whom interacted routinely with Muslim scholars and many of whom played key roles in translating the vast corpus of Greek knowledge into Arabic (Gutas, 1998). That generations of Muslim scholars over huge geographical and time periods simply did not have any knowledge of the political structure of Greek city-states, the Roman Republic, or even the Roman Empire with its Senate seems unlikely. As Gutas (1998, p.23) argues, “as late as…tenth century, the historian Ḥamza al-Ḡāfūrī (d. after 350/961) relates that when ‘he needed information on Graeco-Roman history, he asked an old Greek, who had been captured and served as a valet, to translate for him a Greek historical work orally. This was accomplished with the help of the Greek’s son, Yūm, who knew Arabic well.’ This report establishes that oral translation by native speakers of whatever language within the Islamic domain did occur and that, as might have been expected, it must have been widely practiced”. To make sense of the puzzle, one must go beyond explanations that Muslim thinkers (and their Jewish counterparts, see below) did not discuss institutional constraints on rulers even in theory because they did not learn their potential usefulness from Aristotle and Cicero.

3.1 Juristic Writings

While jurists did not discuss institutional constraints on rulers, they insisted that caliphs must follow Islamic law and resisted attempts by caliphs to modify the law. In this sense, Watt (2003) calls them “constitutionalists.” For example, when the caliph commissioned his chief judge Abu Yusuf (d. 798) to review taxation, the resulting Kitāb al-Kharāj detailed Islamic law “for the rates of taxation and the expenditure of the revenue according to the source from which it derived” (Lambton, 1981, p.55). Shāfi‘ī (d. 820), an influential jurist, highlighted the role of ijmā‘ (consensus) as a source of Islamic law (Bernand, Encyclopaedia

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15See Stern (1970) for some of the rare examples of short-lived institutional power-sharing in independent Islamic cities.
of Islam, 2nd Ed.), which reduces the legislative power of caliphs: “To al-Shāfi‘ī the ultimate arbiter was the consensus of the entire community: the caliph counted only so far as every member of the umma did” (Crone and Hinds, 1986, p.93). Hallaq (2009, p.70) goes as far as arguing that “[w]hereas law – as a legislated system – was often ‘state’–based in other imperial and complex civilizations, in Islam the ruling powers had, until the dawn of modernity, almost nothing to do with the production and promulgation of legal knowledge.”

Of course, rulers tried to give themselves more freedom to change or re-interpret the law in ways that suited them. An example of such an attempt is the inquisition (mihna), which was started in 833 by the Abbasid caliph al-Ma’mūn (d. 833) and lasted until 848/9. During the inquisition, religious judges and scholars were forced to accept the doctrine that the Quran was created. This theological point had critical implications. Watt (2003, p.88) argues that “if the Qur’ān was created, God could presumably have created a different Qur’ān in other circumstances. Or... God’s plenipotentiary, the imam or the charismatic head of the state, acting with divine authority, could set aside...specific commands of the Qur’ān and, more generally, the provisions of the Shari‘a. The alternative doctrine, however, namely, that the Qur’ān was the uncreated speech of God, implied that the Qur’ān was an essential part of the being of God; as such none of it could be set aside by any human agent, especially when his charismatic authority was not admitted.” Some jurists resisted the official doctrine. Notably, Ibn Hanbal (d. 855) was imprisoned for refusing to accept it.¹⁶ According to Lapidus (1975, p.380), “the theological opposition is clearly linked to popular demonstrations against the policy of the regime”.

Some jurists specified conditions under which a sitting ruler could be deposed, and some such depositions “may have been accompanied by a formal fatwa [(a legal opinion issued by a jurist)] authorizing it on various moral or religious grounds” (Gibb, 2014, p.161). However, the key issue remains that while jurists discuss conditions that disqualify a sitting Imam, they were “careful not to lay down any procedure by which an Imam may be deposed” (Gibb, 2014, p.161). According to Lambton (1981, p.19), “a command contrary to shari‘a was not to be obeyed. The jurists, however, did not specify in what way or by what tribunal it was to be decided that the leader of the community had failed to remain faithful to the shari‘a”. There were some procedures for the election of caliphs in theory – see below. However, even then, as Crone (2004, p.277) argues, “once elected, the caliph was free to ignore all the advice he received. The consensus was that he could not be made answerable to anyone apart from God”.

Systematized juristic formulations of government authority appeared in the High Middle Ages. A classic example is Mawardi’s (d. 1058) al-Ahkām al-Sultāniyyah, (The Ordinances of Government), which provides a theory of the caliphate based on Sunni jurisprudence. His views were mostly similar to earlier Sunni jurists like Baghdadi (d. 1037). The Imamate is mandatory and the Imam is elected by qualified electors from qualified candidates—Imam/Imamate and caliph/caliphate are the same in this context. However, even one elector suffices; in fact, the previous Imam can designate the next one, or limit the pool of candidates. Mawardi puts emphasis on there being a sole Imam, highlights his administrative/executive duties in addition to those that can be characterized as religious and judicial,

¹⁶In the following century, the teachings of Ibn Hanbal became the basis of the Hanbalite school of law.
and details the stringent conditions that disqualify a sitting Imam. Mawardi’s main contribution was to justify *imārat al-istilāḥ*, in which “the governor of a province, instead of being appointed and revocable by the caliphs, imposes his rule by force” (Gibb, 2014, p.162). The power of the Abbasid caliphs had been reduced significantly by the second half of the 10th century. The military power in this period was mainly in the hands of the Buyids (945-1055) and later the Seljuqs (1055-1194). Thus, there was a de facto caliph-king dichotomy, where the caliph had a symbolic religious authority and the king had the military power. The jurists faced the question of how a caliph and a king coexist. By resorting to principles of necessity and expediency, Mawardi developed juristic arguments for the de facto caliph-king relationship in which kings were the dominant partners. In essence, kings were legitimate if they had allegiance to the caliph and the caliph should take care not to push kings into open rebellion. Juwayni (d. 1085) and Ghazali (d. 1111) provided variations of these themes; see Hallaq (1984) on Juwayni’s and Hillenbrand (1988) on Ghazali’s political views.

In the Late Medieval Period, Ibn Taymiyya (d. 1328) departs from this tradition by framing the Imamate as a contract. “It was, he states, a contract and was, like all contracts, defined by its end, which was the common will to obey God and His prophet. Also, like all contracts, it presupposed two parties: on the one side there was the *imām* and on the other Ibn Taymiyya sets not only the ‘ulama’ [(jurists)] but all those who by their learning, talent, wealth, or personal influence actually held authority over the community” (Lambton, 1981, p.148). In his view, Lambton (1981, p.149) argues, government could be formed from “a harmonious association of complementary qualities which had originally been centered in one person and which were indispensable for the perfect functioning of the state. He conceives such co-operation as existing between the ‘ulama’, the depositories of the law and the ‘umara’ [(rulers)], the holders of political power.”

By the 16th century, following the Ottoman conquest of the Middle East and North Africa, the title of caliph was claimed by the Ottoman kings. Jurists had significant power in the Ottoman Empire in the 17th century. Islamic law was invoked in matters of “succession, the legitimacy of a particular sultan [(king)], and the question of legitimate revolt against the government in a manner and frequency unmatched in the history of the Islamic world before the Ottomans” (Tezcan, 2010, p.237). For example, jurists were involved in the rebellions against Othman II in 1622, Ibrahim in 1648, and Mehmed IV in 1678. In fact, Abdurrahim, the grand mufti [(chief jurist)], “gave the legal opinion that legitimized the regicide [of Ibrahim], and oversaw the execution personally” (Tezcan, 2010, p.220). This relatively routine means of holding the sultan’s power in check, Tezcan (2010) argues, contributed to the longevity of the dynasty: “If an emperor could be ‘recalled’ and replaced by another one, not only was there no longer any need to challenge the dynasty but, more importantly, there was also a considerable incentive to keep the dynasty in operation to maintain its openness to political representation” (Tezcan, 2010, p.238). This discussion is consistent with the “revolt channel” being a substitute for more institutional means to control the rulers.

The jurists’ emphasis on preserving Islamic law, however, should not be interpreted as a call for rebellion any time a ruler deviated from the law. The prevalence of civil wars from the early decades of Islam naturally made jurists wary of constant conflict and its accompanying chaos. Thus, some of the same jurists who were inflexible toward the rulers’ attempts to
bend the law also argued against open rebellion. In Sunni traditions, Quranic verses such as “O believers, obey God, and obey the Messenger and those in authority among you” (4:59) were used to argue for obedience to rulers (Anjum, 2012). According to Ibn Hanbal, “it was the duty of the ‘ulama’ to revive and preserve the law, and the duty of all Muslims to ‘Command the good and forbid the evil’, that is, to uphold the law, whether or not the Caliphate would properly do so... In the name of the law a Muslim could disobey the Caliphate over a specific matter, but not rebel against the regime” (Lapidus, 1975, p.383). Ash'ari (d. 935/6) stated: “We maintain the error of those who hold it right to rise against the Imams whenever there may be apparent in them a falling-away from right. We are opposed to armed rebellion against them and civil war” (Gibb, 2014, p.161; quoted from the translation of Macdonald (1903, p.298)).

Of course, there were many different branches of Islam. Our focus on Sunni Islam reflects its predominance throughout Islamic history. In some regions (e.g., Iran), variations of Shia Islam became prevalent with Shi'i rulers controlling political power. Proto-Shi'i and Shi'i jurists, with their various divisions, believed in the divine spiritual and temporal mandates of their Imams (Modarressi, 1993; Dakake, 2007). Given this theology, their minority position, and messianic beliefs, Shi'i jurists did not focus on contemplating institutional constraints on rulers. A tenet of the Twelver Shia is that the 12th Imam (also know as the Hidden Imam), who has the public authority, is in occultation since the 10th century. Thus, throughout the 19th century, to the extent that Twelver Shi'i jurists engaged in developing political thought, their focus was on justifying governmental authority in the absence of the Hidden Imam. Most jurists refrained from discussing political authority, some argued for a Shi'i kingship (e.g., Majlisi, d. 1699), and a group assigned political authority to Shi'i jurists (e.g., Naraqi, d. 1829). However, they did not contemplate institutional constraints on rulers, whatever their identity, until the early 20th century (Árjomand, 1984, 1988; Amanat, 2009; Ansari and Shadmehr, 2021).

3.2 Philosophical Writings

“From about the middle of the eighth century to the end of the tenth, almost all non-literary and non-historical secular Greek books that were available throughout the Eastern Byzantine Empire and the Near East were translated into Arabic” (Gutas, 1998, p.1). Curiously, Aristotle’s Politics was not translated. Muslim philosophers adapted the Greek tradition but aimed to make it compatible with Islamic teachings. Thus, for Farabi (d. 950), who is sometimes called the founder of Islamic philosophy,17 “Religion is an imitation of philosophy... In everything of which philosophy gives an account based on intellectual perception or conception, religion gives an account based on imagination” (Lerner and Mahdi, 1963, p.77). Later Muslim philosophers, most notably Ibn Sina (d. 1037) and Ibn Rushd (d. 1198), further synthesized the Greek tradition with Islamic philosophy; see Goodman (1992) and Inati (1996) on Ibn Sina, and Leaman (1988) and Urvoy (1996) on Ibn Rushd.

In al-Madīnah al-Fāḍīlah (Virtuous City), Farabi developed a political theory reminiscent

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17There are records of an earlier Islamic philosopher, Ýrãshâhã, in the 9th century Iran. However, “Nothing is known of his life and works save for a few quotations found in the writings of such later authors as Bûrûmî” (Nasr, 1975, p.421).
of Plato’s Republic. Thus, “the founder of a virtuous city was a person endowed with an exceptional set of outstanding characteristics...God inspired him through the medium of the active intellect, as al-Farabi also put it. This was the mechanics behind prophethood. This inspiration (wahy) activated his own acute intellect, as well as his imaginative power, enabling him to combine the role of philosopher, capable of understanding God’s ordering of the universe, with that of religious preacher, able to formulate his philosophical insights in a language that the masses can understand. Such a man, the first or ultimate chief (al-ra’is al-awwal), was imam, king, philosopher, and prophet alike. In short, he was Plato’s lawgiver and the prophet of the Islamic tradition rolled together” (Crone, 2004, p.178; Rosenthal, 1958, p.128); see also al-Siūsāt al-Madaniyyah (known as Political Regimes) (Farabi and Butterworth, 2015).

Like in Plato, “what is missing in al-Farabi is any concept - let alone discussion - of civic institutions as central to the political life” (Gutas, 2004, p. 276, 263-4; quoted in Black, 2011, p.62). Absent an Islamicized “philosopher-king”, less outstanding leaders should take charge, which necessitates the memorization of laws laid down by the founder. Farabi recognizes that “various qualities that went to make a first chief might also be dispersed in many people; if so, they could take the place of the first chief and rule as a team. This was how al-Farabi understood aristocracy (riyasat al-afadil/al-akhyar): a virtuous regime in which several philosophically trained people managed things together, perhaps as king, vizier, military leader, and advisors, though he does not say precisely how” (Crone, 2004, p.179). Critically, this allusion to conciliary government did not invoke a discussion of how dividing power could reduce its abuses.

Ibn Sina (d. 1037) and Ibn Rushd (d. 1198) generally followed Farabi. Ibn Sina “adopted a Sunni view on succession to Prophet-Legislator. This can be either by testamentary designation – the ‘Abbasid practice – or by ‘consensus of the elders’. Ibn Sina recommended designation because it avoids strife. But, most unusually for the time, he accepted a right of rebellion. If a ‘seceder’ claims the Deputyship ‘by virtue of power or wealth’, ‘then it becomes the duty of every citizen to fight and kill him... Next to belief in the prophet, nothing brings one closer to God than the killing of such a usurper.’ ” (Black, 2011, p.75, quoting Lerner and Mahdi, 1963). “He roundly condemns usurpation, and actually demands the death of a tyrant (mutaghillib) and the punishment of those who fail to carry out such a tyrannicide if they have means to do it” (Rosenthal, 1958, p.153).

Ibn Rushd’s political theory appears in his commentaries on Plato’s Republic and Aristotle’s Ethics and Rhetoric – he states that he did not have access to Aristotle’s Politics (Averroes and Lerner, 1974, p.4). Ibn Rushd’s commentary on Plato’s Republic adapts it to his Islamic cultural environment – with the remarkable exception of promoting women’s participation in public life. Thus, in discussing the philosopher-king he writes: “Hence these names are... synonymous – i.e., ‘philosopher,’ ‘king,’ ‘Lawgiver’; and so also is ‘Imam,’ since imām in Arabic means one who is followed in his action. He who is followed in these actions by which he is a philosopher, is an Imam in the absolute sense” (Averroes and Lerner, 1974, p.72). He also provides examples from his environment to demonstrate regime types and their transformation, e.g., stating that during Mu’awyah the government transformed from virtuous to timocratic (Averroes and Lerner, 1974, p.121). Like Farabi, Ibn Rushd recognizes
that characteristics of a good ruler may not all be present in one person: “However, it may not happen that both these [qualifications] are found in one man, rather the one [capable of] waging Holy War being another than the legal expert. Yet of necessity both will share in the rule, as in the case with many of the Muslim kings” (Averroes and Rosenthal, 1966, p.208-9). In his commentary on Aristotle’s *Rhetoric*, Ibn Rushd also “Platonizes” Aristotle’s brief discussion of political regimes by elevating “rulership of the king” and “Imamate” (Butterworth, 1998, p. 236-7; Averroes and Ezzaher, 2015, p. 129-131). According to Black (2011, p.125-6), Ibn Rushd argues that “good behavior is found among people who ‘are ruled by a strong man and [abstention from bad behaviour] does not occur in cities except through the action of a strong ruler who coerces people to it’’. Ibn Rushd drew the constitutional conclusion that ‘coercive power to this end through the command of one man is not found unless the king is an absolute king’ (*On Ethics*, fol. 316v).

In sum, Farabi, Ibn Sina, Ibn Rushd, and many other Muslim philosophers, while engaged in political theory, did not discuss institutional mechanisms to constrain rulers.

### 3.3 Mirrors for Princes (*Siāsat Nāmih*)

Among the earliest survived political writings of the Islamic period are *Rasāūlih fī al-Ṣaḥābih* and *Adab Kābir* by Ibn Muqaffa (d. 759), an Iranian bureaucrat and literary figure in the Umayyad and Abbasid caliphates. Ibn Muqaffa asserted that the general public cannot obtain their welfare on their own, and they need an Imam to guide them. He advocated that the ruler imposes consistency in law and argued that the Imam’s opinions and policies must be followed unless they explicitly contradict God’s orders. Ibn Muqaffa was among the early transmitters of political writings in the Persian mirrors of princes traditions, which aimed to rationalize government to promote peace and prosperity.

A classic political writing in the Mirrors of Princes tradition is Nizam al-Mulk’s (d. 1092) *Siāsat Nāmih*. Nizam al-Mulk was an Iranian vizier during the Seljuk Empire and the de facto ruler after the assassination of Alp Arslan. In the tradition of Persian kingship, he asserts that just kings are chosen by God, have royal charisma, and are the shepherds of their people. When God becomes angry with the people, good kings disappear, and war and bloodshed replace peace and prosperity, so that wrongdoers are killed in the chaos, and along with them many innocents. He highlights the fragile nature of power, because of overt and covert contenders, but a competent and just ruler maximizes peace and prosperity. The ruler should follow God’s law and respect religious scholars and the pious. He should have religious scholars advise him “once or twice a week” on God’s law and Islamic traditions and stories of past just kings (*Tabatabai, 2006/1385*, p.97)—see also Yavari (2014).

Some works in this genre rely more on earlier philosophical writings (e.g., Tusi’s *Akhlāq Naṣīrī*), while some have more religious overtone (e.g., Ghazali’s *Naṣiḥat al-Mulūk*). Overall, this genre is a middle ground between theoretical works on ethics and moral philosophy and manuals for governance. Other examples includes Davani’s *Akhlāq Jalālī*, Amasi’ *Kitāb*
Mirâat al-Mulâk, Tursun Beg’s introduction to his history, Bitlisi’s Hasht Bihisht, and Çelebi’s Akhlâq ‘alâvî; see Sariyannis (2019) for the adoption of this genre in the Ottoman period.

### 3.4 Islamic Law, Rebellion, and Accountability

While we do not have records of discussions about institutional constraints on rulers in the Islamic tradition,\(^{19}\) there was no doubt that rulers must follow Islamic law. In this narrow conception of constitutionalism (Klosko, 2012, p.297-9), Muslim thinkers were typically “constitutionalist”. Islamic law was not monolithic. There were disagreements among jurists and different schools of jurisprudence emerged even within the dominant Sunni tradition. However, these differences were small compared to potential differences in laws that could be. Hence the disagreements took place within a space that was constrained. Despite geographical variations (perhaps most apparently between Sunni and proto-Shi‘i or Shi‘i societies), the relatively narrow range of acceptable interpretations in a given region and period projected a coherent notion of Islamic law, from Andalus (as Ibn Rushd’s quote below indicates) to India. For example, “[d]escribing the late Mughals of India, the eighteenth-century English scholar Alexander Dow observed that the Sharia ‘circumscribed the will of the Prince’ and ‘the House of Timur always observed [the law]; and the practice of ages had rendered some ancient usages and edicts so sacred in the eyes of the people, that no prudent monarch would choose to violate either by a wanton act of power’ ” (Hallaq, 2009, p.211). As late as the 20th century, jurists’ chief concerns about the codification (and hence unification) of laws in Iran and the Ottoman Empire was that the codes conform to Islamic law. For example, in Iran, the implementation of this idea was Article 2 of the Supplementary Laws to the Iranian (1906) Constitution, proposed by Nuri and supported by virtually all Shi‘i jurists, stating that a few jurists supervise the laws passed by the parliament to ensure their consistency with Islamic law (Bayat, 1991; Afary, 1996). Later, jurists such as Modarres were involved in drafting civil and criminal codes and Kharaqani took initiative to codify 831 items of Islamic law in a booklet, which he offered to the government (Jafarian, 2003/1382). All the quibbling among jurists would be slim next to the wide range of potential alternatives.

Islamic law had a wide scope. It covered “subjects such as taxation, the conduct of holy war, the suppression of rebels, the punishment of criminals, and the appointment of judges... The law left much to the discretion of rulers, but its letter was often detailed and its spirit was unmistakably protective of the believers” (Crone, 2004, p.282). Crone and Hinds (1986) argue that the Abbasid caliphs “found that the past which they were supposed to imitate consisted of narrowly defined rules, not the ancestral practice compatible with any interpretation they might wish to put on it. In practice, their hands had thus been tied... The law was the sum total of God’s guidance... it dealt with every aspect of life from taxation to the proper way of wearing moustaches” (p.92-3, see also p.109-110). Legitimate public policy then would be restricted, or at least it was so perceived, by the wide scope of Islamic law, which covered relations from taxation, inheritance, and family laws to tort and contract laws.

\(^{19}\)There are hints of institutional constraints in the reported statements of a few individuals, e.g., *al-Hârith ibn Surayj* (d. 746), a rebel leader against the Ummayads, or *al-Asamm* (d. 816/7), a Mu‘tazîî theologian. However, these sparks did not turn into any coherent discussions (Crone, 2004, p.277-8)—see also van Ess (*Encyclopaedia of Islam, 2nd Ed.*), Crone (2000), and Stern (1970).
Hallaq (2009, p.551-5) provides a general breakdown of topics in Islamic law books, covering 57 topics, including zakāt, various contracts, tort, and rules of procedure such as testimonies. Abu Yusuf’s Kitāb al-Kharāj, mentioned above, was an early example of Islamic law on taxation. Modarressi (1983) provides a detailed description of the origins kharāj in Islam and the jurists’ opinions about its justification and rate, lands subject to it and the expenditure of the revenues. As Hallaq (2014, p.62) argues “the benchmark of taxation was the Sharī-stipulated rates...In other words, taxation could be determined by fixed and objective criteria, and thus overtaxation was relatively easy to evaluate and dispute in a Sharī court”. Based on Johansen (1988)’s study of land tax in Islamic law, Khoury (1997, p.179) argues that, even in the Ottoman Empire with its relatively centralized government, the “sphere of action of the sultan was at all times confined within the parameters of a concept of justice which ensured the rights of the proprietor against the absolute and ultimate control by the sultan”. Even in the 20th century, during the Iranian Constitutional Revolution, it was repeatedly argued: “it is obvious that our Divine Law is not limited to acts of worship but, on the contrary, embraces every major and minor political issue, down to the indemnity for a minor abrasion. Consequently, we will never be in need of man-made law” (Dabashi, 1988, p.361-2). The comprehensive nature of Islamic law even for modern societies were emphasized by various other jurists in Iran from Kharraqani (2003/1382) in the 1910s to Khomeini (n.d, p.184) in the 1940s, long before his call for a revolution (Ansari and Shadmehr, 2021).

This broad, “definite, invariable, and permanent” perception of Islamic law was prevalent even among earlier cosmopolitan philosophers such as Ibn Rushd in Andalus. Comparing the nature of law in Islamic and Christian societies, Ibn Rushd writes in his commentary on Aristotle’s Rhetoric: “Perhaps the laws instituted in these cities were definite, invariable, and permanent, as in the case of our Islamic law. And perhaps these cities did not have definite laws, but the matter was delegated to those who held the power, depending on what was more useful at each moment, as in the case of Byzantine laws” (Averroes and Ezzaher, 2015, p.130).

Rulers, as one expects, attempted to define what divine law was, as evidenced by the inquisition project of the Abbasid caliphs discussed in Section 3.1. However, these attempts failed. Even jurists who preached against rebellion insisted that the ruler cannot determine the law: caliphs must implement God’s law, not theirs. “By locating the power to legislate outside the political system, it [(Islamic law)] denied to rulers the ability to make law to suit their fancies. It is thus a significant point about the Shari‘a that...it is in principle the antithesis of the legislative autocracy or a traditional patrimonial state or a modern dictatorship” (Cook, 2014, p.329-30). Namik Kemal, during the Ottoman Tanzimat period, stated that “even the greatest tyrants cannot alter” Shari‘a for it is protected by God (Mardin, 1962, p.315, cited in Cook (2014, p.330)). This view was also prevalent among Shi‘i jurists (e.g., Na‘ini, 1955/1334; Kharraqani, 2003/1382). For example, in his 1970 lectures on Islamic government, Khomeini (2006/1385, p.72-3) stated that “Islamic government is the government of laws...if a [guardian] jurist acted in contrast to Islamic standards (mavāzin)...he is automatically dismissed from government/authority...the ruler, in fact, is the law”. According to a 2008 survey, a significant fraction of contemporary Muslims in Turkey, Iran, and Egypt still believed that Sharia will “limit the power of rulers” (Rheault and Mogahed,

If Muslims should believe in Islamic law, and if Islamic law covers a wide range of government policies, it followed that a government’s deviations from the law are easily identified by all; as Hallaq (2014, p.62) argues in the case of taxation, “overtaxation was relatively easy to evaluate”. The homogeneity of preferences (all believing in the same law) and observability of deviations, in turn, could facilitate successful rebellion against a deviant government.

The vigilant attitude to be watchful of the government and act to correct it when necessary was indeed a given and was encouraged in the early years. The first caliph Abū Bakr, in his speech upon assuming leadership, stated: “I have been given the authority over you, and I am not the best of you. If I do well, help me; and if I do wrong, set me right... Obey me so long as I obey Allah and His Messenger. But if I disobey Allah and His Messenger, you owe me no obedience” (from Ibn Hisham’s Sirah quoted in Cook (2014, p.320)) – a speech that Mohamed Morsi imitated in June 2012 upon winning Egypt’s presidential election. ‘Umar, the second caliph, “asks that anyone who sees any crookedness in him should tell him; a distinguished Companion of the Prophet responds that in that event ‘we will straighten you out with our swords,’ a sentiment to which ‘Umar responds with strong approval” (Cook, 2014, p.320). According to Cook (2014, p.320-1), such early stories reflect “a political culture in which it is not just conceded that subjects are entitled, and perhaps obligated, to act in such ways; they are portrayed as ready to do so at the drop of a hat”.

Moreover, Islamic tradition stressed each Muslim’s responsibility to “enjoin what is good and forbid what is wrong” (Quran 31:17) and emphasized each Muslim’s responsibility for the well-being of others. As Cook (2014, p.20-3) argues, solidarity and equality before the law were integral parts of the early and ideal Islamic identity. Muslims are “like a body, parts of a whole” (Cook, 2014, p.22), with no caste or aristocracy: “We have created you from male and female and made you peoples and tribes that you may know one another. Indeed, the most noble of you in the sight of Allah is the most righteous of you” (Quran 49:13), “Indeed, Muslims are brothers” (Quran 49:10); “remember the favor of Allah upon you, when you were enemies and He brought your hearts together and you became, by His favor, brothers” (Quran 3:103). These notions of equality were also reflected in early politics. Compared to other dynasties in Eurasia, “the early Muslim state was exceptional in that it refused to adopt the title ‘king’ ” (Anjum, 2012, p.47, fn.39, based on Shahin (2009)). Anjum (2012, p.51) argues: “The ethic of the Qur’an is on the whole egalitarian and activist, enhanced by its Arab tribal milieu and reflected in the early Islamic society. Furthermore, the unyielding monotheism of the Qur’an, coupled with its insistence on rational piety that required obeying none but God and his Prophet, encouraged questioning authority and using one’s own reason instead of following tradition or other men’s judgment”. All these aspects have also been emphasized throughout modern times, e.g., in the Iranian Constitutional Revolution (1905-11) (e.g., by Na’ini, 1955/1334) and the 1979 Iranian Revolution (e.g., by Khomeini, 2006/1385).

Indeed, revolts occurred routinely after Mohammad: “In no other civilization was rebellion for conscience sake so widespread as it was in the early centuries of Islamic history” (Cook, 2001, p.161). The third and fourth caliphs, ‘Uthmān and ‘Ali, were both assassinated. In his five-year reign, ‘Ali was engaged in separate battles with three different groups, involving
some of the prophet’s close associates (Battle of the Camel), the Arab governor of Damascus, Mu’awyah (Battle of Siffin), and the Kharijites (Battle of Nahrawan). This First Fitna (civil war) led to the establishment of the Umayyad Caliphate in Damascus. The Second Fitna (680-692) began less than two decades later and included the revolts of Husayn Ibn Ali, Tawwabin, Mukhtar, and Abd Allah ibn al-Zubayr. The third Fitna was another civil war of succession in the 740s, which blended into the fourth Fitna, the Abbasid Revolution and the establishment of the Abbasid Caliphate in 750.

In sum, the (theoretical) homogeneity of Muslims in believing in divine law, the wide scope of the law, and a value system that facilitates collective action (e.g., by emphasizing solidarity) help make sense of the puzzling absence of theoretical discussions about institutional constraints on rulers in the Islamic civilization. Because (it was perceived that) Muslims believed in the divine law, and much of government policies and actions fell under the divine law, a government’s deviation from the right policy was more likely observable to all, facilitating revolt to correct the government’s policy and remove deviant rulers. Thus, the marginal value of institutional constraints on rulers to hold them accountable was lower relative to settings in which policy preferences were more dispersed or the right policy was less likely to be common knowledge. The emphasis of Islamic value system on solidarity and equality before the law further strengthened this logic.

4 Institutional Constraints on Rulers in Jewish, Greco-Roman, and Christian Traditions

4.1 Ancient Jewish Tradition

Institutional constraints on rulers are also absent in ancient Jewish traditions, covering the ancient Israelites to the end of the Hasmonean Kingdom in 37 BCE. After the period of tribal confederacy, kingship was established by the people (1 Samuel 8) as a Hobbesian remedy for a state of nature in which “everyone did what was right in his own eyes” (Judges 21:25). It is clear that Deuteronomic editors were aware of the downsides of centralized power. The arguments against monarchy in 1 Sam 8 are striking (1 Sam 8: 11-8): 20 “he [(the king)] will take your sons and place them for himself in his chariots and among his horsemen and they will run before his chariots. He will appoint for himself commanders of thousands and of fifties, and some to do his plowing and to reap his harvest and to make his weapons of war and equipment for his chariots. He will also take your daughters for perfumers and cooks and bakers. He will take the best of your fields and your vineyards and your olive groves and give them to his servants. He will take a tenth of your seed and of your vineyards and give to his officers and to his servants. He will also take your male servants and your female servants and your best young men and your donkeys and use them for his work. He will take a tenth of your flocks, and you yourselves will become his servants. Then you will cry out in that day because of your king whom you have chosen for yourselves, but the Lord will not answer you in that day.” Subsequent history, according to the Bible, confirmed these prophecies. Halbertal and Holmes (2017, p.67) go as far as arguing that the books

20All Scripture quotations are taken from the New American Standard Bible version 1995.
of Samuel are early political science, which draw attention to the problem of constraining rulers: “If the sovereign ruler amasses sufficient power to safeguard his people from outside threat, he will also be in a position to redirect that power to torment and abuse his people with sovereign impunity”.

However, no institutional remedy is offered from antiquity throughout the Middle Ages, “Instead, the author [of 1-2 Samuel] turned a penetrating gaze onto the punishing costs of sovereign power as such” (Halbertal and Holmes, 2017, p.167). In his study of pre-modern Jewish political thought, Walzer (2012, p.71) argues that “the Bible does not provide... any effective constitutional or political check on the power of kings”. “The body negotiating the elevation of the monarch has the opportunity to impose conditions, to extract promises, and to level ultimata. Whether the king after his accession actually paid attention to them is, of course, another matter, about which our sources are too inadequate to permit speculation” (Halpern, 1981, p.222). There was a separation of duties between the king, priests, and prophets. But that was not a substitute for institutional constraints, as the recorded actions of rulers from Saul to the Hasmoneans attest (1-2 Samuel, 1-2 Kings, Josephus’s Antiquities of the Jews, books XIII-XVII). Kings appointed priests and judges and they promoted, banished or killed prophets to advance their interests.

The king was supposed to follow the divine law. In fact, according to Halpern (1981, p.xx), “Israel’s was the first monarchy known to have deposited and preserved a written constitution, a document imposing strictures on the exercise of royal authority (Deuteronomy 17-18)”. For example, Deuteronomy 17-18 specifies that the king must be an Israelite, must not amass wealth, take many wives, or consider himself better than others; and he must write the laws and read them every day. “Throughout its history, then, Israel’s elective autocracy was kingship under the law” (Halpern, 1981, p.249). However, once in power, there were no external constraints on kings except rebellion. The mode of holding a king accountable was mostly internal to the king (God, his conscience, and the prophets’ advice and warnings). “A policy focus on political reason, debate in the assembly, popular decision-making – what we might think of as the Greek alternative – was never considered” (Walzer, 2012, p.211).

Why is it, then, that no institutional remedy was provided even in theory? As we discussed, Halbertal and Holmes (2017, p.167) argue that the problem was that the “The political horizons of the author of the Samuel”. Similarly, Halpern (1981, p.239) senses “a charming naivete, an idealistic reliance on tribal conservatism, in Samuel’s assumption that the ‘prophet’ could constrain a new and vigorous executive”. Walzer (2012, p.204) argues that Jewish thinkers whose works have survived simply put the blame on human imperfections: “Worldly rulers, the power that be, whatever their social or political character, are more likely to disobey than to obey, but disobedience is a function of human recalcitrance and stiffneckedness, not of institutional imperfection”.

These arguments ultimately place the problem in the inability of thinkers to even contemplate institutional solutions for a problem that they keenly identified. Thus, according to this literature, for centuries, these thinkers’ “political horizon” did not reach that of the Greco-Roman traditions. We find this explanation unsatisfactory. Even more so if we recognize the interactions and cultural exchanges since Alexander’s conquests of the late 4th century BCE. Indeed, the 1 Maccabees records a working knowledge of the institutions of the Roman
Republic: “Yet with all this, they [Romans] never any of them put on a diadem or wore purple as a mark of magnificence. And they built themselves a senate house, and every day three hundred and twenty men deliberated, constantly planning for the people, that they might conduct themselves properly, and they intrusted the government to one man every year...” (1 Maccabees 8: 14-16).

Moreover, Melamed (2011, p.163) argues that even when Aristotle’s *Politics* became available to Jewish scholars through Christian-Latin tradition, “Jewish writers continued to translate, expound, and reproduce Plato’s *Republic*, the *Ethics*, and commentaries on these works – and not by chance. Their conceptual framework remained Platonic, given the inertia of tradition and their theological commitment”. From the 14th to early 17th century (before Spinoza), when, on rare occasions, they directly used *Politics*, it was “mainly to criticize the Platonic model of social organization...rather than the construction of a new political theory” (p.169). An exception is Rabbi Isaac Abravanel’s analysis in the context of his commentary on 1 Samuel 8. Possibly reading *Politics* through misrepresentations of Medieval Christian scholars (p.174), he “mistakenly looked upon Aristotle as a partisan of absolute kingship” (p.173, also p. 174). However, he “insists...that this position is wrong. He maintains that monarchy is not a necessity and sees it as doomed to degenerate into tyranny, preferring a mixed regime like that of the Venetian Republic” (p. 173). In sum, in a period when we know that *Politics* was available to Jewish scholars, it was never used to develop a discussion of institutional constraints on rulers. When such discussions appeared, the author thought Aristotle was in favor of monarchy.

We argue that the comprehensive scope of the law in the Jewish tradition helps make sense of the absence of discussions about institutional constraints on rulers. While the law did not specify institutional constraints on rulers, its scope was extensive, covering various topics including inheritance, marriage, contracts, foreign policy, and various other aspects of criminal and civil law. As Walzer (2012, p.206) argues, “both the legal and prophetic texts have a great deal to say about what political leaders, whoever they are, ought to do. Policy is not free. Leaving royalist ideology [God’s anointed king] aside, and speaking still in Greek mode, we can say that God as he was conceived in ancient Israel, did not decree a politics, but he certainly did decree an ethics [policy]”. Walzer (2012) derives one consequence of this observation: “Obedience to God’s law doesn’t require deliberation or arguments or votes; it only requires a moral choice” (p.211). Our focus is on the consequences of these features for political thought. Walzer’s (and others’) observations point to the theoretical homogeneity of the population’s preferences regarding public policy: preferences for God’s law. Moreover, when divine law is more extensive, a ruler’s wrongdoing is more observable. This, combined with higher societal homogeneity, facilitates disciplining rulers through rebellion. Indeed, Deuteronomic history records various such popular rebellions, e.g., against David and Rehoboam, Solomon’s successor who refused to reduce taxes.

### 4.2 The Western Tradition

Constraining the executive is a common thread in the tradition that starts from Greco-Roman political thought. The existence of these constraints clearly antedates the written justifications we have for them. The Spartan Constitution of Lycurgus, possibly dating to
the 7th century BC, divided powers in several important ways. Plutarch (1914) records how the period before Lycurgus had been one with “excessive absolutism” (p.209) and with kings “hated for trying to force their way with the multitude” (p.209). Aristotle comments on Lycurgus’ attitudes towards the Spartan kings that “he shows a great distrust of their virtue” (Aristotle, 1996, p.53). Lycurgus therefore created a council of elders which countered the fact that the “ruling power was still in a feverish condition” (Plato, 2016, p.123) and “by having an equal vote with them in the matters of highest importance, brought safety and due moderation into the councils of state” (Plutarch, 1914, p.219-221). This was critical because “the civil polity was veering and unsteady, inclining at one time to follow the kings towards tyranny, and at another to follow the multitude towards democracy” (Plutarch, 1914, p.221).

About 130 years later the **ephors** were added to the system of government and, as Plato puts it, “curbed it” (Plato, 2016, p.123). They were specifically tasked with monitoring the kings. The constitutional experiments of Athens as documented by Aristotle (1996) involve similar attempts to balance powers. By the time of the famous reforms of Solon in 594 BC, Athenian kings had already disappeared with the main executive body being nine archons who served for one year. There was an assembly of all adult male citizens and two councils the Boule and the Areopagus, where the latter had “the duty of watching over the laws” (Aristotle, 1996, p.216). Plutarch notes that this was designed “thinking that the city with its two councils, riding as it were at double anchor, would be less tossed by the surges, and would keep its populace in great quiet” (Plutarch, 1914, p.455). Solon tinkered with the organization and membership of the different councils and explicitly justified what he was doing as balancing power between different groups, particularly the rich and the poor. Further reforms which democratized and reorganized the institutions were implemented by Cleisthenes.

Plato and Aristotle subsequently theorized the success and failings of Greek constitutions.  

Though Plato’s **Republic** advanced a utopian solution, proposing mechanisms for abolishing political conflict, in his **Laws** he developed more practical institutions if utopia proved not to be possible. As von Fritz (1954, p.v) puts it “Plato is concerned with the danger inherent in absolute political power, and that he is of the opinion that there must be a check to all political power, and that this must be done by distributing power over several government agencies which counterbalance one another.” Aristotle outlined a famous ranking of constitutions which started with the three ideal forms of government, followed by their perversions. The ideal forms ran in order from best to worst: kingship, aristocracy, polity. Their perversions were tyranny, oligarchy, democracy. Critically, while kingship might be best in theory, it relied on having someone of unlikely “excellence” and quickly deteriorated into tyranny, which was the worst form of government, even worse than democracy, the perversion of polity. Indeed, Aristotle follows his discussion of the likely character of kings with an exposition of the institution of ostracism (Aristotle, 1996, p.81-82).  

Instead, Aristotle preferred a blend of aristocracy and polity – mixed government. In contrast to Plato’s **Republic**, which focuses on the selection and training of rulers, institutional mechanisms to constrain rulers appear in Aristotle’s **Politics** (Aristotle, 1996). These institutional constraints include term limits (Book 5, Ch. 8, Paragraphs 6-7, 12-13), audits (6,4,5-7), prevention of excessive power disparity (5,8,11; 3,16,16), control by setting interest against interest (5,8,14), and collective

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21 Previous writers discussed some aspects of them, though less comprehensively; see Sinclair (2012).

22 See Teegarden (2013) for an analysis of ancient Greek legislation aimed at blocking the rise of tyrants.
decision-making/multiple rulers (3,15,8). Ryan (2012, p.98-99) sums up the lessons from Aristotle’s analysis in the following terms: “The problem in designing a constitution is to distribute power so as to give every incentive to those who have it to use it for the common good…. What is needed is what later came to be called checks and balances”.

These Greek beginnings had a profound influence over subsequent constitutional thought, particularly of the Roman Empire. Polybius, who was himself Greek, conducted a famous analysis of the success of Rome attributing it to the mixed constitution initially supposedly devised by Romulus. In it power was distributed between “the consuls… the Senate… and the common people” (Polybius, 2010, p.380). Polybius attributed the idea of such a system to the Spartans who “bundled together all the merits and distinctive characteristics of the best systems of government in order to prevent any of them going beyond the point where it would degenerate into its congenital vice” (Polybius, 2010, p.378-379). He is very clear, referring to the basic systems of government that were mixed, that Lycurgus “wanted the potency of each system to be counteracted by the others” (Polybius, 2010, p.379) so that “nowhere would any of them tip the scales or outweigh the others”. Any one of them on their own has the same sorts of problems that Aristotle identified so that in the past, for example, “kingship gave way to tyranny” (Polybius, 2010, p.376). He is definitive that “we should take the best system of government to be the one that combines all three of these constitutions” (Polybius, 2010, p.372). The view that the secret of the Romans’ success was due to the type of mixed government that emerged was also asserted by Cicero. In his political life, contesting with Caesar and Pompey, Cicero was well aware of the danger of tyranny. In The Republic he discusses at length the dangers, pointing out that “although Cyrus of Persia was an exceptionally just and wise monarch” it was highly dangerous to have a government “managed by one man’s nod and wish” since this led to the rule of the “cruelly capricious Phalaris. His is the image into which, by a smooth and easy process, the rule of one man degenerates” (Cicero, 1998, p.20-21). Cicero was also clear that the main advantage of a mixed government was “although those three original forms easily degenerate into their corrupt versions… such things rarely happen in a political structure which represents a combination and judicious mixture” (Cicero, 1998, p.32).

The rise of Christianity and the collapse of the western Roman empire created some significant challenges to the Greco-Roman tradition. This is most obvious is the work of St. Augustine, who wrote right after Alaric’s sack of Rome in 410. For Augustine, the type of state Cicero had imagined here on earth was an impossibility and everything was focused on the afterlife. This led to a downgrading in the importance of political institutions. As he put it:

As far as this mortal life is concerned, which is spent and finished in a few days, what difference does it make under what rule a man lives who is soon to die, provided only that those who rule him do not compel him to do what is impious and wicked. – Augustine (1998, p.217)

The standard interpretation of this is that God created the king and that unless one’s religious beliefs were threatened, one had to accept his authority. In this, he built upon earlier churchmen, particularly St. Paul who argued that (Colossians 1:16):
For by him were all things created that are in heaven, and that are in earth, visible and invisible, whether they be thrones, or dominions, or principalities, or powers: all things were created by him and for him.

Furthermore, “the powers that be are ordained by God... whosoever therefore resisteth the power, resisteth the ordinance of God” (Romans, 13:1-5). Augustine put it in the following way: “all these things he bestows upon good and evil men alike. And among these things is imperial sway also, of whatever scope, which He dispenses according to His plan for the government of the ages” (Augustine, 1998, p.235). Augustine, therefore, did not take a view on things like the mixed constitution, and tyrannicide, which was explicitly advocated by Cicero, was definitely out. The powers that he were created by God. In addition, the only reason that states existed was because of sin, and “the discipline that even bad rulers imposed provided a partial remedy for sin in that it restrained men from indulging to the full criminal proclivities of fallen nature” (Tierney, 2008, p.39).

Though Ryan (2012, p.199) uses the statements of St. Paul and St. Augustine to argue that “The conventional view down to the sixteenth century was that if a ruler required his subjects to repudiate Christ, they did not have to comply; short of that they had to obey”, it is also clear that the rise of Christianity and Christian approaches to politics left the old concerns about tyranny alive. These concerns took different forms and institutional guises and parted ways until coming together in the late Middle Ages (see Acemoglu and Robinson, 2019 for a discussion of these channels).

First, and most directly, though works such as Aristotle’s Politics were lost until the middle of the 13th century, and Polybius and Cicero re-discovered only later, clear manifestations of Greco-Roman political institutions persisted. This is most evident in the Italian city-states. Before Aristotle was translated into Latin, Venice already had its elaborate mixed constitution with its “monarchic doge, aristocratic Senate, and democratic Great Council” (Blythe, 1992, p.278). At the same time a score of northern polities, including Arezzo, Milan and Pisa, had created republican institutions, consuls, and were governed by an annually elected executive, known as the podestà, who was always an outsider and who was subjected to an elaborate system of accountability (Waley and Dean, 2010). Just as in classical Greece, the emergence of these institutions preceded their written justifications. Ryan (2012, p.281) argues that by “the eleventh century they reinvented many features of the early Roman republic, in particular the appointment of magistrates to very short periods of office as a defense against tyranny... These city states were in many respects genuine revivals of the city-state of antiquity”. These institutions were heavily theorized later, notably by Florentine writers such as Guicciardini and Machiavelli (particularly Machiavelli, 1903).

The second stream stemmed from the political institutions of the Germanic tribes that conquered the western Roman empire. They maintained key elements of their highly participatory politics based around assemblies; see King (1988) and Wickham (2017). These were famously described by the Roman historian Tacitus in his book Germania: “The leading men take counsel over minor issues, the major ones involve them all... The assembly is also the place to bring charges and initiate trials in capital cases... Likewise in these assemblies are chosen the leaders who administer justice” (Tacitus, 1999, p.81-82). Almost 800 years later similar political institutions during the Carolingian polity were described by Hincmar.
of Rheims: “At that time the custom was followed that no more than two general assemblies were to be held each year... All the important men, both clerics and laymen attended this general assembly. The important men came to participate in the deliberations, and those of lower station were present in order to hear the decisions and occasionally also to deliberate concerning them, and to confirm them not out of coercion but by their own understanding and agreement” (Hincmar, 1980, p.222). In Britain this assembly was called the witan. It is not a coincidence that King John signed the Magna Carta in 1215 on a site at Runnymede where the Anglo-Saxon witan used to meet (Pantos and Semple, 2004). This shows a direct continuity between pre-Norman institutions and the regime begun by William the Conqueror in 1066. Interestingly, the Magna Carta also specified a complex institutional design to monitor whether or not John implemented the policies. Maddicott (2012) develops in detail the argument that the roots of England’s parliament are in its pre-Norman Germanic representative institutions and this view was common already in the 16th century, e.g., Fortescue (1997). In 1583 the Elizabethan courtier Sir Thomas Smith could write “The most high and absolute power or the realme of Englande, is in Parliament” (Smith, 1982, p.78). Part of the mechanism through which these institutions perpetuated themselves and ended up in theories of the state was via feudalism, since this was a set of institutions based on contract. In line with this, Figgis (1956, p.9) notes: “it is in the feudal system that the contractual theory of government took its rise”. Echos of these Germanic institutions arise all over western Europe. Charters similar to the Magna Carta were granted to Catalonia in 1205; Hungary in 1222; and Germany in 1220. Parliaments, estates and similar institutions sprouted up (Bisson, 1973; Myers, 1975), all prior to the rediscovery of Aristotle or Polybius.

The third stream flowed through the organization of the Catholic Church fused with elements of Roman Law. The church was viewed as a voluntary community and the pope was elected by the bishops. Roman law contained the idea of a corporation, which was an entity with a legal existence separate from that of its particular members, and the will of the corporation could be determined by a majority of its members. The members delegated power to an official who acted on behalf of the community. “In the normal doctrine of Roman private corporation law, the agent’s powers were not only derivative, but revocable and subject to modification” (Tierney, 2008, p.26). In 1140 Gratian produced an influential collection of church law which led to a great deal of debate on the organization of the church. This debate entertained the fact that a pope could misbehave (Tierney, 2008, p.16). Then “Around 1200 [religious scholars] began to discern that the legal concept of a corporation could define the structure... of the universal church itself and of a general council representing the church” (Tierney, 2008, p.20). As early as 1214 Pope Innocent III convoked a general council of not just bishops but representatives of many churches and religious chapters. The implications of this Roman law model for secular authority were profound. “In this theory the ruler held a position analogous to that of any elected official of a Roman law corporation” (Tierney, 2008, p.26) and Tierney argues that it led to notions of government by consent and “a complex doctrine of mixed or limited monarchy” (Tierney, 2008, p.27). These arguments became

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23There is an extensive and controversial literature about the origins of representative institutions in Medieval Europe. Particularly disputed is the connection to Germanic tribal institutions. For our purposes, the main point is the prevalence of these institutions which clearly balanced and checked monarchical power; see Bisson (1973) for key essays and an overview of the literature.
particularly powerful within the church at the time of the Great Schism when rival popes emerged and a series of councils met to settle the dispute, most notably in Constance in 1415. These councils claimed supreme authority within the church and ended up deposing three popes. This “conciliar movement”, for a constitutionally governed church, had repercussions for the organization of secular authority; see Black (1988).

In short, though Augustine’s view was influential in the 840 years between the sack of Rome and the rediscovery of Aristotle, the old views about the potential abuse of power by kings, and the need to take institutional precautions against it, persisted. Supporting this, Ryan (2012, p.219) suggests in the context of the reaffirmation of John of Salisbury’s vindication of tyrannicide in the mid-12th century, that “similar ideas must have been in circulation from the end of antiquity without leaving any written evidence of their existence”. In the context of feudal institutions, Ryan (2012, p.195) also notes: “The Polybian view of mixed government aligns easily with the medieval idea that a king should rule with the advice of an aristocratic council and seek consent for taxation”.

These different streams start to come together in Thomas Aquinas’ 13th century attempt to synthesize Catholic teaching with classical philosophical ideas. He was perhaps the first writer to absorb the newly rediscovered works of Aristotle and, reflecting this, he notes that “the rule of one, which is the best, is preferred, but that it can turn into tyranny, which is the worst” (Aquinas, 2002, p.17). When it came to political institutions the solution to this was that “all should have some share in the government; for an arrangement of this kind secures the peace of people, and all men love and defend it, as is stated in Politics II” (Aquinas, 2002, p.53-54). As in Cicero, there is no compunction against removing tyrants. In addition, political institutions should be structured to avoid tyranny: “governance of the kingdom should be so arranged that the opportunity to tyrannize be removed and the king’s power should be so tempered that he cannot easily become a tyrant” (Blythe, 1992, p.48-49). Blythe (1992, p.49) concludes that Aquinas’s discussion implies that “the king’s power be limited or controlled by other governmental institutions so that it cannot exceed what is proper”. Aquinas found direct inspiration for mixed government in the Bible in particular arguing that this was how the state was organized at the time of Moses:

Moses and his successors governed the people in such a way that each of them was ruler over all. But they chose seventy two elders according to their virtue... and this was aristocracy. But this arrangement was also democratic in that they were chosen from all the people. – Aquinas (2002, p.54)

Tierney’s summary of the logic is that “The mixed regime was best, he wrote, because each element checked, ‘tempered’, the other two” (Tierney, 2008, p.90).

Aquinas was followed by a series of writers who elaborated on his ideas and extended them in various ways sketching out theories of consent and constitutional rule. Marsilius of Padua (d. 1342) and William of Ockham (d. 1347) further advanced justifications for popular sovereignty. Marsilius extensively quotes Aristotle and discusses his taxonomy of different forms of government and makes it clear that a key advantage of popular sovereignty is that it avoids tyranny. He notes that government “savours of tyranny... the more it departs from these conditions, viz. the consent of those subjects and a law established to the common
advantage” (Marsilius of Padua, 2005, p.47). Moreover, “giving the power of legislation to one alone creates a space for tyranny” (Marsilius of Padua, 2005, p.78). Marsilius also discusses other institutional mechanisms to reduce the potential for tyranny, for example, elected monarchs are to be preferred to hereditary ones (p.105). Ockham advocated for a mixed constitution with a king and council where “the element of balance is present in that the council exists in part to check the excesses of the king” (Blythe, 1992, p.183). One of his arguments in favor of such a constitution, as opposed to a simple monarchy, was that “one can be more easily corrupted than many” Blythe (1992, p.182). Finally, John of Paris advanced ideas about both mixed government and notions based on the corporation. His position was that “government is a stewardship…exercised for the common good of individual and corporate owners. Should it not carry out its mandate, it is removable on the authority of the people” (Coleman, 2000, p.133).

Nevertheless, sixteenth century Europe was ruled by powerful kings, even if most had to deal with parliaments. The century saw an ideological struggle between those who wished to make kings subject to popular sovereignty and those who wished to make kings more absolutist. Advocates of popular sovereignty coalesced around what is known as “resistance theory” – whether, contrary to the Augustine tradition, people had the legitimate right to resist and dethrone a king (see Kingdon, 1991 and Skinner, 1978 for authoritative discussions). Early versions of this emanated from the struggle of Luther and Calvin against papal control. Interestingly, the advocates of absolutism explicitly set themselves against the notion of a mixed constitution, instead emphasizing that many classical writers, such as Aristotle, Aquinas, and Cicero (e.g. Cicero, 1998, p.25), thought kingship the best type of government. Theoretically, as Bodin (1992, p.92) put it “to combine monarchy with democracy and aristocracy is impossible and contradictory…. For if sovereignty is indivisible, as we have shown, how can it be shared by a prince, the nobles, and the people at the same time?” To sustain this argument he went on to argue that previous writers, like Polybius or Cicero, had in fact misinterpreted the nature of the Spartan and Roman constitutions stating “We shall conclude, then, that there is not now, and never was, a state compounded of aristocracy and democracy, much less of the three forms of state” (Bodin, 1992, p.103). It was not just that sovereignty was indivisible, dividing powers led to anarchy as Sir Robert Filmer put it in a famous tract of 1648, The Anarchy of a Limited or Mixed Monarchy (Filmer, 1991).

Resistance theory began to take on a more institutionalized form at the start of the seventeenth century (Llord, 1991; Somerville, 1999). Franklin (1991, p.304) notes, for example, that though notions of mixed government and executive constraints were well understood, other concepts like the separation of powers were only nascent in the sixteenth century. The first constitution to feature explicit separation of powers was the English Instrument of Government written after the parliamentary victory in the civil wars; see Vile (1967). This provided the basis for Locke’s analysis in his Second Treatise on Government. Locke provides a clear rationale for the existence of the state but warns against tyranny since “monarchs are but men” and he asks whether “men are so foolish, that they take care to avoid what mischiefs may be done them by pole-cats and foxes; but are content, nay think it safety, to be devoured by lions?” (Locke, 2003, p.140). Locke then argues that the design of institutions is key to constraining potential lions. Power has to be devolved to a legislature containing “collective bodies of men, call them senate, parliament, or what you please” (Locke, 2003,
and because of potential conflicts of interest, “the legislative and executive power come often to be separated” (Locke, 2003, p.164).

This tradition, by way of Montesquieu’s *Spirit of the Laws*, subsequently had a major impact on the thinking and institutional design of the US and French constitutions. Though the Federalist Papers mention only Montesquieu explicitly, other writings confirm the importance of Locke; see, for example, Mace (1979) and Wills (1981). Of particular interest are the writings of John Adams. In his 1778 book *A Defence of the Constitutions of Government of the United States of America* he traces the genealogy of the key ideas of the constitution, particularly executive constraints, checks and balances, and the separation of powers. Included in the sources are Plato and Solon, with Polybius and Machiavelli’s *Discourses of Livy* receiving particular attention.

An important factor underpinning this intellectual history is the fact that in the Greco-Roman and Christian traditions, humans legislated much of their own laws – the collection of Roman law in the 6th century under Justinian was one manifestation. Church law, Canon law, never had the same status as the Sharia. Indeed Pennington (2008, p.386) notes “Christian communities lived without a comprehensive body of written law for more than five centuries. Consequently, in the early church, ‘canon law’ as a system of norms that governed the church or even a large number of Christian communities did not exist.” Instead, in Europe, local traditions and Roman law were powerful and “no single authoritative compilation of Church law came into existence before the twelfth century” (Herzog, 2018, p.49). When finally Canon law was systematized by Gratian, his compilation, the *Decretum* (Decree), had to compete with other sources of law. Pirie (2021, p.163) notes how there were “interminable debates about its relation to the ‘civil law’ ”. Moreover, while the Decree was emerging “rulers and judges were inspired by the example of Justinian to create new codes for their people” (Pirie, 2021, p.163) all a very far cry from the Islamic world.

At the same time there was also a clear sense of legislation and the legitimacy of legislation. Thus, Marsilius of Pauda wrote in *Defensor Pacis*, “the judgment, command, and execution of any arraignment of the prince for his demerit or transgression should take place through the legislator, or through a person or persons established for this purpose by the authority of the legislator” (Klosko, 2012, p.312-3; see also Coleman, 2000, Ch.4).

However, the concern with setting the best law or with the concentration of both legislative and executive power in the prince, king, caliph, *hākim, ʿulū al-amr*, or whoever was in charge was less concerning in Islamic (and Jewish) traditions, in which it was assumed that much of the law was divine and set by God. The comprehensive scope of the law and the perceived homogeneity of the society in Islamic and Jewish traditions (all were supposed to follow the divine law), in turn, would make a ruler’s deviations more observable and coordination on revolt against such deviant rulers more expedient.

5 Conclusion

In this paper we have identified a new puzzle; that Islamic political philosophers and intellectuals never developed, until the belated reforms of the 19th century, institutional models of executive constraints. This was so even though they were very aware of the dangers of
tyranny. In this they diverged radically from the Western tradition emanating from Sparta, Aristotle, and Plato. We argued that this was because of the cultural and social contexts in which Islamic philosophy was embedded. Unlike in the Christian world, where legislation was mostly in secular hands, in Islam the law was determined in detail by God. We argued that this made it much easier for Muslims to determine when rulers were deviating from set policies and thus they were better able to use collective action to discipline rulers without the need for institutional safeguards. In our theory this mechanism is fortified by the homogeneity of Islamic societies, since everyone was a believer, and in the basic norms of Islam, particularly the stipulation that everyone should “command right and forbid wrong” (Cook, 2001).
Appendix

A Proofs

Proposition 6 is obtained as a corollary of the following Proposition.

**Proposition 8.** Suppose $\gamma \sim U[0, 1]$. Let $Q = Pr_{\gamma}(\mu \leq \mu^*(\gamma))$ be the probability that institutional constraints improve the majority citizen’s policy payoff. Then,

$$Q(\mu; M, p) = \begin{cases} 
1 & ; \mu \leq (1-p)(q-q^2) \\
\min \left\{ 1, \frac{1-\delta_0}{1-T/M} \right\} & ; (1-p)(q-q^2) \leq \mu \leq (1-p(1-\delta_0))(q-q^2) \\
\min \left\{ 1, \frac{1}{(1-T/M)p} \left( 1 - \frac{\mu}{q-q^2} \right) \right\} & ; (1-p(1-\delta_0))(q-q^2) \leq \mu \leq (q-q^2) \\
0 & ; (q-q^2) < \mu.
\end{cases}$$

**Proof of Proposition 8.** Using Proposition 5,

$$Q = Pr_{\gamma}(\mu \leq \mu^*(\gamma))$$

$$= Pr_{\gamma}(\mu \leq (1-p)(q-q^2), \beta > 1-\delta_0) + Pr_{\gamma}(\mu \leq (1-p(1-\delta_0))(q-q^2), \beta < 1-\delta_0)$$

Using the fact that $\beta = \beta(1, M, \gamma)$, and substituting Proposition 1, we have: $\beta = H \left( \frac{1-T}{M} \gamma \right)$. Because $H = U[0, 1], \beta = (1-\frac{T}{M})\gamma$. Substituting, we have:

$$Q = Pr_{\gamma} \left( \mu \leq (1-p)(q-q^2), (1-\frac{T}{M})\gamma > 1-\delta_0 \right)$$

$$+ Pr_{\gamma} \left( \mu \leq (1-p(1-\frac{T}{M})\gamma)(q-q^2), (1-\frac{T}{M})\gamma < 1-\delta_0 \right)$$

$$= Pr_{\gamma} \left( \mu \leq (1-p)(q-q^2), \gamma > \frac{1-\delta_0}{1-\frac{T}{M}} \right) + Pr_{\gamma} \left( \gamma \leq \frac{1}{p \left( 1-\frac{T}{M} \right)} \left( 1 - \frac{\mu}{q(1-q)} \right), \gamma < \frac{1-\delta_0}{1-\frac{T}{M}} \right)$$

Now, consider four different cases.

1. Suppose $\mu \leq (1-p)(q-q^2)$. In this case,

$$Q = Pr_{\gamma} \left( \gamma > \frac{1-\delta_0}{1-\frac{T}{M}} \right) + Pr_{\gamma} \left( \gamma \leq \frac{1}{p \left( 1-\frac{T}{M} \right)} \left( 1 - \frac{\mu}{q(1-q)} \right), \gamma < \frac{1-\delta_0}{1-\frac{T}{M}} \right)$$

Rearranging $\mu < (1-p)(q-q^2)$ yields: $1 < \frac{1}{p} \left( 1 - \frac{\mu}{q(1-q)} \right)$. Therefore, $\frac{1}{p \left( 1-\frac{T}{M} \right)} \left( 1 - \frac{\mu}{q(1-q)} \right) > \frac{1}{1-\frac{T}{M}} > \frac{1-\delta_0}{1-\frac{T}{M}}$, and Equation (3) further simplifies to:

$$Q = Pr_{\gamma} \left( \gamma > \frac{1-\delta_0}{1-\frac{T}{M}} \right) + Pr_{\gamma} \left( \gamma < \frac{1-\delta_0}{1-\frac{T}{M}} \right) = 1$$
2. Suppose \((1 - p)(q - q^2) \leq \mu \leq (1 - p(1 - \delta_0))(q - q^2)\). In this case,

\[
Q = Pr_{\gamma} \left( \gamma \leq \frac{1}{p \left(1 - \frac{T}{M}\right)} \left(1 - \frac{\mu}{q(1 - q)}\right), \gamma < \frac{1 - \delta_0}{1 - \frac{T}{M}} \right)
\] (4)

Since \(\mu < (1 - p(1 - \delta_0))(q - q^2)\), \(\frac{1}{p \left(1 - \frac{T}{M}\right)} \left(1 - \frac{\mu}{q(1 - q)}\right) > \frac{1 - \delta_0}{1 - \frac{T}{M}}\), and Equation (4) further simplifies to:

\[
Q = Pr_{\gamma} \left( \gamma \leq \frac{1 - \delta_0}{1 - \frac{T}{M}} \right) = \min \left\{ 1, \frac{1 - \delta_0}{1 - \frac{T}{M}} \right\}
\]

3. Suppose \((1 - p(1 - \delta_0))(q - q^2) \leq \mu \leq q - q^2\). Because \(\mu > (1 - p(1 - \delta_0))(q - q^2) > (1 - p)(q - q^2)\), in this case,

\[
Q = Pr_{\gamma} \left( \gamma \leq \frac{1}{p \left(1 - \frac{T}{M}\right)} \left(1 - \frac{\mu}{q(1 - q)}\right), \gamma < \frac{1 - \delta_0}{1 - \frac{T}{M}} \right)
\] (5)

Since \(\mu > (1 - p(1 - \delta_0))(q - q^2)\), \(\frac{1}{p \left(1 - \frac{T}{M}\right)} \left(1 - \frac{\mu}{q(1 - q)}\right) < \frac{1 - \delta_0}{1 - \frac{T}{M}}\), and Equation (4) further simplifies to:

\[
Q = Pr_{\gamma} \left( \gamma \leq \frac{1}{p \left(1 - \frac{T}{M}\right)} \left(1 - \frac{\mu}{q(1 - q)}\right) \right) = \min \left\{ 1, \frac{1}{p \left(1 - \frac{T}{M}\right)} \left(1 - \frac{\mu}{q(1 - q)}\right) \right\}
\]

4. Finally, suppose \(\mu > q - q^2\). Because \(\mu > (q - q^2) > (1 - p)(q - q^2)\), in this case,

\[
Q = Pr_{\gamma} \left( \gamma \leq \frac{1}{p \left(1 - \frac{T}{M}\right)} \left(1 - \frac{\mu}{q(1 - q)}\right), \gamma < \frac{1 - \delta_0}{1 - \frac{T}{M}} \right)
\] (6)

Since \(\mu > q - q^2\), \(1 - \frac{\mu}{q(1 - q)} < 0\). Then, \(Q = 0\).

\[\Box\]

The first part of Proposition 6 is then obtained as a special case of Proposition 8 for the case \(\delta_0 < T/M\), and with defining \(\mu' = \frac{\mu}{q - q^2}\). The second part of Proposition 6 follows because, as \(Q(\mu')\) is decreasing in \(\mu'\), with \(\mu'_1 < \mu'_2\):

\[|Q(\mu'_2) - Q(\mu'_1)| = Q(\mu'_1) - Q(\mu'_2)\]

Moreover, since \(\mu'_1 \in (1 - p(1 - T/M), 1)\), \(Q(\mu'_1) = \frac{1 - \mu'_1}{(1 - T/M)p}\). Also, for any \(\mu'_2 > \mu'_1 > 1 - p(1 - T/M)\), \(Q(\mu'_2) = \max\left\{1 - \frac{1 - \mu'_2}{(1 - T/M)p}, 0\right\}\). Therefore,

\[
Q(\mu'_1) - Q(\mu'_2) = \frac{1 - \mu'_1}{(1 - T/M)p} - \max\left\{1 - \frac{1 - \mu'_2}{(1 - T/M)p}, 0\right\}
\]

\[
= \min\{\mu'_2, 1\} - \mu'_1
\]

which is strictly decreasing in \(p\) and \(M\). \[\Box\]
References


