The Feudal Revolution and Europe's Rise: Political Divergence of the Christian and Muslim Worlds before 1500 CE

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Abstract

This paper documents a divergence in the duration of rule for monarchs in Western Europe and the Islamic world beginning in the medieval period. While leadership tenures in the two regions were similar in 700 CE, Christian kings became increasingly long-lived compared to Muslim sultans. To better understand the roots of this divergence, we investigate the empirical relevance of an historical literature stressing Carolingian feudalism as critical for the emergence of European institutional exceptionalism. We argue that forms of executive constraint that emerged under feudal institutions were associated with increased political stability and find empirical support for this argument. While feudal institutions served as the basis for military recruitment by European monarchs, Muslim sultans relied on mamlukism — or the use of military slaves imported from non-Muslim lands. Dependence on mamluk armies limited the bargaining strength of local notables vis-à-vis the sultan, hindering the development of a productively adversarial relationship between ruler and local elites. We argue that Muslim societies' reliance on mamluks, rather than local elites, as the basis for military leadership, may explain why the Glorious Revolution occurred in England, not Egypt.

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"*The kingdoms known to history have been governed in two ways: either by a prince and his servants, who, as ministers by his grade and permission, assist in governing the realm; or by a prince and by barons...Examples of these two kinds of government in our own time are the Turk and the King of France*" (Machiavelli 1903 [1532], pp. 14-15).

1 Introduction

An influential literature sees the roots of the industrial revolution in Europe's unique institutional framework.[1] While it seems increasingly clear that growth-friendly, sovereign-constraining institutions — including respect for property rights and the rule of law — were key to the emergence of sustained economic development in Europe, scholars struggle to explain both how such institutions emerged and why they were initially limited to Western Europe. Recent studies focusing on the evolution of European institutions generally begin their analysis after the year 1500 CE, while noting the peculiarity of Europe's "initial" institutional framework.[2] For example, in the conclusion of their seminal study of the evolution of English institutions following the Glorious Revolution, North and Weingast (1989) acknowledge that English institutions provided abnormal checks on the sovereign from an early (e.g., medieval) date. Similarly, Acemoglu, Johnson and Robinson (2005) note that European political institutions established prior to 1500 CE already placed "significant checks on the monarch."

A distinguished line of scholars has stressed the feudal origins of European institutional exceptionalism. Montesquieu (1989 [1748], p. 619) was an early proponent of the argument that feudalism "diminished the whole weight of lordship."[3] Recent scholarship suggests that feudalism coincided with a rise of a powerful landed aristocracy that proved instrumental in constraining the sovereign through the development of medieval parliaments.[4] Van Zanden, Buringh and Bosker (2011) provide an historical treatment of the emergence of European parliaments, arguing that these institutions ultimately facilitated medieval economic and institutional development; Stasavage (2010) describes the conditions under which parliamentary institutions endured in the medieval and early modern eras.

[1] See North and Weingast (1989), DeLong and Shleifer (1993), Acemoglu et al. (2005), North et al. (2009) and Acemoglu and Robinson (nd).

[2] A notable and influential exception to this trend in the literature can be found in the work of Greif (1994) who examines the cultural determinants of institutional development in premodern societies of the Mediterranean.

[3] Max Weber (1978, p. 1082) viewed feudalism as approximating constitutional government. Others have claimed that "the institutional history of Europe, even of the United States, goes back to the age of Charlemagne" (Ganshof 1968, p. ix) and that feudalism laid "the critical institutional groundwork upon which liberal democracy was built" (Downing 1992, p. 18).

[4] See Strayer (1970) and Downing (1989).

This paper uses data on ruler duration — the most significant political indicator that is reliably available for the pre-modern period — in Western Europe and the Islamic world to investigate the origins of European institutional exceptionalism. We show that although rulers assuming power in 700 CE in both Western Europe and the Islamic world could expect similar durations of rule, by the year 1100 CE European rulers remained in power for longer than their Muslim counterparts. The gap in ruler tenure persists until the end of our sample in 1500 CE. These statistical results are interesting, in part, because they provide the first empirical evidence for European political advantage over a major, non-European civilization from an early date.[5]

Perhaps more importantly, our data also provide an opportunity to investigate the empirical relevance of a number of competing theories for the emergence of Europe's unique institutional framework. We use trend break algorithms to investigate the origins of the increase in European political stability. Results identify a break in European political stability in the year 790 CE. This date coincides with the midpoint of Charlemagne's reign (768-814 CE) and is consistent with an influential historical literature stressing the Carolingian origins of both feudalism and European institutional exceptionalism.

If the "feudal revolution" (Duby 1978) was the key to the divergence of Western Europe from the rest of the world, what was it about feudalism that promoted both ruler stability and economic growth? And how did feudal institutions compare to methods of social control and organization in the Islamic world? European monarchs lacked the financial resources to outsource their military needs to foreign mercenaries following the fall of the Roman Empire. The feudal relationships which evolved served as the foundation for military human resources as the landed nobility of Europe emerged as a "warrior class." When monarchical abuses took place, barons were able to impose forms of executive constraint on European kings that formed the basis for more secure property rights. Sultans in the Muslim world, by contrast, inherited more capable bureaucracies from conquered Byzantine and Sassanid lands and introduced mamlukism — or the use of slave soldiers imported from non-Muslim lands — as the primary means of elite military recruitment. Mamluks — segregated from the local population — swore their allegiance to the sultan. Local elites in the Muslim world did not serve as the source of elite military recruitment and, thus, were poorly positioned to impose the types of constraints on the executive that became evident in Europe.[6] Mamlukism — as a military-political institution —- enabled the ruler to

[5] Political stability has been shown to be an important correlate of economic growth. See Alesina et. al (1996) for a detailed discussion.

[6] This pattern suggests a "reversal of fortune" though operating through a different mechanism than described by

bypass local elites in the raising of a military, leading to a concentrated, but brittle, form of power held by Muslim sovereigns compared to their European counterparts.[7]

The theoretical logic behind our historical narrative is straightforward; decentralizing power increases the cost of an unsuccessful revolt for the monarch's rivals. In other words, armed local elites in Europe were able to extract a better "soft contract" from their monarch than in the Islamic world and were, therefore, less likely to overthrow that monarch. From an empirical perspective, we focus on testing two implications of this hypothesis. First, if the introduction of feudal institutions drive the increase in ruler stability, we should observe this increase starting within the Carolingian Empire, spreading to the rest of Europe thereafter. Second, if longer ruler tenures are driven by forms of powersharing we should observe a positive correlation between constraints on the sovereign and ruler duration. We present empirical evidence consistent with both of these implications.

If feudalism curbed the power of European monarchs with implications for economic growth, what lessons can we draw about the Islamic world? Our findings suggest that the Muslim world fell behind because of the inability of Muslim sultans to be credibly constrained. This explanation is distinct from recent work which has argued that Islamic institutions, like Muslim inheritance laws and charitable endowments, played a crucial role in the region's economic underdevelopment (Kuran 2004; Kuran 2009; Kuran 2010a; Kuran 2010b) as well as a focus on the collectivist nature of "Eastern" societies and the negative externalities associated with informal monitoring and punishment mechanisms (Greif 1994).

The remainder of the paper is structured as follows. Section two documents the divergence in ruler duration for the Islamic and Christian worlds. Section three offers an historical narrative detailing our theory for this divergence in political outcomes. Section four empirically interrogates observable implications of our theory. Section five investigates the empirical implications of a number of alternative hypotheses. A sixth section concludes.

Acemoglu et al. (2002). While Acemoglu et al. (2002) focus on the institutional reversal achieved in scarcely populated, underdeveloped areas, the reversal we propose is one where fiscal and administrative capacity actually hindered long-term economic prosperity by providing Islamic dynasties with the means to avoid bargaining with their own elite populations.

[7] Mamlukism, in fact, became a defining feature of Muslim polities; indeed, the phenomenon of "slaves on horses" spread across Muslim dynasties and continued for a period of more than 800 years. *Slaves on Horses: The Evolution of the Islamic Polity* is the title of Patricia Crone's influential study of mamlukism in the medieval Islamic world. She writes that rather than being a "topsy-turvy vision" slaves on horses became in Islam the most "everyday of sights" (Crone 2003, p. 79).

2 Ruler Duration in the Christian and Muslim Worlds

The most basic unit of political analysis for both Christian Europe and the Islamic world during the medieval period is the monarch, whether he is known as a king or sultan.[8] The medieval period was characterized by the proliferation of hundreds of dynasties for which students of history and medieval numismatics — the study of currency and coinage — have invested tremendous effort in creating leadership chronologies. As a result, ruler duration may be the most reliable, politically significant indicator for which data is available for a wide swath of both time and territory. The following section explicitly examines changing trends in ruler duration across Christian and Muslim dynasties from the start of the 8^{th} century to the start of the 16^{th} century.

2.1 Data

To examine trends in ruler duration across the Christian and Muslim worlds, we have compiled two primary datasets. The first draws on existing compendia of rulers across medieval dynasties. The second dataset collects information on all monarchs for political units depicted in a set of historical maps developed as part of the Euratlas project (Nüssli 2011). Each dataset is described below.

The primary data used in this analysis are derived from two compendia on political dynasties and their associated rulers. *Islamic Dynasties* (Bosworth 1996) and *Dynasties of the World* (Morby 1989) represent the best collections of information on the duration of rulers in the Islamic world and Christian Europe, respectively. Bosworth (1996) focuses exclusively on the Islamic world, providing the most comprehensive data on dynasties in this region. Morby (1989) provides ruler durations for dynasties across the world with an "emphasis on Europe and on its roots in the ancient world" (Morby 1989, p. vii). Our main data set includes all the rulers in Bosworth (1996) who assumed power before the year 1500 CE and those in Morby (1989) who assumed power before this date in sections IV, "The Barbarian West," and section V, "Europe."[9] We use this data set as our baseline data set.[10]

We have also created a second dataset based on the political units detailed in historical maps gen-

[8] Bienen and van de Walle (1991) and Goemans, Gleditsch and Chiozza (2009) — among others — have emphasized the importance of collecting data on the duration of rule for individual political leaders.

[9] Section V makes up the majority of the book and is divided into ten subsections: 1. The British Isles, 2. France, 3. The Low Countries, 4. Italy, 5. The Iberian Peninsula, 6. German-speaking States, 7. Scandinavia, 8. Eastern Europe, 9. Russia, and 10. Crusader States. When we refer to western Europe in the Morby data set, we include all rulers in section IV and subsections 1 - 7 and 10 in section V. Eastern Europe is composed of subsections 8 and 9.

[10] We henceforth refer to this as the "Bosworth/Morby data set."

erated by Nüssli (2011) as part of the Euratlas project.[11] The Euratlas project provides the geographic boundaries of all political entities covering the earth's surface in the box between the longitudes 15 west and 50 east and the latitudes 20 north to 60 north. This encompasses all of Europe, North Africa and parts of northwestern Asia including Anatolia and the Levant. We use the GIS shapefile "sovereign states" in Nüssli (2011) at the start of 700, 800, 900, 1000, 1100, 1200, 1300 and 1400 CE to define the population of political entities, in a statistical sense. We have attempted to determine the length of rule for every monarch that assumed power in each of these political entities on the interval [t, t+100). Next, we assigned rulers who assumed power on the interval [t,t+100) to the map of year t. In other words, our sample is updated every 100 years to include the entities Nüssli (2011) denotes as sovereign states. Geographic variables were derived using information provided by Nüssli (2011) using ArcGIS.[12]

We have gathered these data for two reasons. First, Nüssli's maps were complied independently of the Bosworth/Morby data set. Thus, this data set provides a useful robustness check for the results obtained using the Bosworth/Morby data set. Second, Nüssli's maps allow us to introduce a broad set of geographic control variables that permit testing of alternative explanations.

2.2 Trends in Duration of Rule

This section presents the trends in ruler duration for the Christian and Muslim worlds. These results can be summarized by inspection of Figures 1 and 2. Figure 1 is made up of two maps. The first map displays average ruler duration on the interval [700,800) CE, by political entity. The second map provides the same metric on the interval [1400, 1500) CE. Islamic polities are outlined. While in 700 CE rulers in political entities across the Mediterranean basin had similar lengths of tenure, by the year 1400 CE rulers in Western Europe remained in power for significantly longer. Figure 2 plots the moving average, with 100 lags, of ruler duration in Western Europe and the Islamic world starting in the year 700 CE using the Bosworth/Morby data set. Ruler duration in Europe overtakes leader tenure in the Islamic world sometime in the 10^{th} century.

Panel 1 of Table 1 reports regression output investigating this relationship more formally. We restrict the sample to rulers assuming power on or after 700 CE and before 1500 CE and run regressions of the form:

[11] A detailed bibliography of the sources used by Nüssli (2011) is available at `http://www.euratlas.com/index.html`. In this data set we define a polity as belonging to Western Europe if its centroid is west of Venice and it does not belong to the Islamic world.

[12] The appendix provides a comprehensive overview of the data and all sources used.

$$duration_{itc} = \theta_c d_c + \sum_{c=700}^{1400} \alpha_c \cdot WE_i \cdot d_c + \sum_{c=700}^{1400} \beta_c \cdot EE_i \cdot d_c + \varepsilon_{itc} \quad (1)$$

where $duration_{itc}$ gives the duration in power of ruler i that assumed power in year t in century $c \in \{700, 800, 900, 1000, 1100, 1200, 1300, 1400\}$. The d_c are century dummy variables, WE_i is a variable equal to one if ruler i assumed power in Western Europe and EE_i is a variable equal to one if ruler i assumed power in Eastern Europe (defined in Nüssli's data set as east of Venice and not belonging to the Islamic world).[13] Throughout the empirical section, we cluster standard errors by dynasty in the Bosworth/Morby data set.

The coefficients θ_c,α_c and β_c estimated using the Bosworth/Morby data set are presented in Columns (1)-(3) of Panel 1 in Table 1. Column (1) provides $\hat{\theta}_c$, or the mean duration of rulers in the Islamic world, by century. Column (2) details $\hat{\alpha}_c$, or the difference in mean duration between Western Europe and the Islamic world, by century. Column (3) lists $\hat{\beta}_c$, or the difference in mean duration between Eastern Europe and the Islamic world, by century. These estimates show that although before the year 1100 CE ruler durations in Western Europe and the Islamic world were not statistically different, after this date one can reject the null hypothesis that leadership tenures were the same. Ruler duration in Eastern Europe follows a different pattern, gaining a robust statistically significant advantage over the Islamic world only in the 15^{th} century. In column (4) we present the p-value of the test statistic for the equality of α_c and β_c. We provide these values to investigate the extent to which there were persistent differences in ruler duration between Western and Eastern Europe.

Columns (5)-(9) present the results using the data we have collected using the Euratlas maps (Nüssli 2011) as the basis for selection of polities. Columns (5)-(7) of Table 1 provide estimates of θ_c, α_c and β_c, respectively. In column (8) we present the p-value of the test statistic for the equality of α_c and β_c. These results are qualitatively similar to those obtained using the Bosworth/Morby data set. Throughout the empirical section we cluster standard errors by political entity in the Nüssli data set.

Column (9) presents values of $\hat{\alpha}_c$ when geographic controls are included. These controls include the area of the political entity at the start of the century, the proportion of the entity that was part of the Roman Empire in the year 100 CE, the latitude of the centroid of the political entity and the average agricultural suitability of the entity. The introduction of these control variables does not change the

[13] We use OLS throughout the paper because we are primarily interested in mean comparisons of duration and OLS allows us to present these results in a transparent manner. The use of standard duration models, however, yields qualitatively similar results to those presented.

qualitative implications of the results. Since this is true throughout the paper, we henceforce omit these controls.

2.3 Method of Exit

Does divergence in ruler duration reflect a change in political stability? And what do we know about the method of exit for the monarchs examined? We explore these questions by constructing a dummy variable equal to one if Morby (1989) identifies a ruler as having been deposed. Morby (1989) defines deposition as removal by conquest or overthrow. Although this metric is primarily available for rulers in Western and Eastern Europe, information is also provided for some of the Muslim dynasties contained in Bosworth (1996). In Panel 2 of Table 1, we present the results of Regression (1) using the dummy variable $deposed_{itc}$ in place of $duration_{itc}$. Although the results for the Islamic world should be treated with caution due to relatively small sample size, the overall trend is consistent with results observed with ruler duration. After 1100 CE, rulers in Western Europe are significantly less likely to be deposed than their Muslim counterparts. At the end of the sample, the probability of a ruler being deposed in Eastern Europe converges to Western European levels. Figure 3 shows the moving average of ruler duration and the probability of being deposed for the Islamic world and Western Europe, respectively.

This section has established two empirical facts. First, ruler duration in Western Europe statistically diverged from duration in the Islamic world during the medieval period. Second, this divergence was driven, in part, by a reduced probability of monarchical overthrow in Western Europe.

3 Explaining the Divergence in Political Stability

Scholars have argued that the political institutions that emerged in Western Europe in the late Middle Ages proved to be growth-enhancing. Explaining how Europe came to develop growth-promoting political institutions is virtually impossible through an examination of Europe alone. Indeed, understanding the determinants of sustained economic growth in Europe demands comparison with an appropriate historical counterfactual case or set of cases. As a result, we explore the *political* origins of institutional divergence in the Christian and Muslim worlds prior to 1500 CE.

Thus far, we have offered empirical evidence to suggest that monarchs enjoyed longer reigns in Europe beginning in the 11^{th} century CE and that longer rule was a function of a reduced probability

of being overthrown. In this section, we offer an explanation for both why European monarchs were less likely to be deposed over the course of the Middle Ages as well as how increased stability relates to the emergence of growth-enhancing institutions. We draw on an historical literature stressing the feudal (i.e., Carolingian) origins of European institutional exceptionalism. Next, we compare the institutional developments in Christian Europe with the equilibrium which emerged in the Islamic world.

3.1 Feudalism, Parliaments and the Rise of Europe

In 1188 CE, Alfonso IX (1188-1230) of León (Spain) convened the world's first parliament. By the 13^{th} century similar institutional arrangements had spread throughout Western Europe (Stasavage 2010). One scholar has summarized the importance of this development by noting:

> "Late medieval Europe had numerous political characteristics that distinguished it from other major world civilizations. These characteristics, the most important of which were representative assemblies, constituted a basis for liberal democracy, which provided Europe with a predisposition toward democratic political institutions" (Downing 1992, p. 3).

The usual narrative describing the birth of representative, sovereign-constraining political institutions begins with the collapse of the western Roman Empire.[14] The fiscal position of the Germanic successor states to the Roman Empire tended to be weak. Unable to fund military expenditure through tax receipts, European rulers sought other avenues for raising armies. The innovations introduced by Charlemagne marked a pivotal change. Lacking the capacity to introduce a system of tax collection, Charlemagne required landholders to contribute troops instead of funds.

This change increased the power of large landlords in two ways. First, small, independent landowners pooled their lands with those of larger landholders to avoid having to offer themselves up for military service. As individual landholders began to "aggregate up," large landowners emerged who could ensure the cultivation of land while distributing the burden of military service across the larger body of peasants. Second and contemporaneously, European kings — like Charlemagne — required mounted troops, not just infantrymen, as a result of the introduction of the stirrup. The technological innovation of the

[14] The decline of Rome as a location of centralized authority was accompanied by a depopulation of urban centers as Roman citizens began moving to the countryside. The move to manors, and subsequent development of manorialism, was motivated by a search for basic food security. Egypt was long known to be the breadbasket of the Roman Empire. With the empire's decline, trade between North Africa and Europe deteriorated to the point that former urban dwellers began to gravitate to manors where they might engage in agricultural production.

stirrup meant that "mounted shock combat" became the norm in warfare and the large investment required to purchase a horse and armor for battle meant that monarchs needed to recruit individuals with wealth to serve as the mounted military elite (White 1962). Mounted warriors, or knights, were often compensated for their service to the king through land grants.[15] Military service and loyalty were expected in exchange for control of land (North et al. 2009, p. 79). European barons operating in the feudal system entered battle with their own, privately financed equipment, archers, and associated infantry. Such individuals often enjoyed opportunities to increase their landholdings or other forms of advancement as a result of their fighting. Together, the methods of military recruitment that emerged in medieval Europe came to be known as the feudal system.[16] The net result of these innovations was the creation of a landed aristocracy in Western Europe.[17]

Strayer (1970) provides a particularly compelling discussion of the feudal system and its consequences for state development. He argues that in the weakened and cash-strapped environment of early medieval Europe, "standing armies or permanent officer corps were unthinkable" (Strayer 1970, p. 27). Feudalism, characterized by its "fragmentation of political power" (1970, p. 14), emerged whereby rulers would raise armies on an as-needed basis by offering inducements of land or other privileges in exchange for support. While the system might appear to work against the creation of an effective state in the short run, Strayer argues that ultimately such a system "...can become a basis for state-building" (1970, p. 15). Although he does not bring any systematic empirical data to bear on this question, he argues that there was a notable increase in Western European political stability following 1000 CE and it was this stabilization of the political scene that allowed for an economic revival that included higher levels of agricultural production, population growth and a revitalization of long-distance commerce (Strayer 1970, p. 19).[18] He finds that during this period of deepening political stability, the basic components

[15] Eventually European rulers transformed feudal obligations into revenue as vassals paid to commute their service, allowing for the cultivation of standing and mercenary armies (Levi 1988, p. 106).

[16] The definition of feudalism is much debated. Here, we define feudalism as a system of military mobilization and organization distinct from manorialism, the economic system that provides the basis for feudalism.

[17] The process that led to the disintegration of the classical (Roman) institutional framework and the emergence of a decentralized "feudal" framework remains a topic of scholarly division. A competing hypothesis to the one put forward here was introduced in the first half of the 20^{th} century by renowned Belgian historian Henri Pirenne (1980 [1939]). Pirenne advanced the controversial hypothesis that the Islamic invasions of the Mediterranean basin in the 7^{th} and 8^{th} centuries were the key catalyst leading to the emergence of feudalism and Europe's unique subsequent institutional development. He claimed that these invasions cut trade between the northern and southern Mediterranean and the subsequent disappearance of trade led to a sharp drop in tax revenues, forcing rulers in what is today France to compensate their military with land. Pirenne saw the empowerment of the aristocracy complete by the reign of Charlemagne.

[18] A variety of studies show that by the late medieval period, interest rates in Western Europe had begun to decline dramatically [e.g, see Clark (1988) and Epstein (2000)], perhaps also a result of the increased political stability that we identify.

of the modern state began to appear in Europe (Strayer 1970, p. 34).

The stability of European monarchs evolved hand-in-hand with both increased economic opportunities and growing constraints on the executive. Europe's more stable political environment contributed to the rise of towns and a nascent commercial revolution that became apparent beginning in the 12^{th} century. Peasants seeking opportunities to sell handicrafts and agricultural surplus sought out small markets and fairs. Markets were only able to arise in places where political stability allowed for defense from bandits and marauders. The nature of elite military recruitment under feudalism also led monarchical abuses to be self-limiting. Barons — who served as vassals to the king — had the military means by which to rebel and demand satisfaction of their grievances (Breay 2002). The independent military power of the barons allowed for a degree of bargaining strength vis-*à*-vis the monarchy as barons could either rebel against the king or support an opposition figure who might meet their demands in exchange for support.

English barons, for example, came to limit the power of kings in a number of meaningful ways. The promulgation of the Magna Carta in 1215 and eventual establishment of an English parliament populated by knights and barons in 1265 serve as a useful example. Under feudal institutions, the king had the right to demand "military service...whereby kings expected their vassals to contribute either in men or in money to armies" (Holt 1992, p. 30). Military service was a source of "widespread and perennial acrimony" between the king and his vassals (Holt 1992, p. 78). King John's loss of Normandy in 1204 led to a growing reliance on local barons for both men and money. The Magna Carta — which reflected a greater acceptance of baronial demands than King John had hoped to make — was signed in June 1215 with a "renewal of homage and fealty" on the part of English barons (Holt 1992, p. 189). The Magna Carta was a direct product of both King John's military failures and his future needs, where "war was the compulsive urgency behind administrative experiment" (Holt 1992, p. 24-25).[19] The Magna Carta laid the groundwork for future demands to limit the power of the monarch in England. Over time, a coalition of English elites established credible constraints on the executive with the Glorious Revolution of 1688, allowing for property rights and security from arbitrary taxation that ultimately encouraged economic growth (North and Weingast 1989).

[19] At around the same time European monarchs on the continent were also ceding liberties to vassals and barons (Holt 1992, p. 25-26). The Golden Bull of 1222 CE in Hungary laid out the rights of knights and counts under the feudal system (Holt 1992, pp. 77-78). Regional parliaments in France were established in the 13^{th} century. The English parliament began to meet regularly beginning in 1295 CE (van Zanden et al. 2011).

In England and beyond, feudalism represented a meaningful fragmentation of political authority.[20] Kings — while the technical heads of government in their respective territories — had ceded considerable strength to local strongmen who enjoyed both public and private power, including control over public goods provision and land and rental income (Bisson 1994). In the face of divided and decentralized political power, how were European sovereigns able to increase their length of rule? Our argument is that more consensual government — as it emerged in Europe, with roots in medieval feudalism — enjoyed an advantage in terms of political stability. Forced by economic weakness to bargain and negotiate with local elites, European monarchs developed forms of political organization that exhibited a flexibility which trumped forms of more absolutist rule. These governmental forms contrast sharply with political organization and military recruitment in the Islamic world during the same time period.

3.2 The Islamic Equilibrium

> "*A monarchy where there is no nobility at all, is ever a pure and absolute tyranny; as that of the Turks*" (Bacon 1819, p. 282).

Political development in the Islamic world provides an important comparison to institutional evolution in Western Europe.[21] Like the Latin West, Muslim states ruled over some of the wealthiest Roman provinces and had access to the institutional heritage of ancient Greece, Rome and the Germanic states. Muslim states also controlled some areas that eventually reverted to Latin control. And, like Christian Europe, the Islamic world possessed a politically influential "clergy."

Yet, feudalism — with its complex system of interlocking economic and military rights and obligations — did not emerge in the Islamic world. Despite being largely agrarian, no "landed aristocracy or gentry" materialized (Crone 1999, p. 322) nor did nascent parliamentary institutions develop. How were Muslim rulers able to circumvent the emergence of the type of landed aristocracy that proved so critical to constraining monarchs in Europe? This section argues that divergence in the nature of elite military recruitment provides an explanation for why Christian Europe was ultimately able to develop growth-friendly political institutions. We argue that Muslim reliance on mamluks — or military slaves imported from non-Muslim lands — weakened state-society relations and hindered the development

[20] See Bisson (1994) for more on this point.

[21] Islam first emerged in the Arabian peninsula in the 7^{th} century and within one-hundred years, Arab Muslims came to occupy territory from the Iberian Peninsula to the Indus Valley after successful attacks on the Sassanid, Byzantine and other empires.

of impersonal political institutions. The widespread use of mamluks in the Islamic world limited the bargaining leverage enjoyed by local elites vis-à-vis the sultan, thus handicapping the development of the type of productively adversarial (and mutually dependent) relationship between ruler and ruled that emerged in Europe and which became the basis for forms of executive constraint. This is because mamluks were characterized by both "cultural dissociation" as a result of their emigration from a distant locale and "personal dependence" on the sultan who served as their master (Crone 2003, p. 79). Thus, while European rulers were negotiating with local gentry to raise armies for matters of defense, Islamic rulers bypassed local elites by creating highly-skilled armies of foreigners who had no ties to the existing gentry and swore allegiance directly to the sultan.

Historians of the medieval Islamic world have come to describe the introduction and eventual widespread adoption of mamluk institutions as a uniquely Islamic phenomenon. A mamluk is generally described as a military slave, though the term also refers to such individuals after their emancipation (Irwin 1986, p. 3).[22] Mamluks might better be defined as *elite* military slaves given the fact that they were typically well-trained and generously paid.[23] As such, mamluks were not prototypical slaves, but rather military elite who might serve in positions like falconer, provincial governor or treasurer (Irwin 1986, p. 4).[24]

Who became mamluks? The most sought after mamluks were of tribal origin imported from areas "marginal to the settled Islamic world" (Crone 2003, p. 78) like the Caucasus (present-day Georgia, Armenia and Azerbaijan) and Transoxania (present-day Uzbekistan, Tajikistan and Kazakhstan).[25] Imported as children, mamluks often underwent years of training which sought to both imbue them with military skills but also to encourage their loyalty to the sultan (Pipes 1981, p. 9).

A number of factors made mamluks from the Caucuses and Transoxania (henceforth described as "Turks" or Turkish mamluks) particularly valuable. Pipes suggests that one advantage Turks may

[22] How can we think about mamluks in comparison to mercenaries that were frequently employed alongside skilled knights and town militias in Europe during this period? While mercenaries might be hired for a particular military campaign, offering their services to the highest bidder, mamluks were bought as slaves, often as children, and then carefully trained in the military arts to serve a particular sultan.

[23] While homeborn freemen were still used as foot soldiers, the "crack troops" (Crone 2003, p. 80) or "backbone" (Ayalon 1994b, p. 17) of the sultan's army typically consisted of soldier slaves.

[24] Mamluks were first introduced by the Abbasids in the 9^{th} century as a retinue of three to four thousand Turks of non-Muslim origin (Crone 1999, p. 319). This new army of crack troops became the basis for the sultan's strength (Kennedy 2004, p. 159). Mamluk armies were quickly adopted by numerous Muslim polities (Ayalon 1994a, p. 25) and spread across the settled areas of the Islamic world (Crone 2003, p. 79).

[25] Though less common, black Africans also served as mamluks (Irwin 1986, p. 5). Fellow Muslims could not be enslaved and "People of the Book" — like Christians and Jews — were also protected from slavery and, thus, not eligible to serve as mamluks (Irwin 1986, p. 9).

have had over non-Turks in their recruitment as mamluks is related to the stirrup. He writes that the introduction of the stirrup "enhanced the power of the peoples living where horses could be raised — primarily in the steppe lands and in deserts — and reduced the strength of peoples living in densely inhabited areas" (1981, p. 57). Hodgson also points out the "steppes formed the most outstanding source of young slaves" as a result of the "boyhood military training as horsemen" (1977, p. 399). In addition, living in the mountains, deserts and steppes of Central Asia and the Caucasus, Turkish mamluks were raised under conditions of extreme hardship, leading them to be both healthy and lean (Pipes 1981, p. 78).[26]

In order to stem the "corruption" of military slaves from the luxuries of settled life, mamluk institutions created a disconnect between the soldier slaves and local society. To deter the mamluks from being able to develop ties to either the local population or home-born troops, the mamluks were kept in "strict isolation" (Crone 1999, p. 319). Mamluks typically bore their Turkish names, even after their conversion to Islam, and predominantly used Turkish when speaking to one other with often superficial knowledge of the local language (Ayalon 1994b, pp. 16-17). Mamluks were mainly married to female slaves from their countries of origin rather than local women (Ayalon 1994b, p. 16). The sons of mamluks (who did not enjoy mamluk status themselves) more frequently married women from the local population thus offering one opportunity for assimilation into non-mamluk society (Ayalon 1994b, pp. 16-7).[27] A mamluk, then, was characterized by both his "personal dependence" on his master, the sultan, as well as his "cultural dissociation" (Crone 2003, p. 74) given both his foreign origin and the development of practices that kept him highly removed from the local populace.

[26] The medieval Arab historian Ibn Khaldun offers other ideas for why soldiers brought up in marginal areas enjoyed a huge advantage over those recruited from more settled districts. Marginal areas existed separate from governmental authority forcing local peoples to develop a sense of group solidarity, or what Ibn Khaldun calls *'asabiyya*. To protect themselves from the harsh environmental conditions and attack, these communities developed codes of honor and social structures for defense (Pipes 1981, p. 78). In practice, it is likely that all of these factors contributed to the desirability of Turks as mamluks. Those individuals that survived to be recruited as military slaves were not only physically powerful but also natural horsemen who were imbued with the group solidarity that would make for ideal soldiers to serve the sultan. Soldier slaves from Greece, India, Sub-Saharan Africa and other areas on the fringe of the Islamic world did exist but were not sought after like the Turks.

[27] Many of the factors that favored Turkish mamluks from marginal areas of the Caucuses and Central Asia were not transferable across generations suggesting that there were both religious and practical reasons for not allowing mamluk status to be passed from father to son. As the qualities that made Turkish mamluks so valuable were not innate but rather acquired characteristics (Pipes 1981, p. 81), a sultan's stock of military slaves had to be constantly renewed. Maintaining military slaves was a costly proposition, then, forcing a large percentage of state resources into a human capital investment that required constant renewal.

There is no consensus in the existing literature regarding why mamlukism emerged and spread throughout the Islamic world.[28] In particular, why didn't medieval Muslim sultans use indirect rule as we observe emerged in Europe? Patricia Crone offers perhaps the most compelling explanation for why mamlukism arose in the Islamic world. Crone compares the Abbasids explicitly to the Carolingians — their contemporaries — who also faced the challenge of creating a polity for which their past experience offered no model. She writes, "both fell back on private ties, and in both cases, the outcome was political fragmentation. *But because the fiscal and administrative machinery survived in the east, the Abbasids could simply buy the retainers they needed, and so they lost their power not to lords and vassals but to freedmen* [i.e., manumitted mamluks]" (Crone 1999, p. 326, emphasis added).[29] This suggests that the superior economic position of the Muslim rulers allowed them to *import* the military support that they needed rather than to develop a system of feudalism where a king delegated land — and political power — to local lords.[30]

Imported military slaves were thought to be "safest to rely on" by a sultan (Marshall 1977, p. 399), offering the "most efficient defense" of the ruler's interests (Lapidus 1973). Indeed, according to one observer, the "principal deterrent to the sultan's overthrow was the strength and loyalty of the royal mamluks" (Dols 1977, p. 148). If a "well-controlled" mamluk army could bring political stability to a polity, an uncontrolled one was a potential source of regime breakdown and disintegration (Crone 2003, p. 84). In some cases, sultans found themselves "imprisoned" by their own "praetorian guard" (Lapidus 1973, pp. 37-38) who were successful at usurping power from within (Pipes 1981, p. 91). Purchasing slaves — who needed to be constantly replenished — was also quite expensive, leading to economic problems for many regimes (Pipes 1981, p. 88). In some cases, military slaves came to threaten the very dynasties that had trained them, eventually establishing their own slave sultanates (Pipes 1981, p.

[28] The mamluk institution can be considered a "specifically Muslim institution" as it came to be nearly ubiquitous in the Islamic world and yet totally absent in both the pre-Islamic Middle East as well as the non-Islamic world (Crone 2003, p. 80).

[29] Slaves were not permitted to exercise jurisdiction over freemen and, as such, mamluks were typically manumitted prior to their first military engagement (Irwin 1986, p. 9). The practice of both converting and freeing a mamluk prior to battle had the important consequence of barring him from passing on mamluk status to his children (Irwin 1986, p. 9). As a result, the sons of mamluks could not belong to the mamluk aristocratic caste that emerged (Ayalon 1994c, p. 205) with important consequences for issues of intergenerational exchange.

[30] This perspective is largely consistent with other prominent accounts. According to Mann (1986, p. 393), Europe at this time had a "fairly primitive economy" where "no lord could generate the liquid wealth to pay a large number of mercenaries. The only solution was land grants, which gave the vassal soldier a potentially autonomous power base." Similarly, White (1962, p. 29) describes the Latin West in the $8th$ century as being a much less sophisticated economy than that found in the Islamic world or the empires which it conquered. According to White (1962, p. 29), "the bureaucracy of the Carolingian kingdom was so slender that the collection of taxes by the central government was difficult." Given the expenses associated with raising a military force in an era of mounted shock combat, like horses and armor military service became "a matter of class" (White 1962, p. 30).

23; Dale 2010, p. 16).

Perhaps more pernicious than the direct challenge mamlukism posed on ruler stability was the indirect impact of mamlukism on state-society relations. Military slaves who "had no roots in or commitments to local communities" were responsible for collecting taxes, maintaining order and controlling important resources — the result of which was a highly exploitative system (Lapidus 1973, p. 39). Mamluks would typically hold a temporary, nonhereditary deed to land which "amounted to nothing more than a stipend" while living in urban areas far from their agricultural holdings (Borsch 2005, pp. 26-32). Borsch argues that the distance between mamluk deedholders and their tenants was as "cultural and psychological as it was geographical" (Borsch 2005, p. 27). Sultans — reliant on their mamluk coterie for enforcing economic and political control — found themselves "alienated from the mass of their subjects" (Lapidus 1973, pp. 37-38).[31]

The provision of military service in medieval Europe, then, was highly decentralized in contrast to the mamluk system where military slaves constituted a centrally-located and ethnically distinct, indeed alien, caste. Mamluks were unable to transform themselves into a "hereditary landed baronage," in part because of the "impossibility of transmitting mamluk status to one's children" (Irwin 1986, p. 8).[32] Thus, while western Europe saw a strengthening of lords who were responsible for defense of the land (Duby 1974, pp. 43, 162), the Muslim world saw a deterioration in the bargaining strength of the aristocracy as control of the means of violence became dominated by a caste of military slaves.[33] The relative bargaining strength of the gentry vis-*à*-vis the ruler has proven to have profound implications for the development of executive constraint and the creation of impersonal economic institutions.

[31] Extractive institutions, which allow the leadership to siphon off resources from the rest of society, also discourage both investment and development (Acemoglu et al. 2002).

[32] According to Crone, Islam became unique among civilizations in terms of the extent to which government service ceased to be associated with land ownership (Crone 2003, p. 87). While military slaves did enjoy the ability to serve as tax collectors through the granting of *iqta'* (Islamic land grant), Crone points out that "slave soldiers were no barons" as the *iqta'* did not invest the soldiery with land in a way comparable to the European fief (Crone 2003, p. 87). Interestingly, it was not until 1574 with the accession of Ottoman sultan Selim II that the janisarries (Ottoman mamluks) were able to pass on mamluk status to their sons. Anderson writes that "a professional, skill-selected military elite was thus progressively converted into a hereditary, semi-artisanal militia.....its discipline disintegrated proportionately (1979, p. 381).

[33] A related argument is put forward by Levi (1988) who finds that the relative bargaining power of monarchs against their resource rich constituents was the key variable in explaining divergence in political development in early modern France and England.

4 The Carolingian Origins of Executive Constraint

> *The Empire of Charlemagne was the critical point of the rupture [...] of the European equilibrium* (Pirenne 1980 [1939], p. 234).

The narrative above describes a process of political divergence in the Christian and Muslim worlds beginning in the 8^{th} century following the end of Roman hegemony in the Mediterranean basin. Rulers in Christian Europe — operating under conditions of low fiscal and bureaucratic capacity — were forced to enter into forms of consensual rule with their local elite. Domestic elites were recruited as the backbone of the military corps and rewarded for their service and loyalty with land grants that might be passed down to their sons. The "feudal complex" — as this system came to be known – rolled out across continental Europe to places like England, Spain and Scandinavia along Carolingian lines; feudal institutions expanded less evenly to Eastern Europe where they "underwent numerous local dislocations and torsions" (Anderson 1979, p. 411). In the Islamic world, on the other hand, relatively wealthy rulers with efficacious bureaucracies invested in the long-term training of foreigners who drew a salary based on agricultural output but were not culturally or physically tied to the land or even a particular locality. Intentionally separated from local elites and connected to sultans through a master-slave relationship, mamluks were "not readily convertible into a rural nobility" (Anderson 1979, p. 506). While the political power of the European landed aristocracy increased over time, leading to a gradual transfer of power (e.g., control over monetary rents, public goods and the legal system) from the sovereign to his "vassals" (e.g., the landed aristocracy), a similar process was not observed in the Islamic world.[34]

The result was the emergence of a set of political institutions and norms in Christian Europe which have been associated in the contemporary literature with forms of executive constraint. Constraint on the sovereign did not emerge without considerable local pressure and contestation. Medieval parliaments increased in importance and came to serve as a "logical extension of the traditional presentation of *auxilium et consilium* — aid and advice — by the vassal to his overlord" (Anderson 1979, p. 411). A sovereign's ability to tax without consent diminished under the relative strength and influence of local

[34] Downing concisely summarizes these ideas for the European case as follows: "[t]he key to the rough balance between crown and nobility lies in the incomplete collapse of the Carolingian Empire in the ninth century and [...] then [the] contestation between the prince and local centers of power. Within this dual sovereignty emerged compromises, power sharing, and a climate of partial trust and partial mistrust that formed much of medieval constitutionalism" (1989, pp. 214-215).

notables. The ability of European elites to guard against abuses of the executive increased during the medieval period while comparable developments were absent in Muslim polities.

While constraint on the executive is surely associated with forms of intense debate, discussion, political pressure and contestation we contend that it is simultaneously correlated with longer terms of rule for sitting monarchs. The intuition behind how a decrease in the sovereign's political control can lead to an increase in his duration in power is straightforward. Decentralizing power increases the cost of an unsuccessful revolt for the monarch's rivals. If the probability of successfully overthrowing the sovereign remains constant as power is decentralized, an increase in decentralization should lead to a decrease in the probability of a successful revolt. While it is possible that the cost of overthrowing the sovereign also declined as political power flowed to his vassals, this point is far from obvious based on our reading of the historical record. Indeed, decentralization of political power appears to have made coordination across nobles more difficult and costly. We present a formalization of this argument in the appendix.

The main testable implication of this framework is that ruler duration should increase in European polities with the introduction and spread of feudal institutions. Furthermore, this effect should be most pronounced in locations that were previously part of the Carolingian empire (where feudal reforms began and were most entrenched). Finally, the presence of parliaments and existence of executive constraint should be correlated with ruler duration *even within Europe* if the logic we have described is correct.[35]

In this section we provide evidence consistent with the historical and theoretical narrative developed above. First, we identify the rule of Charlemagne as a critical "break-point" in the empirical trend. Next, we show that the observed increase in ruler durability in Western Europe originates from the Carolingian Empire. We also document a statistical link between leadership tenure and increased constraint on the sovereign in Western Europe.

4.1 Charlemagne and Europe's Political Transformation

Our theoretical narrative draws on historical evidence suggesting increased constraint on the sovereign originates with the Carolingians. To empirically test this claim, we limit our sample to non-Muslim Western Europe and investigate the origins of the increase in European leadership tenure. In order to

[35] One might worry that the emergence of feudal institutions led to an increase in the number of political entities and to an increase in fighting between states. This effect would bias our estimates downwards. In any case, monarchs seem to have rarely been toppled by fighting between states (Hoffman nd, p. 8).

further extend our sample in Western Europe, we supplement the Morby data set used in Section 2 with data — also drawn from Morby (1989) — from the Imperial Roman period (which begins in 27 BCE).

We empirically investigate the origins of increasing European political stability by calculating the Quandt Likelihod Ratio (QLR) statistic for the following specification:

$$duration_t = \beta_0 + \beta_1 D_t(\tau) + \beta_2 t + \beta_3 t D_t(\tau) \tag{2}$$

where $duration_t$ is the average tenure of rulers who assumed power in the year t and $D_t(\tau)$ is a dummy variable equal to one if $t > \tau$. Equation (2) allows for one break in which there is both a mean and a slope change. We use 15% trimming and find that the F-statistic testing the null-hypothesis that both β_1 and β_3 are zero is maximized in the year 790 CE. In this year, the F-statistic is well above the 1% cutoff of 7.78. In other words, the data identifies a break in ruler duration in Western Europe in the year 790 CE, which approximately corresponds to the midpoint of Charlemagne's reign.[36]

Figure 4 presents the results in graphical form. The upper graph shows mean ruler duration in each year (denoted with grey dots) and the fitted values of Equation (2) with the break date in the year 790 CE. The lower graph plots the F-statistic within the central 70% of the sample. The vertical line denotes the estimated break date in 790 CE.

4.2 Geography and the Spread of Carolingian Institutions

If increases in constraints on the sovereign originated in the Carolingian Empire, we would expect this to be reflected in the data. To test this prediction, we estimate a specification of the form:

$$duration_{itc} = \theta_c d_c + \sum_{c=700}^{1400} \alpha_c \cdot \%Carol_i \cdot d_c + \varepsilon_{itc} \tag{3}$$

where the variables are as defined in Equation (1) and $\%Carol_i$ is the percentage of a polity that belonged to the Carolingian Empire in the year 800 CE. The estimated $\hat{\alpha}_c$ are presented in Columns (1)-(3) of Table 2 using Nüssli's data set. The first column restricts the sample to Western Europe. These estimates show that during the first two complete centuries following the reign of Charlemagne,

[36] We have also used the theoretical framework developed by Bai (1997a, 1997b, 1999) and Bai and Perron (1998, 2003) to test for multiple breaks. The data rarely identified more than one breakpoint in our experimentation with alternative specifications. One exception occurred when we fitted a simple step function to the data, in which case the breakdates 790 CE and 1055 CE were identified. Since the R^2 was similar in both specifications we decided to retain the more parsimonious of the two specifications.

rulers in the successor polities of the Carolingian Empire remained in power for longer than other rulers in Western Europe. Around the year 1100 CE, however, duration begins to converge. This convergence is brought about, in large part, by an increase in ruler duration across Western Europe after this period. In Column (2) we add the Islamic polities to the Western European sample. Again, there is a statistical divergence in ruler duration starting in the year 900 CE but this divergence lasts until the end of the sample. Finally, in Column (3) we present the results including rulers in both Western and Eastern Europe. Again, there is a statistical divergence in ruler duration starting in the year 900 CE. Although there seems to be some convergence after 1100 CE, one can reject the null hypothesis that the α_c values are jointly equal to zero after 1100 CE at the 10% level.

In sum, although the exact patterns are dependent on the sample used, the results are generally consistent with the hypothesis that the observed increase in ruler stability originated within the boundaries of the Carolingian Empire spreading to the rest of Western Europe by around 1100 CE and, less evenly, to Eastern Europe.

4.3 Political Divergence and Constraints on the Sovereign

We have hypothesized that the increase in ruler duration is a reflection of increasing constraints on the sovereign in Western Europe. In this section, we investigate empirical support for this hypothesis. To do this, we relate ruler duration to the existence of a representative assembly where such assemblies are believed to serve as a potential constraint on the sovereign.[37] We create a dummy variable equal to one if the political entity had at least one meeting of parliament on the interval [t,t+100).[38] Equipped with this metric, we drop all rulers who assumed power prior to the year 1100 CE and run the following regression:

$$duration_{itc} = \theta_c d_c + \sum_{c=1100}^{1400} \alpha_c \cdot Parliament_i \cdot d_c + \varepsilon_{itc} \tag{4}$$

where $Parliament_i$ is equal to one if ruler i assumed power in a century in which his polity had convened

[37] See van Zanden et al. (2011) and Stasavage (2010) for more on this point. We have also explored the relationship between duration and absolutism using the metric described in DeLong and Shleifer (1993). Their measure of absolutism is constructed at a much higher level of aggregation than the available data on parliaments. Although the point estimates using the DeLong and Shleifer (1993) metric are usually of the same sign as the estimates presented, the coefficients are smaller and often statistically insignificant, suggesting larger measurement error in this metric.

[38] We create this metric using the data on parliaments provided by van Zanden et al. (2011). We have also examined the data set used in Stasavage (2010). The Stasavage (2010) data set focuses on city states many of which are not provided in Nussli's GIS files, thus limiting the sample sizes. For this reason, we have preferred the van Zanden et al. (2011) data set.

at least one parliament and the rest of the variables are as defined above. Results of Regression (4) are presented in Panel A of Table 3. In Column (1), we restrict the sample to Western Europe and present the estimates of α_c. These results show a statistically significant correlation between the existence of a parliament and ruler duration and although the estimated coefficients decline over time we can reject the null hypothesis that all of the coefficients are equal to zero at the 1% level. In Columns (2) and (3) we incrementally expand the sample to include Eastern Europe and the Islamic world. Although the point estimates increase as we expand the sample, the qualitative implications of the results remain.

In Column (4) of Panel A of Table 3, we restrict the α_c values to be constant and include a dummy variable equal to one if a ruler assumed power in the Islamic world. In Column (5) we use the entire sample and present results including a dummy variable indicating the current state in which the centroid of a polity falls. This regression reports what might be considered a "fixed effects" test. Even after controlling for the contemporary state in which the ruler was located, moving from having no parliament to a parliament that meets at least once a year increases duration of rule more than five years, on average.

The evolution of ruler duration *within* dynasties provides an additional opportunity to test if political stability is a reflection of increasing constraint on the sovereign. We begin by creating a variable measuring the order in which a ruler falls in the dynastic chain. This metric is equal to one for the founder of the dynasty, two for the next ruler, etc. If a ruler is unconstrained, we expect his time in power to be a strong function of his (sovereign-specific) human capital (Jones and Olken 2005). Moreover, we expect the founder of a dynasty to be highly endowed with such capital. Inasmuch as rule remains within a given family we also expect sovereign human capital to mean-revert over time. If correct, this dynamic should produce a downward relationship between the place the ruler occupies in a given dynastic chain and his time in power. On the other hand, if a ruler is constrained as a result of feudal, or other, institutions this should mitigate the expected downward relationship between a sovereign's place in the dynastic order and his duration in power. The intuition is that when sovereigns are constrained as a result of the institutional framework, sovereign-specific human capital should matter less.

These predictions are consistent with the data linking ruler location in a dynastic chain with his duration.[39] We examine location of a ruler in the dynastic chain with his duration by running the following regression:

[39] Due to space concerns we limit our analysis to the first five rulers in dynasties in Western European and the Islamic world (although including rulers beyond the fifth ruler yields similar results).

$$duration_{io} = \theta_o d_o + \sum_{o=1}^{5} \alpha_o \cdot WE_i \cdot d_o + \sum_{o=1}^{5} \beta_o \cdot EE_i \cdot d_o + \varepsilon_{io} \quad (5)$$

where d_o is a dummy variable equal to one if the ruler occupies position o in the dynastic chain $o \in \{1, 2, 3, 4, 5\}$ and WE_i (EE_i) is a dummy variable equal to 1 if the ruler assumed power in Western (Eastern) Europe. Columns (1)-(4) of Table 3, Panel B estimate Equation (5) in the sample prior to the year 1100 CE. Columns (5)-(8) do the same in the post 1100 CE sample. Columns (1) and (5) provide $\hat{\theta}_o$, or the mean duration of rulers in the Islamic world by their order in the dynastic chain. Columns (2) and (6) detail $\hat{\alpha}_o$, or the difference in mean duration between Western Europe and the Islamic world by their order in the dynastic chain. Columns (3) and (7) detail the $\hat{\beta}_o$, or the difference in mean duration between Eastern Europe and the Islamic world by their order in the dynastic chain. In Columns (4) and (8) we present the p-value of the test statistic for the equality of α_o and β_o.

The results show that prior to 1100 CE, one cannot reject the null hypothesis that ruler duration decreased within dynasties in Europe and the Islamic world along larger similar lines. After the year 1100 CE, however, one can reject this hypothesis for Western (but not Eastern) Europe. This statistical result is consistent with increased constraints on the sovereign after the year 1100 CE and suggests that much of the observed divergence in ruler duration is coming from increased tenure further along the dynastic chain after 1100 CE in Western Europe.

5 Alternative Hypotheses for Divergence in Ruler Duration

Thus far, we have sought to document that rulers in Western Europe remained in power for longer than their Muslim counterparts after the year 1100 CE. We have argued that the results reflect increased constraints on the sovereign which emerged in Western Europe as a result of feudal institutions. In this section we investigate the extent to which alternative narratives for the observed divergence in ruler duration are consistent with the empirical evidence.

5.1 Culture and Geography

Prominent alternative explanations for the rise of Western Europe invoke the roles of geography or culture. Among cultural explanations, many scholars argue that Christianity was particularly propitious

to stable political institutions when compared to Islam. These scholars stress that whereas Church and State were united in the Islamic world they were divided in Christian Europe from an early date. Other explanations for why Europe developed greater degrees of executive constraint (and durable leadership) stress the impact of proto-democratic tribal institutions common among the Germanic tribes of northwestern Europe. To investigate the empirical relevance of this theory, we focus on the Iberian and Anatolian peninsulas. Both regions were home to Christian and Muslim dynasties for centuries, and both regions were part of a single cultural region prior to the Muslim conquests (Iberia had a Roman and Visigothic heritage while Anatolia had been part of the Greek, Roman and Byzantine Empires).

Table 4 presents results of Regression (1) substituting the dummy variable $Christian_i$ — equal to one if the dynasty was Christian and zero otherwise — for WE_i. $\hat{\theta}_c$ — the mean value of ruler duration in the Islamic dynasties — values are presented in Column (1) of Table 4 using the Iberian sample and Column (3) using the Anatolian sample. For the Anatolian peninsula, we report results only for the centuries in which we have data on ruler tenure for both Christian and Muslim dynasties. We provide $\hat{\alpha}_c$ — the difference between the mean value of ruler duration in the Christian and Islamic dynasties — in Columns (2) and (4).

The results for the Iberian Peninsula mimic those found in the broader sample and suggest that, even after holding geography constant, Christian monarchs developed an advantage over their Muslim counterparts over time. The Anatolian case is important because it allows for the disentangling of religious culture from institutions while still controlling for geography and non-religious heritage. The Byzantine Empire — though part of the Christian world — did not develop Western European-style feudal institutions. Since our causal story focuses on the development of military-institutional relations in the Islamic world (and not other aspects of Muslim culture), a failure to reject the null hypothesis in the Anatolian subsample works against explanations that argue that other aspects of Islamic culture hurt the durability of rulers. When taken in unison, the results for the Iberian and Anatolian subsamples cast doubt on claims that the observed difference in ruler stability could be driven by geography or by differences in the cultural (Christianity/Islam) or institutional heritages of the regions.

5.2 State Size

Stasavage (2010, p. 625) offers one possible explanation for why small European polities "were able to survive despite threats from much larger neighbors." He finds that geographically compact polities — with lower exogenous monitoring costs — could maintain representative parliamentary institutions to a greater extent; an implication of this finding is that smaller polities, as appear to have been more common in Europe, enjoyed better institutions and were, thus, more likely to enjoy stability. Although state size is endogenous, we have included it as a control variable in Column (9) of Table 1 to show that differential state sizes do not drive our result. Indeed, the historical evidence presented above suggests that the small size of states may have been driven by the emergence of a landed aristocracy across Western Europe.

5.3 European Primogeniture

If European rulers increasingly passed political power to their eldest sons through norms of primogeniture, this might explain why Christian monarchs survived in office longer than their Muslim counterparts. Although primogeniture clearly has its roots in medieval Europe, the practice of passing power and wealth to the first-born son only became prominent in the 13^{th} century, spreading across Europe up through the 17^{th} century (Bertocchi 2006). For example, disputes regarding succession in Scottish and Burgundian monarchies in the 13^{th} and 14^{th} centuries imply that primogeniture was still being established as an institutionalized practice. This is well after the break in the political trend identified in the data on ruler duration. This suggests that primogeniture may have emerged *endogenously* from increases in political stability and constraints on the sovereign since potential rivals to the monarchy could directly constrain the sovereign regardless of his identity.

Although the direct evidence for an increase in political stability in Western Europe casts doubt on its ability to entirely explain the observed increases in ruler duration, one might worry that this result may have been driven by increases in perceptions of the legitimacy of passing rule from father to son. To investigate the empirical relevance of this claim, we construct a dummy variable son_{itc} using Morby's data set that is equal to one if a ruler was the son of the previous ruler. Equipped with this metric, we estimate the regression:

$$son_{itc} = \theta_c d_c + \sum_{c=700}^{1400} \alpha_c \cdot WE_i \cdot d_c + \sum_{c=700}^{1400} \beta_c \cdot EE_i \cdot d_c + \varepsilon_{itc} \quad (6)$$

The estimated coefficients are presented in Columns (5)-(8) of Table 4 and do not reject the null hypothesis that rulers were as likely to be sons of the previous ruler in the Islamic world and Western Europe. This result casts doubt on the importance of passing rule from father to son in generating the observed results.

5.4 Differential Life Expectancy

One reason why rulers survived in power longer in Christian Europe compared to the Islamic world could be that life expectancy in Europe was increasing relative to trends in Muslim polities. Empirical evidence presented in Section 2 suggests that increasing ruler durability in Europe was being drive by a decreased rate of ruler overthrow rather than some other factor. In addition, there exists no historical qualitative or quantitative evidence to suggest life expectancy would have been shorter in Islamic polities. Muslim physicians during the medieval period were highly sophisticated, discrediting theories of humorism which were commonly held in Europe during this time.[40] Muslim doctors set up some of the earliest dedicated hospitals, medical schools and made tremendous advances in the field of pharmacology. Borsch (2005) shows that the disease environments of the East and West were quite similar during this period with the bubonic plague, for example, impacting both Muslim and Christian cities. In England, medieval life expectancy at the age of 25 for the higher ranks of English society (i.e., those who inherited land) was between 21 and 24 years (Jonker 2003). Estimated life expectancy at the age of 25 for monks of Christ Church priory in Canterbury during the 15^{th} century was between 21 and 29 years; monks at this time tended to be relatively well-fed, with better medical care than the general population (Hatcher 1986). Studies of life expectancy of influential religious scholars in 11^{th} century Muslim Spain show that the most prominent within this occupational group lived between 69 and 75 years, on average (Shatzmiller 1994, p. 66).

[40] Humorism contends that the human body is composed of four basic humors — black bile, yellow bile, phlegm and blood.

5.5 The Mongol Invasion and Muslim Economic Decline

A common narrative for why Islamic polities became less stable over time relates to the Mongol conquests of the 13^{th} century. The divergence in political stability between Christian Europe and the Islamic world predates the Mongol invasions, however. Nor can the success of the Mongols be considered strictly exogenous as weaker, less stable polities may also be more subject to successful foreign invasion.

Another plausible alternative explanation is that Muslim economic decline led to shorter ruler duration. Determining the historical point at which the Islamic world began to fall behind the West and the intensity with which it declined over time is difficult. Again, historians often cite the Mongol invasion of the 13^{th} century as the end date for the "Golden Age" of Islam. Others argue that the divergence took place later, beginning in the 17^{th} century (Kuran 1997) and accelerating with the Industrial Revolution in Europe. Proponents of this perspective point to the affluence of the Mughul and Ottoman empires which each produced architecture on a scale which suggested that rulers had the capacity to extract revenue in support of major artistic endeavors (Dale 2010, pp. 130-131). There is no study that we are aware of that suggests Muslim economic decline began prior to the 11^{th} century.

6 Conclusion

Western Europe was considered an economic and political backwater in 1000 CE. By 1000 CE, however, the fortunes of European political leaders were already improving when compared to their peers in the Islamic world in ways that were probably imperceptible to rulers, elites and citizens of those societies. This study provides the first empirical evidence for a medieval divergence in the political fortunes of Islamic and Western European rulers. We have documented that Western Europe became more politically stable than the Islamic world around the year 1100 CE.

Although data limitations do not allow us to pinpoint the exact causal mechanism generating the increase in Western European political stability, the available empirical evidence is consistent with an historical literature stressing the feudal (i.e., Carolingian) origins of these political advances. We find that political stability in Western Europe underwent a "structural break" in the year 790 CE — the midpoint of the reign of Charlemagne. We provide evidence that increases in political stability began within the boundaries of the Carolingian Empire and that increases in constraint on the sovereign were

correlated with increased ruler duration.

The results are consistent with a literature stressing the importance of economic and political shocks following the collapse of the western Roman Empire in empowering a landed aristocracy. This literature suggests that the landed aristocracy slowly gained power during centuries of economic downturn. Eventually, this aristocracy was able to place unusual constraints on the sovereign. These constraints prepared the way for the emergence of parliaments and medieval Europe's unique institutional framework. We find empirical evidence consistent with the hypothesis that European sovereigns faced increasing checks on their power after the introduction of feudal institutions.

The growth in political stability enjoyed by European kings was not shared by sultans in the Islamic world. While both medieval European and Islamic monarchies cultivated the types of personalistic ties typical of North et al.'s "natural state" (2009), we have argued that the interdependent military, political and economic relationships that developed in Europe under feudalism laid the basis for more impersonal forms of political organization down the line, including institutionalized executive constraint. North et al. (2009) offer some ideas for how to go from a "natural state" — like the type of state that existed in both the medieval Islamic and Christian worlds — to an open access order — or a state characterized by limits on violence and institutions which effectively constrain abuses of power.[41] Muslim rulers, unlike their European counterparts, had the administrative and financial capacity to import slaves from outside of their realms to provide military services; Muslim rulers were not, however, able to effectively discipline this military force through non-military means. European rulers found themselves forced to pay their militaries through land grants, a process which eventually created a powerful, landed and independent military class. In this sense, Poggi's observation that "the 'feudal state' is one that undermines itself" (1978, p. 26) is correct; medieval kings, operating from a position of financial weakness and limited state capacity, had no choice but to offer fiefs as payment to elites who provided rulers with military support. Feudalism led this emergent "warrior class" to be "rooted in the land" (Poggi 1978, p. 32) in a way that was distinct from the nature of military recruitment and remuneration in the Islamic world. The landed nobility in Europe were able to eventually extract both concessions and protections from the state, leading to the rise of medieval parliaments and the types of institutions that are believed to be growth-inducing.

According to our account, by the time of the New World discoveries, European rulers were already

[41] In the North et al. (2009, p. 170) account, the way that society limits and controls violence is an important "doorstep condition" to the development of growth-producing institutions.

uniquely constrained compared to their Muslim counterparts. And although trade and colonialism may have enabled both good (Acemoglu et al. 2005) and bad (Drelichman and Voth 2008) institutional change in European countries, the results suggest that the uniquely European emergence of checks on the sovereign predated the discovery of the Americas.

Can the results of this paper shed light on trends in the durability of political power today? As European polities began to transition to democracy, particular rulers came to matter less as democratic institutions consolidated. Indeed, as countries moved to functioning democracies, the average duration of the head of state has declined tremendously as a result of institutionalization. This suggests a non-monotonic relationship between institutionalized powersharing and ruler duration where contemporary states might be considered "hyper"-institutionalized compared to medieval polities. In other words, once a state crosses some critical threshold of institutionalized powersharing, shorter political tenure reflects a deepening dependence on institutional structures versus personalized power. This explains why turnover of prime ministers in OECD countries takes place so rapidly. This conceptualization may also help to explain why authoritarian regimes that do not share power survive for shorter periods of time than those that do.[42]

References

Acemoglu, D., S. Johnson and J. A. Robinson. 2002. "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution. " *Quarterly Journal of Economics*, 117(4) 1231-1294.

Acemoglu, D., S. Johnson and J. A. Robinson. 2005. "The Rise of Europe: Atlantic Trade, Institutional Change, and Economic Growth." *American Economic Review*, 95(3) 546-579.

Acemoglu, D. and J. Robinson. nd. *Why Nations Fail.* Book manuscript.

Alesina, A., S. Ozler, N. Roubini and P. Swagel.1996. "Political Instability and Economic Growth." *Journal of Economic Growth*1(2): 189-211.

Anderson, P. 1979(1974) *Lineages of the Absolutist State.* London: Verso.

[42] Contemporary authoritarian regimes — like the medieval polities analyzed in this paper — continue to suffer from relatively low levels of political institutionalization. Regimes and rulers who institutionalize forms of powersharing, however, long tenures. For example, Geddes (2003) has shown that authoritarian regimes that use political parties and elections are more long lived than those that do not where parties and elections might be thought of as forms of institutionalization. Similarly, Debs (2011) has demonstrated that strong leaders who demonstrate more absolutist tendencies are also less long-lived.

Ayalon, D. 1994a. The Military Reforms of Caliph al-Mu'tasim: Their Background and Consequences. *Islam and the Abode of War: Military Slaves and Islamic Adversaries.* Aldershot: Variorum.

Ayalon, D. 1994b. Mamluk: Military Slavery in Egypt and Syria. *Islam and the Abode of War: Military Slaves and Islamic Adversaries.* Aldershot: Variorum.

Ayalon, D. 1994c. Mamluk Military Aristocracy — A Non-Hereditary Nobility. *Islam and the Abode of War: Military Slaves and Islamic Adversaries.* Aldershot: Variorum.

Bacon, F.1819. *The Works of Francis Bacon, Volume II.* Baldwin: London

Bai, J. 1997a. "Estimation of a Change Point in Multiple Regression Models." *Review of Economic and Statistics* 79: 551-563.

Bai, J. 1997b. "Estimating Multiple Breaks One at a Time." *Econometric Theory* 13: 315-352.

Bai, J. 1999. "Likelihood Ratio Tests for Multiple Structural Changes." *Journal of Econometrics* 91: 299-323.

Bai, J. and P. Perron 1998. "Estimating and Testing Linear Models with Multiple Structural Changes." *Econometrica* 66: 47-78.

Bai, J. and P. Perron 2003. "Computation and Analysis of Multiple Structural Change Models." *Journal of Applied Econometrics* 18(1): 1-22.

Bertocchi, G.2006. "The Law of Primogeniture and the Transition from Landed Aristocracy to Industrial Democracy." *Journal of Economic Growth*11(1): 43-70.

Bienen, H. and N. van de Walle1991. *Of Time and Power: Leadership Duration in the Modern World.* Stanford, CA: Stanford University Press.

Bisson, T.N. 1994. "The "Feudal Revolution"." *Past & Present* 142: 6-42.

Borsch, S. 2005. *The Black Death in Egypt and England: A Comparative Study.* Austin, TX: University of Texas Press.

Bosworth, C. 1996. *Islamic Dynasties.* New York: Columbia University Press.

Breay, C. 2002. *Magna Carta: Manuscripts and Myths.* London: British Library.

Clark, G.1988. "The Cost of Capital and Medieval Agricultural Technique." *Explorations in Economic History* 25: 265-294.

Crone, P. 1999. *The Early Islamic World. War and Society in the Ancient and Medieval Worlds.* Editors, K. Raaflaub and N. Rosenstein. Cambridge: Harvard University Press.

Crone, P. 2003. *Slaves on Horses: The Evolution of the Islamic Polity.* Cambridge: Cambridge

University Press.

Dale, S. 2010. *The Muslim Empires of the Ottomans, Safavids, and Mughals.* Cambridge: Cambridge University Press.

Debs, A. 2011. "Living by the Sword and Dying by the Sword? Leadership Transitions in and out of Dictatorships." Working paper, Yale University.

DeLong, J. B. and A. Shleifer 1993. "Princes and Merchants: European City Growth before the Industrial Revolution." *Journal of Law and Economics* 36(2): 671-702.

Dols, M. 1977. *The Black Death in the Middle East.* Princeton: Princeton University Press.

Downing, B. 1989. "Medieval Origins of Constitutional Government in the West." *Theory and Society* 18(2): 213-247.

Downing, B. 1992. *The Military Revolution and Political Change: Origins of Democracy and Autocracy in Early Modern Europe.* Princeton: Princeton University Press.

Duby, G.1978. *The Early Growth of the European Economy: Warriors and Peasants from the 7th to the 12th Century.* Ithaca: Cornell University Press.

Drelichman, M. and H. Voth 2008. "Institutions and the Resource Curse in Early Modern Spain." in Helpman ed. *Institutions and Economic Performance*: 120-147.

Epstein, S.2000. *Freedom and Growth: The Rise of States and Markets in Europe, 1300-1750.* London: Routledge.

Ganshof, F. 1968. *Frankish Institutions under Charlemagne.* Providence: Brown University Press.

Geddes, B. 2003. *Paradigms and Sandcastles.* Ann Arbor: University of Michigan Press.

Goemans, H., K. Gleditsch and G. Chiozza2009. "Introducing Archigos: A Dataset of Political Leaders." *Journal of Peace Research.* 46(2): 269-283.

Greif, A. 1994. "Cultural Beliefs and the Organization of Society". *Journal of Political Economy, 102(5)*: 912-950.

Hatcher, J. 1986. "Mortality in the fifteenth Century: Some new Evidence." *Economic History Review, 39*: 19-38.

Hoffman, L. nd. "The politics and economics of Europe's comparative advantage in violence." Mimeo.

Holt, J.C.1992. *Magna Carta.* Cambridge: Cambridge University Press.

Irwin, R. 1986. *The Middle East in the Middle Ages: The Early Mamluk Sultanate 1250-1382.* London: Croom Helm.

Jones, B. and B. Olken 2005. "Do Leaders Matter? National Leadership and Growth Since World War II." *Quarterly Journal of Economics*, *120(3)*: 835-864.

Jonker, M. 2003. "Estimation of Life Expectancy in the Middle Ages." *Journal of the Royal Statistical Society 166(1)*: 105-117.

Kennedy, H. 2004. *The Prophet and the Age of the Caliphates: The Islamic Near East from the Sixth to the Eleventh Century (2nd edition).* London: Pearson Longman.

Kuran, T. 1997. Islam and Underdevelopment: An Old Puzzle Revisited. *Journal of Institutional and Theoretical Economics.* 153.

Kuran, T. 2004. Why the Middle East Is Economically Underdeveloped: Historical Mechanisms of Institutional Stagnation. *Journal of Economic Perspectives.* 18.

Kuran, T. 2009. Explaining the Economic Trajectories of Civilizations: The Systemic Approach. *Journal of Economic Behavior and Organization.* 71.

Kuran, T. 2010a. *The Long Divergence: How Islamic Law Held Back the Middle East.* Princeton: Princeton University Press.

Kuran, T. 2010b. "The Scale of Entrepreneurship in Middle Eastern History: Inhibitive Roles of Islamic Institutions." *The Invention of Enterprise: Entrepreneurship from Ancient Mesopotamia to Modern Times.* Editors William Baumol, David Landes, and Joel Mokyr. Princeton: Princeton University Press.

Lapidus, I.1973. "The Evolution of Muslim Urban." *Comparative Studies in Society and History*, *15*: 21-50.

Levi, M. 1988. *Of Rule and Revenue.* Berkeley: University of California Press.

Macchiavelli, N. 1903[1532]. *The Prince.* Translated by L. Ricci. London: Grant Richards.

Mann, M.1986. *The Sources of Social Power: Volume 1, A History of Power from the Beginning to AD 1760.* Cambridge: Cambridge University Press.

Montesquieu, C. 1989 [1748]. *The Spirit of the Laws.* Cambridge: Cambridge University Press.

Morby, J. 1989. *Dynasties of the World: A Chronological and Genealogical Handbook.* New York: Oxford University Press.

North, D. and B. Weingast 1989. "Constitutions and Commitment: the Evolution of Institutions Governing Public Choice in Seventeenth-Century England." *Journal of Economic History*, *49(4)*: 803-832.

North, D., J. Wallis and B. Weingast. 2009. *Violence and Social Orders: A Conceptual Framework for Interpreting Recorded Human History.* Cambridge: Cambridge University Press.

Nüssli, C. 2011. `http://www.euratlas.com/about.html`.

Pipes, D. 1981. *Slave Soldiers and Islam: The Genesis of a Military System.* New Haven: Yale University Press.

Pirenne, H. 1980 [1939]. *Mohammed and Charlemagne.* Ottowa: Barnes & Noble Books.

Poggi, G. 1978. *The Development of the Modern State: A Sociological Perspective.* Stanford: Stanford University Press.

Shatzmiller, M. 1996. *Labour in the Medieval Islamic World.* Leiden: E. J. Brill.

Stasavage, D.2010. "When Distance Mattered: Geographic Scale and the Development of European Representative Assemblies." *American Political Science Review*, 104(4): 625-643.

Strayer, J. 1970. *On the Medieval Origins of the Modern State.* Princeton: Princeton University Press.

Weber, M. 1978. *Economy and Society: An Outline of Interpretive Sociology.* Berkeley: University of California Press.

White, L. 1962. *Medieval Technology and Social Change.* Oxford: Oxford University Press.

van Zanden, J., E. Buringh and M. Bosker. 2011. "The Rise and Decline of European Parliaments, 1188-1789." *Economic History Review,* forthcoming.

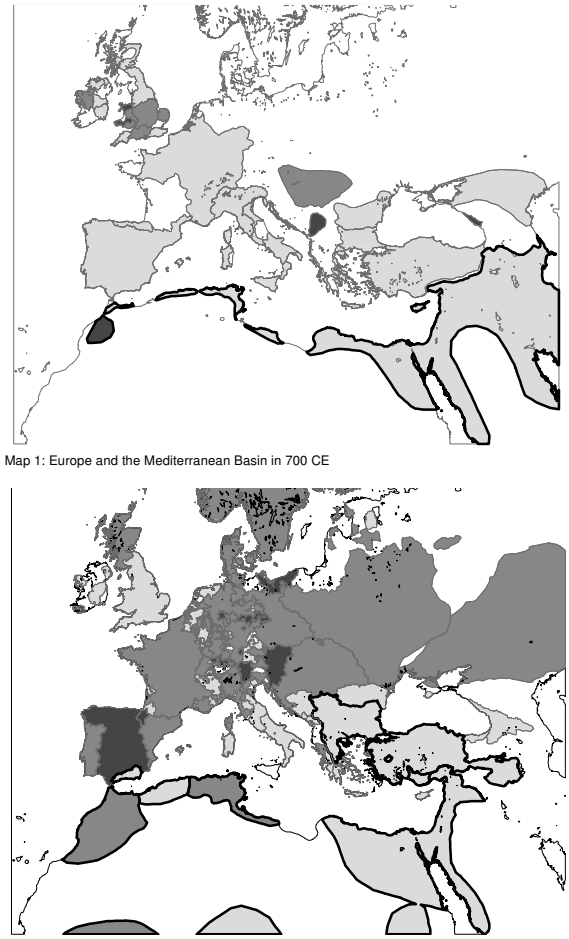

Figure 1: **Europe and the Mediterranean Basin in 700 and 1400 CE** White denotes missing or area not controlled by a political entity. Light grey denotes average ruler durations between [0,15] years, the next shade of grey denotes average ruler durations between (15,30] years and the darkest shade of grey denotes durations greater than 30 years. Islamic polities are outlined.

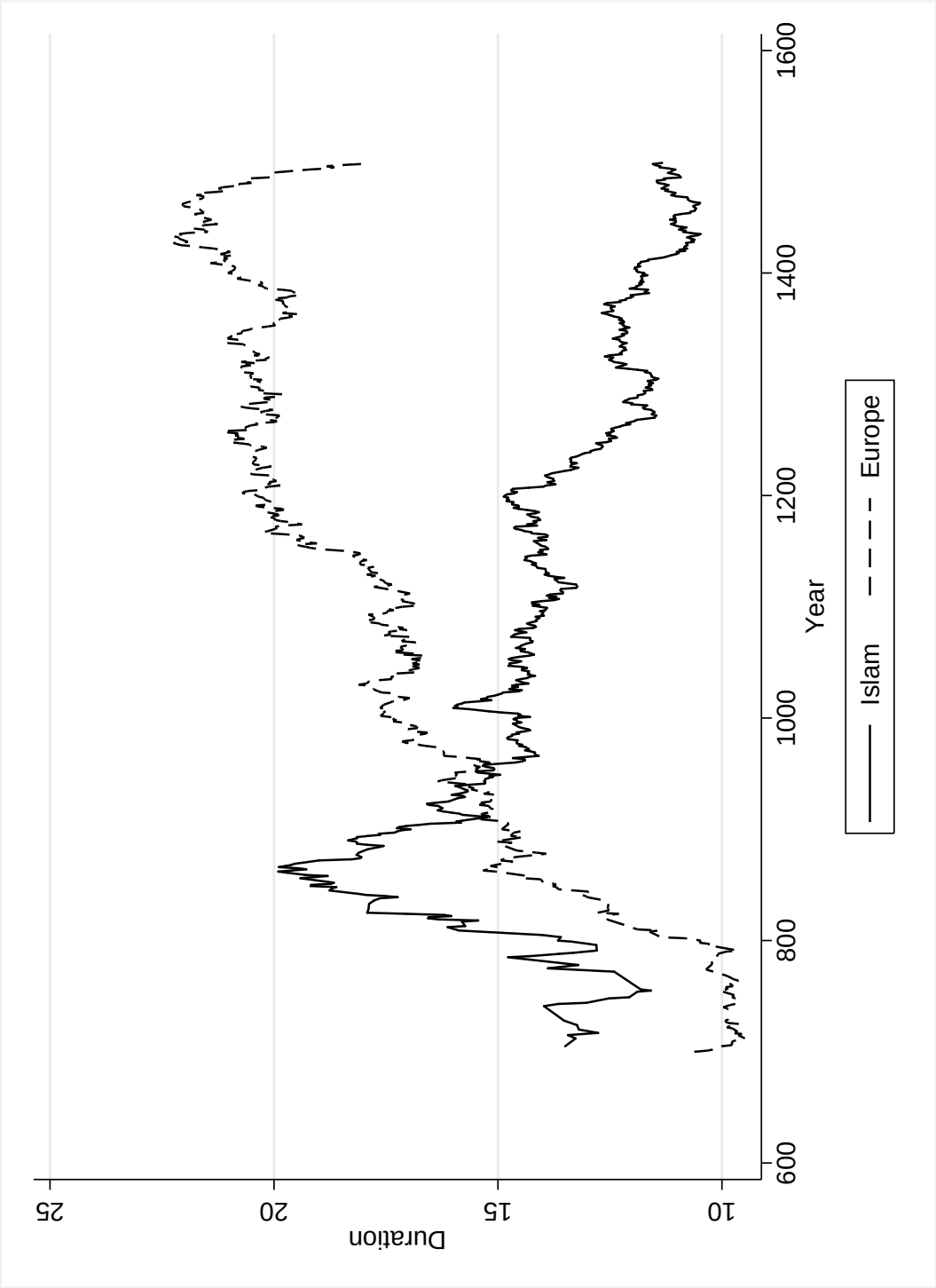

Figure 2: **Divergence in Non-Muslim European and Islamic World political stability from 700-1500 CE.**
The solid (dashed) line denotes the 100 year moving for the Islamic (non-Islamic European) World.

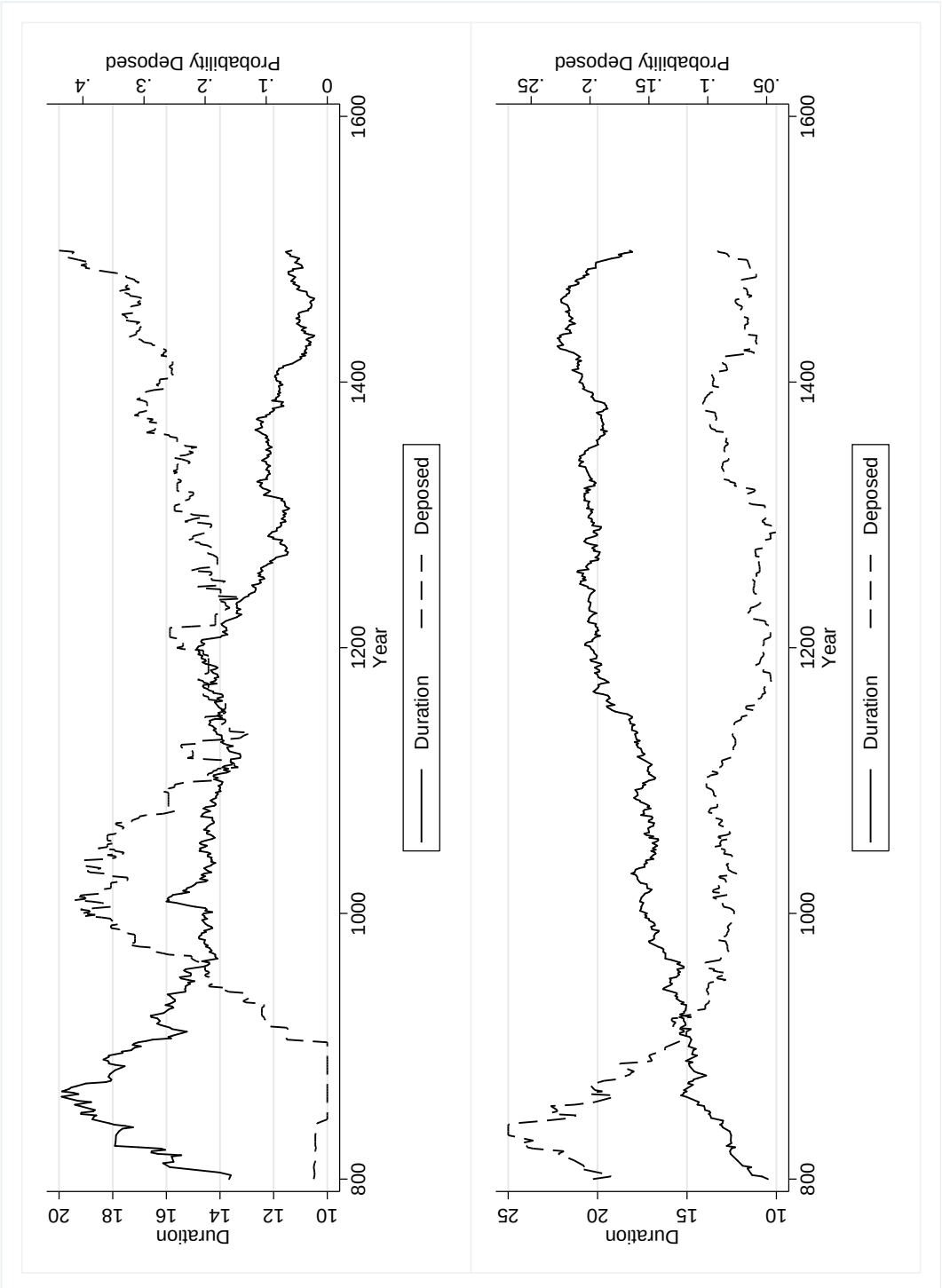

Figure 3: **Comparison of ruler duration and probability of being deposed in the Islamic world and western Europe from 800-1500 CE**

Durations are given by the solid line and the probability a ruler was deposed is given by the dashed line. The upper graph provides results for the Islamic world and the lower graph gives the results for Europe.

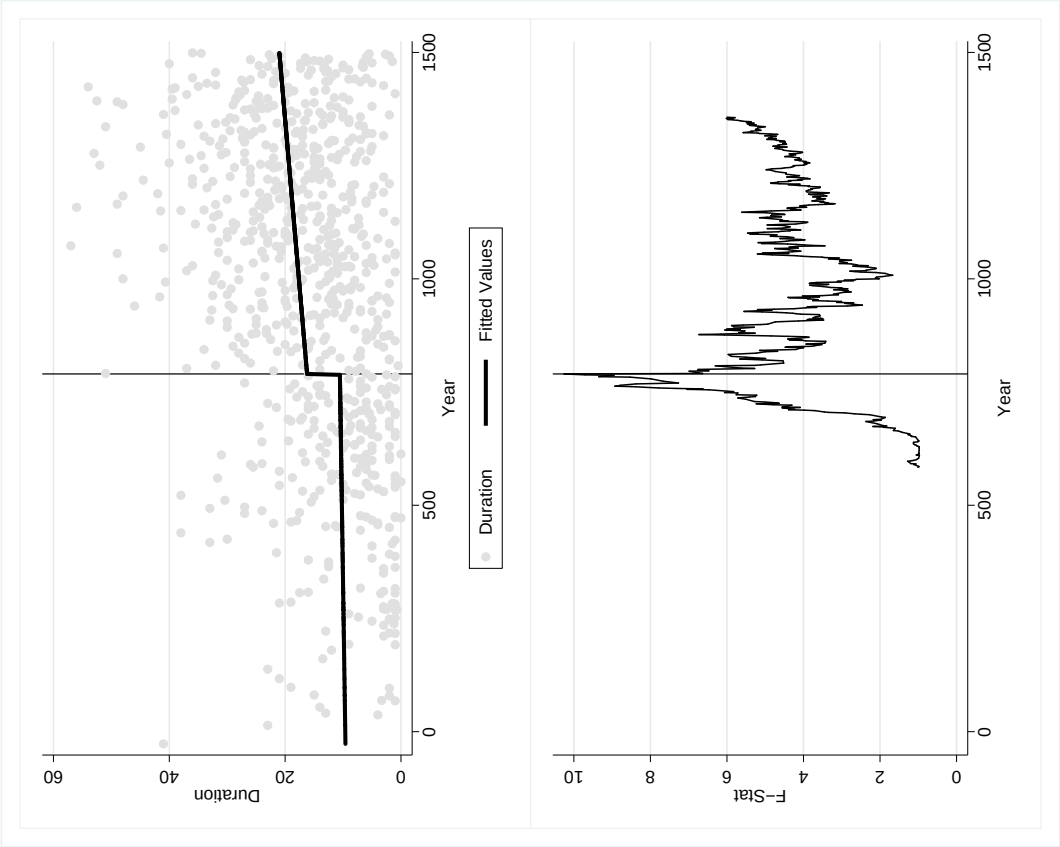

Figure 4: **Political stability and the trend break**
Vertical line marks the estimated break date in 790 CE. The upper graph provides the yearly durations and the fitted values. The lower graph details the F-Stat testing for a break in both the level and trend of ruler duration in western Europe.

Table 1: **Ruler Durations, Political Stability and the Rise of Europe**

Panel 1: Length of Rule (Years)									
	Islam	WE-Islam	EE-Islam	p-value	Islam	WE-Islam	EE-Islam	p-value	WE-Islam
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
[700, 800)	13.19	-2.51	-4.10	[0.04]	10.56	1.89	1.44	[0.84]	-2.37
	(3.19)	(3.28)	(3.20)		(6.24)	(6.36)	(6.49)		(6.11)
[800, 900)	15.38	0.49	-0.73	[0.56]	15.55	-2.01	-1.36	[0.80]	-4.84
	(1.85)	(2.43)	(2.29)		(4.12)	(4.40)	(4.62)		(3.89)
[900, 1000)	14.48	3.62	9.28	[0.03]	14.03	-0.40	5.03	[0.00]	-2.24
	(1.02)	(1.90)	(2.24)		(3.02)	(3.37)	(3.15)		(3.54)
[1000, 1100)	13.18	2.82	-3.39	[0.01]	14.03	0.54	-3.46	[0.05]	-0.73
	(1.15)	(1.66)	(2.17)		(3.08)	(3.39)	(3.42)		(3.50)
[1100, 1200)	14.73	5.23	-4.78	[0.00]	10.86	6.44	-0.27	[0.01]	5.15
	(0.86)	(1.61)	(2.15)		(1.33)	(2.54)	(1.70)		(2.93)
[1200, 1300)	11.41	8.74	0.14	[0.00]	11.39	6.07	0.51	[0.01]	4.64
	(1.07)	(1.61)	(1.91)		(2.70)	(3.23)	(3.04)		(3.51)
[1300, 1400)	11.68	9.05	4.48	[0.06]	9.05	8.95	6.74	[0.26]	7.20
	(0.97)	(1.51)	(2.37)		(1.27)	(1.88)	(1.89)		(2.41)
[1400, 1500)	11.13	8.09	6.18	[0.46]	7.75	10.59	5.48	[0.06]	8.69
	(0.88)	(1.60)	(2.37)		(1.34)	(1.74)	(2.84)		(2.41)
$p-value_{700-1000}$		[0.18]	[0.00]			[0.87]	[0.36]		[0.69]
$p-value_{1100-1400}$		[0.00]	[0.02]			[0.00]	[0.01]		[0.01]
$p-value_{700-1400}$	[0.04]				[0.12]				
N	3662	3662	3662	3662	2877	2877	2877	2877	2877
$Sample$	BM	BM	BM	BM	Nüssli	Nüssli	Nüssli	Nüssli	Nüssli
$Controls?$	No	No	No	No	No	No	No	No	Yes

Panel 2: Probability Deposed				
	Islam	WE-Islam	EE-Islam	p-value
[700, 800)	0.06	0.17	0.40	[0.12]
	(0.03)	(0.07)	(0.13)	
[800, 900)	0.00	0.11	0.13	[0.75]
	(-)	(0.04)	(0.04)	
[900, 1000)	0.35	-0.27	-0.26	[0.83]
	(0.03)	(0.04)	(0.05)	
[1000, 1100)	0.23	-0.12	0.13	[0.00]
	(0.08)	(0.08)	(0.09)	
[1100, 1200)	0.29	-0.21	0.04	[0.00]
	(0.08)	(0.09)	(0.11)	
[1200, 1300)	0.25	-0.18	0.11	[0.00]
	(0.07)	(0.07)	(0.08)	
[1300, 1400)	0.29	-0.22	0.01	[0.00]
	(0.03)	(0.04)	(0.07)	
[1400, 1500)	0.44	-0.35	-0.27	[0.31]
	(0.15)	(0.16)	(0.17)	
$p-value_{700-1000}$		[0.00]	[0.00]	
$p-value_{1100-1400}$		[0.00]	[0.27]	
$p-value_{700-1400}$	[0.00]			
N	2030	2030	2030	2030
$Sample$	BM	BM	BM	BM

Estimates of equation (1) presented in panel 1 using the duration of a ruler in power as the dependent variable. Columns (1) and (5) presents the mean value of ruler duration in panel 1 and the mean probability a ruler was deposed in panel 2 for the Islamic world by century. Columns (2) and (6) provide the difference between the averages in western Europe and the Islamic world. Columns (3) and (7) give the differences between eastern Europe and the Islamic world. Columns (1)-(4) use the Bosworth/Morby data set to estimate the results. Whereas columns (5)-(9) use the *Nüssli* data set. Columns (4) and (8) present the p-value for the test of the equality of the coefficients in columns (2) and (3) and (6) and (7) respectively. The p-values below the horizontal lines give the p-value of the test that the year coefficients denoted are jointly equal to zero. The controls in column (9) include the area of the political entity at the start of the century, the proportion of the entity that was part of the Roman Empire in the year 100 CE, the latitude of the centroid of the political entity and the average agricultural suitability of the entity. Standard errors are in parentheses and are clustered by dynasty in the Bosworth/Morby data set and by political entity in the *Nüssli* data set.

Table 2: **The Carolingian Roots of Political Divergence**

	Dependent Variable: Duration		
	(1)	(2)	(3)
$\%Carol_{[700,800)}$	-3.27	-3.10	-3.23
	(2.41)	(2.39)	(2.28)
$\%Carol_{[800,900)}$	0.59	0.20	0.38
	(1.71)	(1.58)	(1.35)
$\%Carol_{[900,1000)}$	9.29	9.02	6.69
	(4.04)	(3.97)	(3.93)
$\%Carol_{[1000,1100)}$	10.04	9.76	10.60
	(2.06)	(2.04)	(1.89)
$\%Carol_{[1100,1200)}$	8.41	11.80	0.37
	(6.22)	(5.83)	(6.02)
$\%Carol_{[1200,1300)}$	1.45	5.67	-4.08
	(5.14)	(5.01)	(4.51)
$\%Carol_{[1300,1400)}$	-1.25	6.39	2.66
	(2.72)	(2.32)	(2.05)
$\%Carol_{[1400,1500)}$	-5.33	6.02	4.24
	(3.86)	(2.59)	(2.84)
$p-value_{700-1000}$	[0.00]	[0.00]	[0.00]
$p-value_{1100-1400}$	[0.25]	[0.01]	[0.06]
N	1288	1800	2365
$Sample$	WE	Islam, WE	WE,EE

Columns (1)-(3) present estimates of equation (3). For the WE sample, the Islamic and WE sample and the European non-Islamic sample respectively. Results are estimated using the *Nüssli* data set. WE denotes the western European sample (defined as all non-Islamic polities whose centroids lay to the west of Venice). The p-values below the horizontal lines give the p-value of the test that the year coefficients denoted are jointly equal to zero. Standard errors are in parentheses and are clustered by political entity.

Table 3: **Parliaments, Order in Dynasty and Ruler Durations**

Panel A: Parliaments								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$[1100, 1200)$	15.42	18.63	19.03					
	(2.25)	(1.45)	(1.28)					
$[1200, 1300)$	9.46	9.93	10.14					
	(3.66)	(3.31)	(3.27)					
$[1300, 1400)$	5.35	6.00	7.66					
	(2.15)	(1.64)	(1.60)					
$[1400, 1500)$	3.51	4.54	6.34					
	(2.45)	(2.40)	(2.20)					
$Parliament$				7.05	5.39			
				(1.30)	(1.55)			
$Islam$				-4.82	-2.85			
				(1.06)	(1.65)			
$p - value_{1100-1400}$	[0.00]	[0.00]	[0.00]					
N	658	1473	1871	1871	2876			
$Sample$	WE, Post 1100	Non-Islam, Post 1100	All, Post 1100	All, Post 1100	All			
$CenturyDummies?$	Yes	Yes	Yes	Yes	Yes			
$CountryDummies?$	No	No	No	No	Yes			

Panel B: Order in Dynasty								
	$Islam$	$WE - Islam$	$EE - Islam$	$p - value$	$Islam$	$WE - Islam$	$EE - Islam$	$p - value$
$First$	17.51	2.42	3.63	[0.78]	18.71	0.96	2.63	[0.76]
	(1.29)	(2.47)	(4.09)		(1.13)	(2.91)	(4.82)	
$Second$	17.54	0.21	4.60	[0.38]	15.23	4.21	1.44	[0.62]
	(1.50)	(2.80)	(4.67)		(1.22)	(3.63)	(4.54)	
$Third$	15.44	3.54	-4.15	[0.05]	12.26	8.38	-0.43	[0.12]
	(1.50)	(2.92)	(3.36)		(1.01)	(3.18)	(4.84)	
$Fourth$	11.68	3.52	-1.11	[0.24]	14.76	5.94	0.24	[0.26]
	(1.44)	(2.53)	(3.63)		(1.44)	(3.10)	(4.41)	
$Fifth$	14.11	0.01	8.04	[0.17]	11.99	13.93	1.84	[0.08]
	(1.81)	(2.78)	(5.78)		(1.25)	(3.40)	(6.34)	
$p - value$		[0.50]	[0.38]			[0.00]	[0.99]	
N	624	624	624	624	738	738	738	738
$Sample$	Pre-1100	Pre-1100	Pre-1100	Pre-1100	Post-1100	Post-1100	Post-1100	Post-1100

In panel A columns (1)-(3) present estimates of equation (4). Columns (4) and (5) restrict these coefficients to be equal and add a dummy variable equal to one if the ruler assumed power in a political entity that belonged to the Islamic world. Columns (1)-(4) use the *Nüssli* data set after the year 1100 CE whereas column (5) uses the entire *Nüssli* data set. Panel B presents estimates of equation (5) estimated using the Bosworth/Morby data set. Columns (1)-(4) present the results estimated using the sample prior to 1100 CE whereas those in columns (5)-(8) present the results estimated using the sample after 1100 CE. Columns (4) and (8) present the p-value for the test of the equality of the coefficients in columns (2) and (3) and (6) and (7) respectively. The p-values below the horizontal lines give the p-value of the test that the year coefficients denoted are jointly equal to zero in panel A and the p-value for the test that all coefficients are jointly equal to zero in panel B. Standard errors are in parentheses and are clustered by dynasty in the Bosworth/Morby data set and by political entity in the *Nüssli* data set.

Table 4: **Culture, Geography and Primogeniture**

	Duration	*Duration*	*Duration*	*Duration*	*Son*	*Son*	*Son*	*Son*
	$\underline{Islam}$	$\underline{Chr-Islam}$	$\underline{Islam}$	$\underline{Chr-Islam}$	$\underline{Islam}$	$\underline{WE-Islam}$	$\underline{EE-Islam}$	$\underline{p-value}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$[700, 800)$	22.00	-8.22			0.36	-0.17	0.39	[0.00]
	(6.07)	(7.82)			(0.13)	(0.15)	(0.13)	
$[800, 900)$	22.50	0.25			0.38	0.05	0.38	[0.04]
	(6.37)	(7.42)			(0.09)	(0.13)	(0.16)	
$[900, 1000)$	32.33	-14.54			0.67	-0.14	0.11	[0.02]
	(8.27)	(8.70)			(0.09)	(0.11)	(0.12)	
$[1000, 1100)$	11.94	8.65	10.00	0.14	0.37	0.07	0.02	[0.77]
	(1.40)	(2.91)	(2.47)	(3.74)	(0.14)	(0.15)	(0.22)	
$[1100, 1200)$	8.94	21.64	16.72	-2.56	0.68	-0.16	-0.36	[0.16]
	(2.72)	(4.74)	(3.70)	(6.45)	(0.12)	(0.14)	(0.18)	
$[1200, 1300)$	12.00	10.65	11.84	0.28	0.50	0.13	-0.03	[0.09]
	(4.83)	(6.04)	(2.08)	(3.23)	(0.08)	(0.09)	(0.11)	
$[1300, 1400)$	9.64	12.26	16.60	-6.88	0.45	0.12	-0.03	[0.16]
	(2.66)	(4.06)	(1.69)	(3.28)	(0.05)	(0.07)	(0.11)	
$[1400, 1500)$	4.94	20.61	10.17	4.23	0.51	0.09	0.01	[0.28]
	(1.26)	(4.02)	(1.30)	(4.79)	(0.11)	(0.18)		
$p-value_{700-900}$		[0.28]				[0.33]	[0.00]	
$p-value_{1000-1400}$		[0.00]		[0.38]		[0.17]	[0.36]	
N	270	270	257	257	1536	1536	1536	1536
Sample	Iberia	Iberia	Anatolia	Anatolia	All	All	All	All

Estimates of equation (1) substituting a dummy variable indicating whether a ruler assumed power in the Christian world for western and eastern European dummies are presented in columns (1)-(4). Columns (1) and (2) limit the sample to the Iberian peninsula whereas columns (3) and (4) limit the sample to Anatolia. Estimates of equation (6) are presented columns (5)-(8). Column (8) presents the p-value for the test of the equality of the coefficients in columns (6) and (7). All regressions are estimated using the Bosworth/Morby data set. The p-values below the horizontal lines give the p-value of the test that the year coefficients denoted are jointly equal to zero. Column (8) presents the p-value for the test of the equality of the coefficients in columns (6) and (7). Standard errors are in parentheses and are clustered by dynasty.