Primordial Legal Origins.*

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Abstract

To clarify the determinants of the legal tradition, we study the first recorded legal orders recorded in Bronze Age Mesopotamia. We build on the idea that, for non-negligible legal decentralization costs, the mix of uncertain case law and discretionary inquisitorial adjudication can prevail over the bundle of certain statute law and bright-line adversarial adjudication only when special interests are favored, i.e., for a sufficiently autocratic political process and/or sufficiently diverse legal preferences. Consistent with this intuition, the less inclusive political process and rising ethnolinguistic diversity of the Akkadian empire pushed the dominated polities to prefer discretionary inquisitorial adjudication by a local court, who made the law treating her own and the imperial rulings as binding, to lawmaking by an imperial envoy. The latter would have only cared about transfers. Similarly, the culturally homogeneous pre-Akkadian polities and the increasingly interconnected and politically weak post-Akkadian reigns embraced statute law along with bright-line adjudication. Our estimates remain stable across identification strategies and notably, when we control for trade-related legal decentralization costs and when we instrument the division of the decision-making power with the political instability driven by the presence of young kings in the neighbors and the ethnolinguistic diversity with the climate-driven migration of Northern peoples.
Keywords: legal origins; legal traditions; lawmaking; discretion in adjudication; political institutions; legal preference heterogeneity; ancient societies.
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"Law is the embodiment of the moral sentiment of the people." William Blackstone.

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1 Introduction

One of the most renowned and debated body of empirical social sciences suggests that the legal tradition is the key institutional determinant of economic development (La Porta et al., 2008). Defined as the bundle of lawmaking and adjudication institutions balancing the citizens' preferences over punishment with the technological efficiency of the law (Guerriero, 2016a,b; 2026), the legal tradition can range between the fully decentralized pure common law model and the fully centralized pure civil law prototype. While the former entrusts a key role to judicial precedents—i.e., case law—and allows some discretion in the lower courts' adjudication, the latter relies on bright-line adjudication rules and legislation by either the parliament, executive or president, i.e., statute law (Zweigert and Kötz, 1998). Exploiting these institutional differences and the arguably exogenous diffusion of the legal traditions originally devised by the European colonizers—i.e., legal origins, the legal origins project has related the transplanted legal tradition to present-day economic outcomes (Berkowitz et al., 2003). Compared with transplants that initially received civil law, those with an English common law legal origin seem to display more efficient courts and governments, more limited regulation and ultimately, better economic outcomes (La Porta et al., 2008; Fredriksson and Wollscheid, 2015; D'Amico and Williamson, 2015; Anderson, 2018).

An expanding comparative law tradition has, however, criticized the mantra that transplanted legal traditions can be measured via legal origins dummies (Rosenthal and Voeten, 2007), that they remained intact (Roe, 2004), and that their evolution is unrelated to systematic differences among transplants (Klerman et al., 2011). To credibly and contemporaneously tackle all three criticisms, Guerriero (2016a,b) formalize the idea that the uncertain common law can prevail over the certain civil law only when sufficiently extractive political institutions and/or sufficiently diverse legal preferences encourage the legislator to bias statutes to favor special interests. Consistent with this prediction, in a panel of 51 transplants spanning the 1945-2005 period, reforms towards institutions typical of a pure common law, as captured by the first principal component of a case law dummy and indicators for discretion in adjudication, are found where the transplant's culture of self-reliance—and thus, its aversion to extractive political institutions—is the weakest and the genetic—and in turn,

legal preference—distance to the transplants' origins is the largest (Guerriero, 2026). Albeit enlightening, these results hinge upon the ability of the instrument for inclusive political institutions to capture its truly exogenous component and the appropriate consideration of the confounding effect of the European colonizers' strategy (Klerman et al., 2011). Since both issues remain an open matter, we propose to study the evolution of legal traditions in the pristine sample of the first institutionalized legal systems recorded in 44 major Mesopotamian polities observed for each half-century between 3050 and 1750 BCE (see figure 1).

Initially characterized by limited ethnolinguistic mixing and cooperation, these societies witnessed, from 4500 BCE on, mounting ecological pressures easing the transfer of assets and decision-making power to rising religious and military groups (Brooke, 2014). These elites leaned on their leadership to convince the farmers to participate in public good provision and accept a primordial legal order in exchange for tenured land (Wilcke 2007). To elaborate, either the king or his representatives supervised adversarial and equitable adjudication of mainly oral evidence, which was indistinguishable from lawmaking, i.e., "primordial statute law" (Gelb et al., 1991). Next, the less inclusive political process and rising ethnolinguistic diversity of the Akkadian empire pushed the dominated polities to prefer discretionary inquisitorial adjudication by a local court, who made the law treating her own and the imperial rulings as binding—i.e., "primordial case law"—to lawmaking by an imperial envoy (Wilcke, 2007). Finally, against a backdrop of expanding long-distance trade and weaker power of the regional reigns, this "primordial common law" was substituted by institutions closer to a pure form of "primordial civil law", i.e., centralized lawmaking by a more or less inclusive assembly together with bright-line adjudication (Fleming, 2004; Ziegler, 2008).

To elucidate the rational incentives behind these epochal events, we envision the simplest and most essential setup necessary to clarify the legal bias versus legal uncertainty trade-off behind the design of legal traditions. Formally, we assume that each polity is populated by three groups heterogeneous in their preferences over the harshness of punishment. We refer to this degree of diversity as either cultural or legal preference heterogeneity.

At the institutional design stage, either an independent polity picks primordial statute law or the ruler of a regional reign selects the lawmaking institution maximizing the transfers from the dominated polity net of the transaction costs of legal decentralization, e.g., intra-

reign trading costs (Van Leemput, 2021). Under primordial statute law, the polity's court bargains with coalitions of the cultural groups and has as outside option the socially optimal rule—i.e., average bliss point, whereas, under primordial case law, a randomly selected citizen trade-offs her own legal preferences with variable costs of overruling the polity's and the ruler's precedents. As a result, primordial statutes are certain but biased whenever special interests are favored—i.e., when the political process is sufficiently autocratic and/or legal preferences are sufficiently heterogeneous, whereas primordial case law is uncertain but encompasses both the population's and the ruler's biases. Ultimately, when both institutions are available under the least inclusive political process experienced by a dominated polity and legal decentralization costs are limited, primordial case law produces a lower expected long run loss of social welfare than legislation by a ruler's envoy uniquely interested in maximizing the transfers from the dominated polity. Intuitively, the disciplining effect of *stare decisis* more than compensates the extra legal uncertainty of judge-made law.

Building on these intuitions and the extant comparative law literature, we move to analyze adjudication institutions. Starting from discretion in adjudication, we capture it with the ability of the party most likely penalized by lawmaking to manipulate in its favor the observable dimensions of the case. While this attempt can be neutralized by the lawmaker under the primordial statute law and at the cost of uncertainty, it disciplines the court under primordial case law, decreasing, at the same time, its volatility. Turning to evidence gathering, we show that unobservable dimensions of the case are best discovered by the parties—i.e., adversarial adjudication—when the expected long run loss of social welfare from incomplete information is limited by sufficiently inclusive political institutions and/or sufficiently homogeneous legal preferences and by the lawmaker—i.e., inquisitorial adjudication—otherwise. Ultimately, our model endogenously clarifies why primordial common law—i.e., primordial case law and discretionary inquisitorial adjudication—prevails over primordial civil law—i.e., primordial statute law and bright-line adversarial adjudication—when the political process is sufficiently autocratic and/or legal preferences are sufficiently heterogeneous.

We evaluate the model implications by analyzing a panel of 44 major Mesopotamian polities spanning each half-century between 3050 and 1750 BCE. Compared to similar databases on pre-industrial and industrial societies (de Oliveira and Guerriero, 2018; Guerriero and

Righi, 2025; Benati and Guerriero, 2026a), our sample is uniquely fitted to test our theory for three key reasons. First, since the maximum distance between the cultivated fields and the center of the city around which a polity evolved was 30 km (Wilkinson, 2003), our data set displays a very large—over a millennium long—panel variation on units demarcated by well-defined, narrow, and stable boundaries and entertaining in economic activities sufficiently simple to credibly link exogenous shocks to institutions. Crucially, we accurately measure the latter by relying on the universe of sources on the legal evolution of the best recorded ancient society.[1] Second, our sample is characterized by the first waves of migration and democratization, both driven by epochal episodes of climate change included the 4.2 ka BP megadrought (Weiss, 2017). Finally, our data set is unaffected by major legal models, like the Roman civil law, the medieval English common law and the disparate European hybrids diffused by the European colonization (Glaeser and Shleifer, 2002).

To measure the legal tradition, we follow Guerriero (2016a, 2016b, 2026), and we build on the universe of primary and secondary sources on the evolution of the Mesopotamian legal orders to construct a dummy for primordial case law, three indicators for discretion in adjudication and a dummy for adversarial adjudication. By extracting the normalized first principal component form these five indicators, we can define a continuous proxy for a pure primordial common law. Regarding the inclusiveness of the political process, we rely on an index of the degree of division of the decision-making power among the three possible institutionalized decision-makers, i.e., temple, palace and city elites (Benati et al., 2022) . For what, finally, concerns the degree of legal preference diversity, we exploit the strong link between genetic pools and ethnolinguistic roots driven by the diverse cultural transmission instruments employed by populations that are increasingly distant from the common ancestors (Cavalli-Sforza et al., 1994), and we build an ethnolinguistic fractionalization index based on the provenience of a representative sample of names reported by cuneiform texts.

Consistent with the model predictions, switch towards primordial case and more generally, primordial common law are related to a lower division of the decision-making power and a larger ethnolinguistic diversity. While these basic estimates are consistent with our

[1] While the archaeological sources have been gathered by the thousands of campaigns conducted in the last two centuries, the primary sources are collected from the best-preserved corpus of ancient writing [Barjamovic 2013, p. 120-122], which encompasses hundreds of thousands administrative and legal clay tablets.

predictions, they may be capturing measurement error, reverse causality and/or unobserved heterogeneity. We evaluate these issues in turn. First, we document that the message of our analysis remains unchanged when we either switch to a discrete measure of the inclusiveness of the political process or exclude stepwise each of the three indexes for discretion in adjudication from the construction of our synthetic measure of the decentralization of the legal tradition. Second, the fact that lead values of the inclusiveness of the political process and/or legal preference diversity are unrelated to the dependent variables is inconsistent with the idea that legal evolution may feed back to its determinants. Finally, we follow a three-step strategy to assess the impact of unobserved heterogeneity. We start by confirming that our conclusions remain unchanged when we control for the severity of climate shocks, incidence of conflicts, other legal institutions distinguishing different legal traditions and the size of legal decentralization costs. In the Internet appendix, we document similar patterns while employing alternative measures and a proxy for the inclusiveness of the political process of the dominating polity. Second, we calculate that the influence of the main unobservable factors would need to be on average ten times greater than the influence of observables to explain away the links between legal traditions and their determinants. Finally, we emphasize that our conclusions stand when we instrument the division of decision-making powers with the degree of political instability driven by the presence of young kings in neighboring polities and the ethnolinguistic diversity with climate-driven waves of Northern immigrants.

The paper proceeds as follows. We first discuss in section 2 our contributions to the extant literature. Next, we illustrate in section 3 our theoretical framework. Then, we detail in sections 5 our empirical test. Finally, we conclude in section 6, and we report figures and tables (data construction and extra tables) in the (Internet) appendix.

2 Related Literature

Our analysis delivers three contributions over the extant literature on legal traditions.

First, our theoretical model constitutes a first application of the "endogenous legal traditions" literature to the study of the evolution of the legal order of ancient societies (Guerriero, 2016a). Following the insights of this strand of research, we characterize the determinants of the positioning of the legal order over a continuum between a pure primordial common

law and a pure primordial civil law tradition. Such an approach is intimately related to the main intuition of the "legal formants" theory that legal traditions span a continuum defined by the degree of centralization and the degree of interpretive flexibility (Sacco, 1991). This conceptual spark has guided, in turn, the "adaptive efficiency" and "comparative historical institutionalism" theories. While the former maintains that repeated interactions in primitive societies crystallize customary norms into royal edicts and liability doctrines as well as community practices into court procedures (Posner, 1980; Postgate, 1992; Parisi, 2001), the latter highlights, in a vein similar to our model, that a less inclusive political order favors case law. To illustrate, Glaeser and Shleifer (2002) suggests that weak English magnates obtained with the *Magna Carta* the right of trial by local juries independent of a strong crown, whereas the equally powerful French nobles encouraged adjudication by royal judges.

Second, our theory-based empirical framework qualifies not only the legal origins literature, but also those strands of research that have either tried to downplay the role of legal traditions (Glaeser et al., 2004; Klerman et al., 2011; Cabrelli and Siems, 2015) or study their relationships with the political environments (Rajan and Zingales, 2003; Oto-Peralías and Romero-Ávila, 2014; Schmiegelow and Schmiegelow, 2014). Different from these strands of research, we formally evaluate the interaction among culture, politics and the legal tradition.

Finally, our empirical approach connects the analysis of endogenous legal traditions to both a growing body of research on law and culture, which suggests that long-lived intrinsic norms of conduct shape the law and in particular, the strength of property rights (Gneezy and Rustichini, 2000; Licht et al. 2005; 2007; Lehavi and Licht, 2011; Dari-Mattiacci and Guerriero, 2015; Guerriero, 2016c), as well as a huge literature on the interplay between formal and informal institutions and mostly, between the strength of a culture of cooperation and a more inclusive political process (Tabellini, 2008; 2010; Gorodnichenko and Roland, 2017; Boranbay and Guerriero, 2019; Benati and Guerriero, 2026b). Different from these bodies of research, we focus on the impact of the inclusiveness of the political process and the degree of cultural heterogeneity on the evolution of the legal tradition.

3 The Origins of the Legal Order

We start off with summarizing the legal evolution of Bronze Age Mesopotamia, signaling

via the bold letters [**a**] and [**b**] facts consistent with the two key implications of our model, which also constitute the main results of our empirical test: [**a**] limited political instability favoring the rise of a more inclusive political process was accompanied by institutions typical of a primordial civil law; [**b**] climate-driven migration waves intensifying ethnolinguistic fractionalization promoted the rise of institutions typical of a primordial common law.

Pre-Akkadian period (3050-2334 BCE).—Initially characterized by limited hierarchy, low population density and only basic forms of production and exchange, Mesopotamia developed the first forms of stable legal and political institutions [Liverani 2014, p. 43-45]. To illustrate, the drying up of the later 4th millennium induced the collapse of the Semitic sites in Upper Mesopotamia while encouraging in the Sumerian South artificial irrigation and in turn, the organizational skills necessary for its construction and maintenance [Brooke 2014, p. 203].[2] This precious leadership was provided by priestly leaders and eventually, a rising military class [Hole 1994, p. 138-139; Marchesi and Marchetti 2011, p. 90-100; Garfinkle 2013, p. 108-110; Steinkeller 2019, p. 113-123].[3] Crucially, while transferring increasingly large estates from the landholding groups to the specialized workers in exchange for services [Englund 1998, p. 176-181; Cripps 2007, p. 12-20], temples and palaces established themselves as the first institutionalized decision-makers by gaining control over fiscal policies as well as the organization of stable armies and justice [Wilcke 2007, p. 30; Wilcke 2003, p. 150]. To elaborate, either the king—i.e., *ensi*$_2$—or an assembly of officials,[4] religious ranks and/or elders on his behalf supervised adjudication, which was indistinguishable from law-making, i.e., a primordial form of statute law [**a**, **b**] [Gelb et al., 1991; Catagnoti, 2003]. The hearings were characterized by adversarial gathering of oral evidence and possibly followed by an appeal directed to receive an equitable verdict by the king [**a**, **b**] [Lafont 2023, p. 33].[5]

Akkadian empire (2334-2154 BCE).—After having consolidated their control over Lower Mesopotamia, the Akkadian kings conquered large portions of the Fertile Crescent [Sallaberger and Schrakamp 2015, p. 105-112]. While the southern city-states were—at least

[2] "Lower" ("Upper") Mesopotamia gathers the regions of Southern (Northern) Iraq and Southwestern Iran (Northern Israel, Northeastern Syria and Southeastern Turkey) [Liverani 2014, table 1.1].

[3] Only the post-2700 BCE improvement of the climate favored the rise in Upper Mesopotamia of extended royal families supported by religious ranks and elders' councils [Archi 2015, p. 570-591; Ristvet 2017, p. 40].

[4] Examples were heralds in Lagas and nobles called *lugals* in Ebla [Wilcke 2003, p. 150].

[5] Plaintiff, defendant and witnesses—i.e., *lu*$_2$ *ki inim-ma* and *abba*$_2$—submitted orally the relevant evidence, as suggested by the oath formulae reported in the available proceedings (Gelb et al., 1991).

at first—left to local rulers, the revived northern polities were administered by governors appointed by the king and assisted by royal functionaries and local religious households [Steinkeller 2020, p. 47-51]. Regardless of the origins of the governor and against a backdrop of strong imperial control over local fiscal policies and sustained inflow of Akkadian officials, clients and retainers towards the most productive southern polities [Sallaberger 2004, p. 114-115; Bartash and Pottorf 2025, p. 23], all dominated polities kept adjudication and law making by a local court in exchange for the observance of her own and the imperial rulings as binding [**a**, **b**] [Wilcke 2007, p. 30 and 36]. Such a primordial form of case law was recorded for future rulings by a commissioner—i.e., *maškim*, who was appointed by the local court among notable officials and was also responsible to gather the oral evidence [**a**, **b**] [Edzard and Wiggerman, 1987; Wilcke 2007, p. 39-46; Wilcke 2003, p. 150-151; Culbertson 2009, p. 136-137]. Finally, albeit equitable appeals in front of local courts survived, no judgment could be appealed in front of the Akkadian ruler, making the Sargonic legal tradition a primordial form of pure common law [**a**, **b**] [Culbertson 2009, p. 123].

Post-Akkadian period (2154-1750 BCE).—The combination of Gutian raids and fierce droughts favored the disintegration of the Akkadian empire in a group of polities that, after being either partially abandoned or occupied by the Gutians,[6] reverted to the pre-Akkadian legal order and a group of polities that became independent and embraced primordial statute law by a more or less inclusive assembly together with the Akkadian adjudication model [**a**, **b**] (Steinkeller, 2015).[7] This intermediate form of primordial civil law continued to prevail under the Ur III dynasty (2120 - 2000 BCE), who ruled an empire much weaker than the Akkadian one and organized into core provinces administered by co-opted native governors as well as peripheral and fiscally autonomous provinces ruled by crown functionaries together with local elites [**a**, **b**] [Garfinkle 2013; Steinkeller 2020, p. 54-67].

Eventually, the Ur III kings were defeated by the semi-nomadic Amorites, who, together with the Hurrians, were moving South towards milder climates (Steinkeller, 1998; Yoffee,

[6]Gutians kings ruled Adab, Eshnunna, Kish, Nippur, Sippar and Umma (Sallaberger and Schrakamp, 2015).
[7]Lawmaking courts would possibly encompass the king together with a city assembly—i.e., *puhrum* in Sippar and *ālum* in Ashur [Harris 1975, p. 116-141], governors—i.e., *ensi*—and royal officials in Gasur, Girsu, Umma and Ur [Lafont and Westbrook 2003, p. 196; Culbertson, 2009], mayor—i.e., *rabianum*—and elders—i.e., *šibūtum*—in Lagash, Kish and Sippar [Charpin, 2004; Molina 2013, p. 126], bystanders—i.e., lu_2 *ki-ba gub-ba*–in Adab, Ashur, Gasur, Girsu, Isin, Kish, Lagash, Larsa, Nippur, Shuruppak, Sippar, Susa, Tutub, Umma and Ur (Molina, 2013) and administrative officials in Mari (Sasson, 2015).

2005). As a result, Greater Mesopotamia felt under the control of Amorites (2000-1850 BCE), Old Assyrian (2025-1750 BCE), Isin-Larsa (2004-1792 BCE) and Old Babylonian (1792-1750 BCE) kingdoms [Liverani 2014, p. 175-218]. To manage such a heterogeneous and increasingly commercially interrelated landscape, local rulers negotiated with councils of elders and/or rising merchant guilds and embraced codification along with legal institutions increasingly closer to a pure primordial civil law tradition [**a**, **b**] [Fleming 2004, p. 33, 75; Ziegler 2008, p. 50; Barjamovic 2018, p. 123-128; Palmisano 2018, p. 22].[8] While legal procedure became again adversarial [Lafont, 2000; Horowitz et al., 2006, p. 69-72; De Graef 2010, p. 43; Michel, 2023a], written evidence get increasingly acceptable during hearings (Charpin, 2004).[9] Finally, judgments were possibly followed by an equitable appeal before the king [Lafont and Westbrook 2003, p. 196; Molina 2013, p. 127; Sasson 2015, p. 218], except in Ashur and Kanesh during the Old Assyrian period and in Alalak, Ebla, Emar and Ugarit during the Yamhad Kingdom (1810-1750 BCE) [Veenhof, 1995; Dercksen 2004, p. 91; Lauinger, 2015]. While in the first case the city assembly and not the king held the primary judicial power [Harris 1975, p. 116-141], in the second one verdicts could be reconsidered for a second hearing only conditional to a payment so large to make any appeal and in turn, the use of equity actually impossible (Lauinger, 2015).

4 Theory

Micro-foundations.—We consider a legal system regulating a single harmful action characterized by two dimensions $a \in [0,1]$ and $u \in [0,1]$, independently and uniformly distributed over the population of cases and such that the defendant should be convicted if $a + u \geq 1$ (Guerriero, 2016a,b). Since only a is observable, the defendant is convicted if and only if the realization of this dimension is weakly greater than the threshold $A^{i,t}$ selected beforehand by the lawmaker under institution $i \in \{c, s\}$. To elaborate, a polity's court acts as lawmaker and adjudicator under the primordial statute law s,[10] whereas she acts as adjudicator but

[8] The earliest known codified law—i.e., 2100 BCE Ur-Namma code—was followed by the laws of Lipit-Ishtar in Isin (1900 BCE), Eshnunna (1770 BCE) and Hammurabi (1750 BCE) [Westbrook 2003, p. 8].

[9] Written evidence was admitted in the last part of our sample for slightly less than half of our polities, i.e., Ashanakkum, Ashur, Harran, Kahat, Kanesh, Karkemish, Lagash, Mari, Nagar, Nineveh, Qatna, Qattara, Shashrum, Sippar, Tuttul, Urbilium and Urkesh [Charpin 2004, p. 307; Démare-Lafont and Fleming, 2023].

[10] We label the polity's court with "she" and the legislator with "he".

makes the law considering also her precedents and those set by her ruler under the primordial case law c. In section 4.2, we also evaluate the role of flexibility in adjudication.

Being u unobserved, the probability of a false positive is $\frac{1}{2}\left(1-A^{i,t}\right)^2$ and that of a false negative is $\frac{1}{2}\left(A^{i,t}\right)^2$. Let $\lambda > 0$ be the ratio of the cost of a false positive to the cost of a false negative. The former is the foregone act-utility for $a+u<1$—i.e., $U>H$—net of the harm $H>0$, whereas the latter equals H less the—normalized to be equal to 0—foregone act-utility for $a+u \geq 1$ (Polinsky and Shavell, 2000). Building on section 3, we assume that the citizenry has mass one and is split in three equally sized groups $j \in \{M,P,T\}$ of city elites M, palatial ranks P and religious households T, who are heterogeneous in the "perceived" relative cost of a false positive β_j.[11] We assume that a j citizen's ex post loss of welfare under the long run law A^i, compared with the first best case of an observable u, is $\Lambda_j\left(A^i\right) = (1/2)\left[\Gamma\left(\beta_j\right)\left(1-A^i\right)^2 + \left[1-\Gamma\left(\beta_j\right)\right]\left(A^i\right)^2\right]$ with $\Gamma(x) \equiv x\left(1+x\right)^{-1}$ (Gennaioli and Shleifer, 2007). Then, the bliss point of group j equals $\hat{A}_j = \Gamma\left(\beta_j\right)$.

Without loss of generality, we maintain that group M is less worried about the danger of the action and thus, has $\beta_M = \lambda\pi$ with $\pi > 1$. This entails that M prefers the most lenient rule $\hat{A}_M = \lambda\pi\left(1+\lambda\pi\right)^{-1}$. On the contrary, group T is the most worried group, displays $\beta_T = \lambda\pi^{-1}$ and thus, prefers the most punitive threshold $\hat{A}_T = \lambda\left(\pi+\lambda\right)^{-1}$. Finally, since $\beta_P = \lambda$, the bliss point of the unbiased group is the "technologically efficient" $\hat{A}_P = \lambda\left(1+\lambda\right)^{-1} \in \left(\hat{A}_M, \hat{A}_T\right)$—i.e., the socially optimal threshold in the absence of biases—with $\tilde{A} \equiv E\left(\hat{A}_j\right) = \frac{1}{3}\left(\hat{A}_M + \hat{A}_P + \hat{A}_T\right) \geq (<)\hat{A}_P$ and $\tilde{A} \leq (>)1/2$ for $\lambda \leq (>)1$. Then, π measures the extent of disagreement about the perceived relative cost of wrongful conviction and, in general, about whether an action is "right" or "wrong." We refer to this diversity as either cultural or legal preference heterogeneity. This interpretation is coherent with a large evidence showing that the differences in the willingness to punish deviant actions among individuals are related to long-lasting cultural values (Guiso et al., 2009).[12]

An example of an action justifying the ranking $\hat{A}_T \leq \hat{A}_P \leq \hat{A}_M$ is the invasion by a farmer of a neighboring piece of land (Gelb et al., 1991), which was perceived as very

[11] Should the groups have different masses, the model results will be similar but the algebra more cumbersome.

[12] Herrmann et al. (2008) document that weak norms of civic cooperation and the weakness of the rule of law in a country are significant predictors of antisocial punishment. Similarly, Mocan (2013) discusses evidence consistent with the fact that vengeful feelings are stronger in countries that are collectivist.

costly by the landholding temples [Englund 1998, p. 176-181], as not particularly harmful by merchant ranks involved in long-distance trades and in a technologically optimal manner by the palatial elites involved in both farming and long-distance exchanges [Cripps 2007, p. 12-20; Barjamovic 2018, p. 123-128; Palmisano 2018, p. 22; Warburton, 2024].[13]

Timing.—At time $t = 0$, either an independent polity picks statute or the ruler of a regional reign selects the i maximizing the expected transfers from the dominated polity net of the legal—and especially trade-related—decentralization costs $\Theta > 0$. These are the costs from increased contractual complexity, coordination externalities and agreement enforcement (Van Leemput, 2021). Regarding a subject polity's willingness to pay, it equals the difference between the expected long run loss of social welfare under a more penalizing institution and its preferred i, where the expected long run loss of social welfare is $\mathrm{E}\left(\Lambda\left(\hat{A}^i\right)\right) = \mathrm{E}\left(\frac{1}{3}\left[\Lambda_M\left(\hat{A}^i\right) + \Lambda_P\left(\hat{A}^i\right) + \Lambda_T\left(\hat{A}^i\right)\right]\right) \propto \frac{1}{2}\mathrm{E}\left(\hat{A}^i - E\left(\hat{A}_j\right)\right)^2 = \frac{1}{2}\left[\mathrm{E}\left(\hat{A}^i\right) - \tilde{A}\right]^2 + \frac{1}{2}\mathrm{V}\left(\hat{A}^i\right)$, E and V are taken across all laws and $\tilde{A}$ is the socially optimal rule.[14] At time $t = 1$, the polity's court picks an A^s lasting forever for $i = s$, whereas for $i = c$ either a local court or the ruler fixes with the same probability an $A^{c,1}$ standing until possibly at time $t \geq 2$ the prevailing $A^{c,t-1} = A^{c,1}$ is overruled in favor of $A^{c,t}$, opening the way to new changes.[15] At each time t, adjudication is guided by the threshold $A^{i,t}$.

4.1 Endogenous Lawmaking Institutions

4.1.1 Primordial Statute Law

Setup.—While implemented by representatives, statute law is the outcome of a political process that involves also nonelected actors and notably, the special interests most affected by the law. To consider this bargaining, we build on Felli and Merlo (2006) and we embrace the following two assumptions. First, the polity's court has outside option $\tilde{A}$ and minimizes the expected long run loss of social welfare minus the transfers that she possibly receives from his preferred coalition of the groups times $\mu \in [0, 1]$. The parameter μ is then an inverse

[13] Consistent with this idea, trespassing entailed ever weaker penalties in first legal codes issued during our very sample (Roth, 1995), i.e., Ur-Namma (2100 BCE), Lipit-Ishtar (1930 BCE) and Hammurabi (1750 BCE).

[14] Notice that $\Lambda_j\left(A^i\right) = (1/2)\left[\hat{A}_j\left(1 - A^i\right)^2 + \left(1 - \hat{A}_j\right)\left(A^i\right)^2\right] = (1/2)\left(A^i - \hat{A}_j\right)^2 + (1/2)\,\hat{A}_j\left(1 - \hat{A}_j\right)$.

[15] Should the two types of courts make law with different probabilities under primordial case law, our conclusions will stand unaffected but the algebra of sections 4.1 and 4.2 will be significantly more cumberome.

measure of the inclusiveness of the political process, i.e., citizens' ability to hold the polity's court, who also held the executive power, accountable. Second, each among the possible coalitions of the groups proposes a binding contract over A^s to the polity's court and, if chosen, pays a fixed collective action cost $\Psi \geq 0$ to allow transfers. The polity's court has full bargaining power, and both transfers and collective action costs are short run expenses that shape the lobbying game but not the expected long run loss of social welfare.

Coalition $l \in \Omega = \{\{\phi\}, \{P\}, \{M\}, \{T\}, \{M,P\}, \{P,T\}, \{M,T\}, \{M,P,T\}\}$ is willing to pay $W_M(A^s) = \frac{\sum_{j\in l}\left[\left(\tilde{A}-\hat{A}_j\right)^2-\left(A^s-\hat{A}_j\right)^2\right]}{6} - \Psi$ for A^s. Hence, the polity's court first chooses

$$\hat{A}^s(l) \in \arg\max_{A^s} -(1-\mu)\Lambda\left(A^s(l)\right) + |j|\,\mu W_M\left(A^s(l)\right), \tag{1}$$

and then, given the optimal legal rule $\hat{A}^s$, selects his preferred bargaining coalition

$$\hat{l} \in \arg\max_{l\in\Omega} -(1-\mu)\Lambda\left(\hat{A}^s(l)\right) + |j|\,\mu W_M\left(\hat{A}^s(l)\right), \tag{2}$$

where the adjustment $|j| = 3$ just eases the algebra of the equilibrium solution.

Equilibrium.—Being problems (1) and (2) strictly concave, a subgame perfect equilibrium consists of a threshold $\hat{A}^s(l) = \left[(1-\mu)\tilde{A} + \mu\sum_{j\in l}\hat{A}_j\right](1-\mu+|l|\,\mu)^{-1}$ and a coalition $\hat{l}$ maximizing the expected utility of the polity's court. If she favors special interests by picking an $\hat{l}$ different from either $\{\phi\}$ or $\{M,P,T\}$, primordial statute law becomes biased, and its bias is wider the bigger μ and π are. Yet, either a sufficiently large legal preference diversity and/or a sufficiently extractive political process are necessary to push at least one coalition to pay Ψ and *a fortiori* the polity's court to pander to special interests. When the latter is the case, $U\left(\hat{l}\right)$ becomes proportional to the bias of $\hat{A}^s$. Hence, the polity's court prefers to pander to the most extreme coalition, i.e., the group whose bliss point is the furthest away from $\tilde{A}$. To illustrate, assuming that, without loss of generality, for $\lambda = 1$ the polity's court picks $\hat{A}^s(\{M\})$ when indifferent between $\hat{A}^s(\{M\})$ and $\hat{A}^s(\{T\})$, she will select M (T) for $\lambda \leq (>)1$ being then $\hat{A}_M - \tilde{A} \geq (<)\tilde{A} - \hat{A}_T$. To elaborate:

Lemma: *1. For $\lambda \leq 1$, the polity's court chooses $\hat{A}^s(\{M\})$ if $\pi \geq \bar{\pi}_M$ and $\tilde{A}$ otherwise. For $\lambda > 1$, the polity's court chooses $\hat{A}^s(\{T\})$ for $\pi \geq \bar{\pi}_T$ and $\tilde{A}$ otherwise. Hence, the*

expected long run loss of social welfare is proportional to $\frac{\mu^2}{2}\left(\hat{A}_M - \tilde{A}\right)^2$ *if* $\lambda \leq 1$ *and* $\pi \geq \bar{\pi}_M$ *and to* $\frac{\mu^2}{2}\left(\tilde{A} - \hat{A}_T\right)^2$ *if* $\lambda > 1$ *and* $\pi \geq \bar{\pi}_T$*. Moreover, it is zero if either* $\lambda \leq 1$ *and* $\pi < \bar{\pi}_M$ *or* $\lambda > 1$ *and* $\pi < \bar{\pi}_T$*. 2.* $\bar{\pi}_M$ *and* $\bar{\pi}_T$ *fall (rise) with* μ *(*Ψ*). 3. No coalition pays a* $\Psi > 1/27$*.*

Albeit sizable parts of our sample lost their independence during the pre- and post-Akkadian periods—i.e., respectively, the 11% and 38% of the total against the 54% of the Sargonic era—and were therefore, forced to accept the fiscal policies and institutional reforms dictated by a dominating regional power [Liverani 2014, p. 43-122], only the Akkadian dynasty implemented a primordial form of case law (see section 2 and figure 2). To shed light on these dynamics, we build on Gennaioli and Shleifer (2007) to characterize the Akkadian model of decentralized lawmaking, explain why an obvious alternative form of judge-made law was discarded and compare the efficiency of primordial case law with that of the primordial statute law prevailing in a dominated polity, i.e., for $\mu \to 1$. As clarified by the lemma, under such a scenario, an envoy of the ruler of the dominating polity would have selected $\hat{A}_M$ for $\lambda \leq 1$ and $\hat{A}_T$ for $\lambda > 1$ leading to the maximum possible expected long run loss of social welfare for the dominated polity, i.e., $\frac{\left(\hat{A}_M - \tilde{A}\right)^2}{2}$ for $\lambda \leq 1$ and $\frac{\left(\tilde{A} - \hat{A}_T\right)^2}{2}$ for $\lambda > 1$.

4.1.2 Primordial Case Law

Setup.—As discussed in section 2, the elites of each of the polities subjugated by the Akkadian dynasty kept control on legal matters, as either governors—ensis/stewards—or local rulers, in exchange for a tight imperial control on fiscal policies and the observance of their own and the imperial precedents [Wilcke 2007, p. 30 and 36].

To capture such an institutional architecture, we assume that at time t, the law can be modified with the same probability by either the court chaired by the ruler or a judge randomly selected from the dominated polity's citizenry, provided that the lawmaker exerts a persuasive effort whose cost rises with the institutional relevance of *stare decisis* $K > 0$ and the magnitude of the legal revision. Such a setup captures the intuition of a vast comparative law tradition that *stare decisis* only binds in so far as it becomes more costly to defend a more innovative ruling from the scrutiny of the affected parties (Posner, 1973).

To illustrate, a judicial body of type b minimizes the loss of picking a threshold $\hat{A}^{c,t}$ far from her bliss point $\hat{A}_b$ and that of justifying an $\hat{A}^{c,t}$ far from $\hat{A}^{c,t-1}$, i.e.,

$$\frac{1}{2}\left(A^{c,t}(b)-\hat{A}_b\right)^2+\frac{K}{2}\left(A^{c,t}(b)-\hat{A}^{c,t-1}\right)^2. \tag{3}$$

Equilibrium.—By inspection, the unique and global solution to problem (3) is $\hat{A}^{c,t}(b) = \Gamma(K)\hat{A}^{c,t-1}+[1-\Gamma(K)]\hat{A}_b$. Hence, primordial case law follows a first order auto-regressive process converging to the ergodic and stationary distribution with mean $\mathrm{E}\left(\hat{A}_b\right)$ and variance $\mathrm{V}\left(\hat{A}_b\right)(1+2K)^{-1}$, where $\mathrm{E}\left(\hat{A}_b\right)$ and $\mathrm{V}\left(\hat{A}_b\right)$ are the expected value and variance of the distribution of bliss points of the judicial bodies B. In words, the judicial bodies' cultural biases offset one another producing a compromise. Yet, this evolutionary benefit comes at the cost of legal uncertainty. In particular, the expected long run loss of social welfare is proportional to $\frac{\left[\mathrm{E}\left(\hat{A}_b\right)-\tilde{A}\right]^2}{2}+\frac{\mathrm{V}\left(\hat{A}_b\right)}{2(1+2K)}$, which falls with the institutional relevance of *stare decisis* K and rises with the legal preference diversity π. While the former curbs a court's incentive to overrule an inherited precedent, the latter raises the return from legal revisions.

Given the similarities in the technological innovations and migration pressures experienced by the polities part of the Akkadian empire (see section 2), we maintain that they all show the same λ and π. As a result, $\hat{A}_b$ takes with the same probability the value of the threshold selected by the Akkadian court given the inverse measure of the inclusiveness of the empire's political process $\hat{\mu}$—i.e., $(1-\hat{\mu})\tilde{A}+\hat{\mu}\hat{A}_M$ for $\lambda \leq 1$ and $\pi \geq \bar{\pi}_M(\hat{\mu})$, $(1-\hat{\mu})\tilde{A}+\hat{\mu}\hat{A}_T$ for $\lambda > 1$ and $\pi \geq \bar{\pi}_T(\hat{\mu})$,[16] and $\tilde{A}$ otherwise—and the bliss point of a judge randomly selected from the dominated polity's population as if the polity's court shared the preference of the ruler half of the time. Ultimately, $\mathrm{E}\left(\hat{A}_b\right)$ equals $\frac{(2-\hat{\mu})\tilde{A}+\hat{\mu}\hat{A}_M}{2} \equiv \hat{A}_{b,M}$ for $\lambda \leq 1$ and $\pi \geq \bar{\pi}_M(\hat{\mu})$, $\frac{(2-\hat{\mu})\tilde{A}+\hat{\mu}\hat{A}_T}{2} \equiv \hat{A}_{b,T}$ for $\lambda > 1$ and $\pi \geq \bar{\pi}_T(\hat{\mu})$, and $\tilde{A}$ otherwise.

4.1.3 Comparison

The ruler picks primordial case law when the polity's willingness to pay to obtain the decentralized solution rather than primordial statute law by a ruler's envoy, net of legal decentralization costs, was positive. As the appendix details, three are the key observations.

First, for non-negligible fixed collective action costs Ψ and limited legal decentralization costs Θ, the ruler always prefers primordial case law since it produces a lower expected

[16] Consonant with the positive dependence of $\mathrm{E}\left(\Lambda\left(\hat{A}^c\right)\right)$ on $\hat{\mu}$, the inclusiveness of the political process of the dominating polity is positively linked to reforms towards primordial common law (see section 5.4.3).

long run loss of social welfare for every possible inverse measure of the inclusiveness of the empire's political process $\hat{\mu}$. Intuitively, albeit volatile, primordial case law balances the preferences of the most extremist group with those of the Akkadian lawmaker and the fall in the legal bias due to the disciplining effect of *stare decisis* more than compensates the extra legal uncertainty (see also Glaeser and Shleifer [2002]). As a consequence, under such a scenario, the polity's willingness to pay for legal decentralization is strictly positive.

Second, the bias of the statutes selected by the ruler's envoy increases with the degree of legal preference heterogeneity quicker than the combination of bias and volatility under primordial case law does (see the appendix). Hence, the Akkadian model of decentralized lawmaking becomes relatively more efficient the more heterogeneous legal preferences are.

Finally, the first two remarks provide together a clear explanation of the uniqueness of the Akkadian case. To illustrate, while pre-Akkadian reigns were marked by fully homogeneous cultural groups and moderate legal decentralization costs, the weaker post-Akkadian reigns experienced considerable ethnic mixing and huge trade-related transaction costs from judge-made law (see figure 2). To elaborate, two were the trends behind these combinations of π and Θ, which are both inconsistent with the rise of primordial case law. First, the dichotomy between northern Semitic groups and southern Sumerian elements—i.e., $\pi = 0$—ended when the southern polities enjoying the mildest climate were submerged by flows of Akkadian officials and retainers first and waves of Amorites, Gutians and Hurrians workers and soldiers later on [Steinkeller, 1998; Sallaberger 2004, p. 114-115; De Boer 2014, p. 21-24; Kloekhorst, 2019; Bartash and Pottorf 2025, p. 23-24], i.e., a large π. Second, the mix of worsening climate conditions and mass diffusion of metal tools prompted, from 2000 BCE on, the emergence of a new exchange landscape around the Old Assyrian network, which traded textiles and tin for precious metals between Ashur and Kanesh, and the Old Babylonian network, which exchanged metals for textiles between Shush and Hazor [Barjamovic 2018, p. 121-125]. Different from the third millennium circuits, which were organized by agents of the institutionalized decision-makers and merchant families and mainly traded low bulk, high price goods—i.e., a moderate Θ, these networks were dominated by private entrepreneurs, which were able to accumulate, for the first time, increasing political power [Van De Mieroop 2015, p. 89-92; Barjamovic 2018, p. 128]. To illustrate, the temple and palatial ranks of

the polities most interested in fostering long-distance exchanges because part of the less dense junctions of the trade circuits—i.e., Ashur, Emar and Tuttul—started to substitute the Ur III administrators with merchant guilds [Postgate 1992, p. 221; Palmisano 2018, p. 22]. These groups, in turn, organized themselves around formal institutions, like the karum, and actively operated to limit transaction costs—i.e., a large Θ, by linking trade nodes and homogenizing the regulation of trade contracts [Postgate 1992, p. 218-221, 300]. Such a trade revolution was accompanied by codification and completed under the Old Assyrian, Isin-Larsa and Old Babylonian kingdoms [Liverani 2014, p. 192-218].

Proposition 1 summarizes our analysis of endogenous lawmaking institutions:

Proposition 1: *Under the least inclusive political process $\mu = 0$ and for non-negligible collective action costs Ψ and legal decentralization costs Θ, primordial case law prevails over primordial statute law for a sufficiently large legal preference heterogeneity π.*

Discussion.—Several remarks are key to evaluate the generality of our setup. First, our background assumptions that the groups cannot commit to remain dormant and the polity's court has full bargaining power are innocuous given our focus on $\hat{A}^i$. Second, should we maintain that transfers and collective action costs enter in the expected long run loss of social welfare, the message of the lemma will remain unchanged since primordial statute law will be even less efficient for $\pi \geq \bar{\pi}_{\hat{i}}$. Similarly, only the algebra (interpretation) of the lemma will change should Ψ be paid by each group in a coalition (borne before lawmaking). Third, primordial statute law will remain fixed over time should codification be repeated in each period as in our sample, since the polity's court is never indifferent between coalitions. Fourth, our conclusions will survive should we envision shocks shifting the distribution of legal preferences but leaving unchanged the size of π (Guerriero, 2016a). Finally, the ruler gains from primordial case law more than what he could receive from bestowing a monopoly over judge-made law on the most extremist group—i.e., M for $\lambda \leq 1$ and T otherwise, since this alternative delivers a larger expected long run loss of social welfare (see the appendix).

4.2 Endogenous Adjudication Institutions

4.2.1 Evidence Manipulation

As discussed in section 3, the reliance on flexible adjudication principles easing evidence

manipulation, such as the lack of an appeal before the ruler, use of equity, and acceptance of oral evidence, was systematically related in our sample to primordial case law and a defining feature of the primordial common law tradition [Westbrook 2003, p. 366-376; Wilcke 2007, p. 21-47]. To study this institutional cluster, we extend the Guerriero's (2016a) comparison of flexible adjudication and bright-line procedures in a two tiers legal system to our setup. To elaborate, we assume that discretion takes the form of the ability of the party most likely penalized by the choice of $A^{i,t}$ at time t to manipulate the evidence in its favor by convincing the court that the observable dimension is either $a-\alpha$ or $a+\alpha$, where α capture the degree of flexibility in adjudication. Given any a, the defendant (plaintiff) has a higher expected willingness to pay to manipulate the evidence if $(1-a)(U-P) \geq aP$ (otherwise) with the plantiff's compensation P optimally equalized to the harm $H = U(1+\lambda)^{-1}$.

To ease our analysis, we assume that for $\lambda \leq 1$ and all the cases $a \in \left[\hat{A}^{i,t}, \hat{A}^{i,t}+\alpha\right]$, both $\max\{\hat{A}^{i,t}, \hat{A}^{i,t}+\alpha\} \leq 1/2$ and $(1-a)U \geq P$, whereas, for $\lambda > 1$ and all the cases $a \in \left[\hat{A}^{i,t}-\alpha, \hat{A}^{i,t}\right]$, both $\min\{\hat{A}^{i,t}-\alpha, \hat{A}^{i,t}\} \geq 1/2$ and $(1-a)U < P$. In other words, we maintain that, whenever punishment is less technologically efficient—i.e., $\lambda \leq 1$ and thus $\tilde{A} \leq 1/2$, the centripetal forces of the penalized groups' lobbying under primordial statute law and the binding ruler's precedent under primordial case law do not shift the equilibrium threshold and the range of cases for which discretion might arise above 1/2. As a consequence, the defendant's expected willingness to pay to manipulate the evidence remains weakly larger than the plaintiff's one even if $U-P \leq P$ by our assumption on λ. The opposite must be true whenever $\lambda > 1$ and thus, $\tilde{A} > 1/2$ and $U-P > P$.

This time, the expected long run loss of social welfare and the lawmakers' problems will be a function of the expected *de facto* rules $\mathrm{E}\left(\hat{A}^{s,F}\right)$ and $\mathrm{E}\left(\hat{A}^{c,F}\right)$ rather than the *de jure* thresholds $\hat{A}^{s}\left(\hat{l}\right)$, $\hat{A}^{c,t,J}$ and $\hat{A}^{c,J}$ discussed in the analysis illustrated in section 4.1.

Starting from the mixed civil law system combining statute law with flexible adjudication, the polity's court can neutralize in expectation discretion, which prevails with probability equal to the measure of relevant cases α and equals α for $\lambda \leq 1$ and $-\alpha$ otherwise. To illustrate, she chooses *de jure* rules equal in expectation to $(1-\mu)\tilde{A} + \mu\hat{A}_M - \alpha^2$ for $\lambda \leq 1$ and $\pi > \bar{\pi}_M$, $(1-\mu)\tilde{A} + \mu\hat{A}_T + \alpha^2$ for $\lambda > 1$ and $\pi > \bar{\pi}_T$, $\tilde{A} - \alpha^2$ for $\lambda \leq 1$ and $\pi \leq \bar{\pi}_M$ and $\tilde{A} + \alpha^2$ otherwise. These choices induce expected *de facto* statutes equal to $\mathrm{E}\left(\hat{A}^{s}\left(\{M\}\right)\right) + \alpha^2$

for $\lambda \leq 1$ and $\pi > \bar{\pi}_M$, $\mathrm{E}\left(\hat{A}^s\left(\{T\}\right)\right) - \alpha^2$ for $\lambda > 1$ and $\pi > \bar{\pi}_T$, and $\tilde{A}$ otherwise. Since these rules correspond to the thresholds prevailing under bright line adjudication rules, statute law remains unbiased. Discretion in adjudication comes, however, at the social cost of a positive legal uncertainty of the mixed civil law system, i.e., $\alpha^3(1-\alpha)$. Hence, for the sufficiently inclusive political process and/or sufficiently limited legal preference diversity under which the ruler picks centralizes, bright-line procedural rules must prevail over flexible adjudication.

Turning to the pure primordial common law system combining primordial case law with flexible adjudication, the local court does not care about evidence manipulation when sharing the ruler's preferences and is able to neutralize it in expectation when caring about the local judge's biases. Under the maintained assumption that primordial case law has converged to its steady state, these dynamics leave the bias of the primordial case law unchanged, while decreasing its variance. As illustrated in the appendix, this is the case because the covariance between the bias brought by evidence manipulation and the expected *de jure* primordial case law $\mathrm{E}\left(\hat{A}^{c,t,J}\right)$ is negative and larger in absolute value than the variance of the extent of discretion (see also Guerriero [2016a]). Proposition 2 summarizes our analysis:

Proposition 2: *Provided that, for* $\lambda \leq 1$ *and* $a \in \left[\hat{A}^{i,t}, \hat{A}^{i,t} + \alpha\right]$ *(*$\lambda > 1$ *and* $a \in \left[\hat{A}^{i,t} - \alpha, \hat{A}^{i,t}\right]$*), both* $\max\{\hat{A}^{i,t}, \hat{A}^{i,t} + \alpha\} \leq 1/2$ *and* $(1-a)\,U > P$ *(*$\min\{\hat{A}^{i,t} - \alpha, \hat{A}^{i,t}\} > 1/2$ *and* $(1-a)\,U < P$*), then flexible adjudication prevails over bright-line adjudication when the political process is sufficiently extractive and/or legal preferences are sufficiently diverse.*

4.2.2 Evidence Gathering

As discussed in section 3, the reliance on an inquisitorial adjudication procedure was systematically related in our sample to primordial case law and a defining feature of the primordial common law tradition [Westbrook 2003, p. 370-372; Wilcke 2007, p. 41-47]. While, under inquisitorial adjudication, the court can request or take evidence that has not been introduced by the parties and can refuse to collect or admit requested evidence, under adversarial adjudication, the parties will decide which evidence to present [Merryman 1969, p. 52, 123–127; Zweigert and Kötz 1998, p. 272]. In both cases, the evidence gathered during the hearing is not initially available to the adjudicating court, as the unobserved dimension u. Building on this intuition, we evaluate which adjudication procedure encourages

the most the discovery of u, under the assumption that the evidence gathering costs are incurred by the lawmaker under inquisitorial adjudication and by the party most interested in full information under adversarial adjudication. Consistent with section 4.2.1, we then assume that the difference between the willingness to pay for the discovery of u of the party advantaged by full information and the willingness to pay to avoid it of the disadvantaged party equals $(1-a)\,U > P$ for $\lambda \leq 1$ and thus, $\hat{A}^i \leq 1/2$, and that it equals $(1-a)\,U < P$ for $\lambda > 1$ and thus, $\hat{A}^i > 1/2$. These restrictions immediately imply that the long run total expected willingness to pay to discover u equals the expected long run loss of social welfare under inquisitorial adjudication and $\left(1/2 - \hat{A}^i\right)\left[\left(1-\hat{A}^i\right)U - P\right] > 0$ for $\lambda \leq 1$ and $\left(\hat{A}^i - 1/2\right)\left[P - \left(1-\hat{A}^i\right)U\right] > 0$ for $\lambda > 1$ under adversarial adjudication.

Two are the key observations. First, adversarial adjudication is strictly superior to inquisitorial adjudication under primordial statute law since, for a sufficiently inclusive political process and a sufficiently limited legal preference heterogeneity, the willingness of the polity's court to introduce u is limited while that of the two parties is sizable. Second, when political institutions are sufficiently extractive and legal preferences sufficiently diverse to favor primordial case law, inquisitorial adjudication must prevail since the willingness of the polity's court to discover the unobserved dimension is large and that of the two parties falls to zero as μ grows large sand thus, $\hat{A}^c$ tends to 1/2. Proposition 3 takes stock of our observations:

Proposition 3: *Provided that* $(1-a)\,U \geq P$ *for* $\lambda \leq 1$ *and* $(1-a)\,U < P$ *for* $\lambda > 1$*, inquisitorial adjudication prevails over adversarial adjudication whenever the political process is sufficiently extractive and/or legal preferences are sufficiently heterogeneous.*

4.3 Empirical Implications

Provided that collective action and legal decentralization costs are non-negligible:

Testable predictions: *The likelihood of reforms towards primordial case law, institutions fostering evidence manipulation and inquisitorial adjudication decreases with the inclusiveness of the political process and increases with the degree of legal preference diversity.*

5 Evidence

We focus on the major Mesopotamian polities, which are best documented for each half-

century between Early Bronze Ages I-IV and the Middle Bronze Age I [Liverani 2014, table 1.1], i.e., 3050-1750 BCE. To elaborate, we select the 44 polities for which we possess sufficiently detailed information on their institutional evolution. Since these polities evolved around one single city [Westenholz 2002, p. 26], we also require that this central settlement displays a sufficiently certain location and that it reached an area of four hectares over the sample (while the names of these cities and the corresponding archaeological sites are reported in table 1, their locations are displayed in figure 1).[17] Crucially, Benati and Guerriero (2026b) not only illustrate this choice, but also show that sample selection is not an issue.[18]

Regarding the span of our sample, two are the key constraints that have guided our choice. First, the institutional evolution of the period preceding the invention of the logographic writing is still ill-understood [Liverani 2014, p. 62-77]. Second, the emergence of the Levantine empires at the end of our sample induced a shift of the political core towards the eastern Mediterranean, the reduction in written sources and the collapse of the Babylonian and Assyrian trading circuits, obscuring in this way the evolution of our polities [Liverani 2014, p. 271; Green et al. 2024, p. 176]. By relying on the "middle chronology," it is, instead, possible to accurately link historical to archaeological data over our sample.[19] Following Acemoglu et al. (2005) and Guerriero (2020), we construct our institutional variables on the bases of the historical facts relative to a 40-year window around each observation and our non-institutional proxies on information on the half-century preceding each time period.

5.1 Measurement

5.1.1 Legal Traditions

We follow Guerriero's (2016a, 2016b, 2026) approach, and we build on both the universe of—248—secondary sources on the evolution of Bronze Age Mesopotamian legal orders and the universe of—2738—survived cuneiform tablets recording judicial hearings over our sam-

[17] These are collected from the Ancient Near East Placemarks available at https://zenodo.org/record/6384045

[18] The estimates of an Heckman model, run on a sample encompassing our 44 cross sections plus other 39 polities for which only the independent variables are observed, suggest that the residuals of regression and selection equations are unrelated at a 5% statistical level or higher. To identify selection, Benati and Guerriero (2026b) exploit the fact that nonselected polities mainly lied either on the Levantine cost or at traveling distance to the great rivers and were abandoned to ease resilience in favor of settlements either placed over the northern flat tablelands or directly overlooking the great rivers (Kennett and Kennett, 2006, Ristvet and Weiss, 2013).

[19] Crucially, both the Ancient Near East Placemarks and the middle chronology are widely accepted by the extant literature (Sallaberger and Schrakamp, 2015; Manning et al., 2016).

ple to classify each polity's legal order at a point in time along a continuum between a fully decentralized and a fully centralized solution (see the Internet appendix).[20] Operationally, our measurement rests on the definition of the five indicators capturing the lawmaking and adjudication institutions, which, in turn, most shaped the centralization of the legal order according to the comparative law literature on ancient and pre-industrial societies (Engelmann, 1928; Merryman, 1969; Damaška, 1986; Campbell and Campbell, 1995; Zweigert and Kötz, 1998; Westbrook, 2003; Ward and Wragg, 2005; Wilcke, 2007; Acartürk et al., 2005).

Regarding the lawmaking institution, we rely on *Case-Law*, which equals one whenever the law was made by the polity's court and this judicial body was supposed to abide to her own precedents and those of a central power—i.e., the Akkadian ruler—and zero otherwise (see tables 2 and I of the Internet appendix for the definition and sources of all the variables that we use). Under this second scenario, lawmaking was entrusted to a lawmaker more or less representative of the cultural groups, i.e., temple, palace and city elites.

Turning to the main adjudication institutions determining the degree of judicial discretion in either evidence manipulation or evidence gathering, we construct three indicators for the first dimension and one for the second one. Starting with evidence manipulation, we consider an indicator equal to zero if there was an appeal before the king and one if either appeal were heard only by local rulers/governors within a reign or there was no appeal—i.e., *Appeal*, a dummy for appeals based also on equity grounds rather than only on law—i.e., *Equity*—and a binary variable turning on when the evidence was mostly submitted to the court orally rather than through written documents, i.e., *Oral*. For what finally concerns evidence gathering, we consider an indicator equal to zero if courts could request or take evidence that had not been introduced by the parties and could refuse to collect or admit requested evidence and one otherwise, i.e., *Adversarial*. Our approach is consonant with the ideas that extensive reviews and written records limit discretionary decisions, whereas equitable judgments ease legal interpretation [Merryman 1969, p. 123–127; Damaška 1986, p. 3-6; Westbrook 2003, p. 366-376; Wilcke 2007, p. 21-27]. An inquisitorial procedure, instead, fosters a court's incentive to introduce information not immediately available during the hearings [Merryman 1969, p. 125–127; Westbrook 2003, p. 370-372; Wilcke 2007, p. 41-47].

[20] The primary sources are directly collected from the main online repositories, i.e., BDTNS, CDLI and EbDA.

Building on our theoretical analysis, we capture the proximity of the legal tradition to a pure decentralized benchmark—i.e., a primordial common law system—at a point in time via the normalized—to range between 0 and 1—first principal component—i.e., *Common-Law*—extracted from *Case-Law* and the aforementioned four indexes for discretion in adjudication, i.e., *Appeal*, *Equity*, *Oral* and *Adversarial* (Guerriero, 2016a,b; 2026). Instances in which *Common-Law* equals 1 suggest that the legal tradition was fully decentralized. Lower values, instead, imply that the polity was adopting institutions more similar to a fully centralized—i.e., primordial civil law—tradition. Figure 2 clearly displays the sizable variation in our synthetic measure of degree of decentralization of the legal tradition over the sample. As aforementioned, this evolution captures the temporary switch towards judge-made law, inquisitorial adjudication and local appeal of the—twenty-five—polities part of the Akkadian empire, the rising importance of written evidence and the lack of any appeal and thus, equitable judgment during the Yamhad Kingdom. The measurement strategy underlying the construction of *Common-Law* is justified by three extra pieces of empirical evidence.

First, the estimates of an asymptotic distribution-free structural equation model entail that the estimated factor loadings (loading) on *Case-Law*, *Appeal*, *Equity* and *Oral* (*Adversarial*) are (is) significantly and positively (negatively) related to the latent primordial common law construct (Rosenthal and Voeten, 2007). Second, our conclusions are robust to the step-wise exclusion from the first principal component underlying our synthetic indicator of the closeness of a polity's legal order to a fully decentralized solution of either *Appeal*, *Equity* or *Oral* (see section 5.4.1). This routine produces the variables *Common-Law-A*, *Common-Law-E* and *Common-Law-O*, respectively. Finally, the relationships between legal traditions and both legal preference diversity and inclusiveness of the political process remain stable when we consider other institutions, such as the strength of property rights and a culture of cooperation, which, according to a vast economic development literature (La Porta et al., 2008; Schmiegelow and Schmiegelow, 2014), but not the aforementioned comparative law literature, distinguish different legal traditions (see section 5.4.3).

5.1.2 Inclusiveness of the Political Process

To capture the inclusiveness of political institutions, we follow a long literature on the

relevance of the constraints on the elites' power for the success of open access orders (North et al., 2009), and we construct an indicator equal to one for polities mostly dominated by another political entity and to values between two and five otherwise, i.e., *Political-Institutions*. To elaborate, the index equals two in the absence of any of the three possible institutionalized decision-makers—i.e., temple, palace and city elites, three when only one was active, four when two were controlling policy-making, and five when the political power was contested among all three decision-makers. While a value of one indicates a dominated polity that completely lost the control over policy-making and the institutional design,[21] a value of two points to a state of nature where at least natural rights can be assured (North et al., 2009). A value of three, instead, captures a limited access social order controlling anarchy through less inclusive political institutions, whereas scores equal to four and five pick societies increasingly more open to the political rise of new groups (North et al., 2009).

To identify whether a polity was mostly dominated and how many decision-makers shared the control over policy-making, we build on the main events in a 40-year window around each time period, extracting these facts from the historical analyses of the single periods and polity-specific secondary sources on the constraints on the elites imposed by accountability groups (see Benati et al, [2022]). As stressed by Acemoglu et al. (2019), the *Political-Institutions* indicator might be subject to measurement error and changes in its cardinal values could only correspond to ordinal switches or even, no institutional evolution. To evaluate this issue, we also consider *Political-Institutions-D*, which is equal to one when there is any protection of the non-elites' political rights—i.e., *Political-Institutions* is strictly greater than two, and it equals zero otherwise (see section 5.4.1).

5.1.3 Heterogeneity in Legal Preferences

To capture the degree of heterogeneity in legal preferences, we build on the link between tastes for punishment and long-lasting cultural values. To elaborate, Cavalli-Sforza et al. (1994) suggest that "the degree of genealogical relatedness of different populations over time [...] can be interpreted as a general metrics for average differences in characteristics transmitted across generations" [Spolaore and Wacziarg 2009, p. 473], like their preferences for

[21] We do not consider as dominated politically independent polities forced to pay a tribute to a foreign power.

punishment (Desmet et al, 2011),[22] and that such a distance is deeply shaped by ethnolinguistic roots. Intuitively, populations increasingly distant from the common ancestors devise increasingly diverse cultural transmission instruments, making the ethnolinguistic fractionalization index a natural proxy for legal preference diversity (Guerriero, 2016a;b).

Operationally, we first extract from the extant Mesopotamian prosopography literature lists of the citizens' names for each polity and archaeological periods discussed in section 3 (e.g., Foster, 1982a; Sallaberger, 2004; Streck, 2011: De Boer, 2014). To illustrate, we can uniquely identify a total of 28,535 names belonging to fourteen ethnolinguistic groups.[23] Next, we calculate *Heterogeneity* as the probability that, over the previous half-century, two individuals randomly drawn from the overall population belonged to different ethnolinguistic groups (Alesina et al., 2003), i.e., one minus the sum of the squared population shares of each ethnic group, imputing missing values with the observations closest in time and/or space.[24]

5.2 Estimating Equation

Two patterns confirm the model predictions. First, the less inclusive political process and rising ethnolinguistic diversity of the Akkadian empire pushed the dominated polities to prefer discretionary adjudication by a local court making the law and treating her own and the imperial rulings as binding. Second, the pre-Akkadian absence of ethnolinguistic mixing and the post-Akkadian rise of commercially interconnected but politically weak reigns were accompanied by statute law and bright-line adjudication. Even if anecdotal evidence is instructive, empirical evidence might be more convincing. Accordingly, we first study the determinants of the legal traditions and then, we test the credibility of our estimates.

To evaluate our model predictions, we run by OLS the following panel models:

$$L_{p,t} = \alpha_p + \rho_t + \beta_1 P_{p,t} + \gamma_1 H_{p,t} + \phi'_{\mathbf{1}} \mathbf{x}_{p,t} + \epsilon_{p,t}, \tag{4}$$

[22] Desmet et al. (2011) document a strong correlation between genealogical relatedness and a measure of opinion poll distance, based on answers to the questions on perceptions of "life, family, and religion and moral" given to four waves of the World Value Survey in fourteen European countries.

[23] These are Akkadians, Amorites, Anatolians, Eblaites, Egyptians, Elamites, Hittites, Hurrians, Kassites, Luwians, Semitics, Sumerians, Ugaritics and other residual groups (see the Internet appendix).

[24] The message of our analysis is qualitatively similar when we do not impute missing values and when we consider as completely homogeneous temporarily deserted polities (results available upon request).

where $L_{p,t}$ is either *Case-Law*, *Appeal*, *Equity*, *Oral*, *Adversarial* or one of the synthetic measures of the primordial common law construct for polity p and half-century t, $P_{p,t}$ labels either *Political-Institutions* or *Political-Institutions-D*, $H_{p,t}$ represents *Heterogeneity* and $\mathbf{x}_{p,t}$ possibly incorporates the control variables discussed in section 5.4.3.[25] The polity fixed effects α_p capture time-independent determinants of $L_{p,t}$ such as the geographic features affecting both the inclusiveness of political institutions and the diversity of legal preferences (Benati et al., 2022) as well as predetermined shocks like the out-of-Africa exodus of modern humans and the agricultural revolution (Ashraf and Galor, 2013; Olsson and Paik, 2016).[26] ρ_t encapsulates, instead, half-century dummies picking up aggregate shocks to political institutions and legal preference heterogeneity such as pandemics (Voigtländer and Voth, 2009).[27] To preserve the within variation, we do not cluster the standard errors at the polity level. In tables II and III of the Internet appendix, we document, however, that our conclusions are similar when we consider either the within-polity correlation or the spatial dependence in $\epsilon_{p,t}$ possibly driven by, respectively, institutional persistence or regional climatic patterns.[28]

5.3 Basic Results

Table 3 displays the basic estimates, which are consistent with the anecdotal evidence discussed in sections 3 and 5.2 and the model predictions. Two are the key observations.

First, all the significant coefficients on *Political-Institutions* are negative and all the significant coefficients on *Heterogeneity* are positive whenever the dependent variable is either *Case-Law*, *Appeal*, *Equity* or *Oral*. On the contrary, the coefficients attached to the proxies for the inclusiveness of the political process and the degree of legal preference diversity are significant and, respectively, negative and positive when the dependent variable is *Adversarial*.

[25] Whenever the conditional maximum likelihood converges, the estimates of equation (4) obtained via the fixed effects Logit estimator confirm our model predictions (results available upon request).

[26] While Ashraf and Galor (2013) document that prehistoric migratory distance to East Africa is related to genetic diversity and present-day trust, Olsson and Paik (2016) claim that an early Neolithic transition to agriculture favors patriarchal cultural values over norms of generalized morality.

[27] Since legal institutions are not persistent in our sample (see figure 2), our results do not suffer the drawbacks typical of staggered difference-in-differences estimates (Baker et al., 2022).

[28] To do so, we cluster the standard errors at the polity level, and we rely on the Conley's (1999) standard errors with Bartlett kernel, respectively. Such kernels are constructed for three thresholds beyond which the correlation between error terms is assumed to be zero, i.e., 30, 60 and 90 km. These figures correspond to once, twice and thrice the maximum distance between the settled center and the cultivated fields. Crucially, our results survive also when we switch to the Cameron et al.'s (2008) wild cluster bootstrapping to deal with the possible bias induced by a small number of clusters (see table II of the Internet appendix).

To elaborate, a one standard-deviation increase in *Political-Institutions*—i.e., 1.1—entails, respectively, a 3% and 4% fall in the linear probability of a reform towards, respectively, judge-made law and the absence of royal appeal and a 5% rise in the expected value of adversarial evidence gathering. Similarly, a one standard-deviation rise in *Heterogeneity*—i.e., 0.269—leads to, respectively, a 3% increase in the expected value of *Appeal* and a 6% fall in the linear probability of a reform towards adversarial evidence gathering. While the evidence on case law confirms the conclusions of the literature on endogenous legal traditions (Guerriero, 2016a,b; 2026), the estimates in columns (2) to (5) represent the first results on the determinants of the single adjudication institutions molding the legal tradition.

Second, a one standard-deviation rise in the inclusiveness of the political process is related to a 4% significant fall in the distance between the fully decentralized and the fully centralized legal orders, whereas a one standard-deviation rise in legal preference diversity induces reforms towards the decentralized legal order covering almost 4% of the institutional distance to the pure primordial civil law tradition. Different from Guerriero (2026), we document that both the inclusiveness of the political process and the degree of legal preference diversity significantly determine reforms towards the decentralized legal tradition.

5.4 Gaining More Insights About Causality

Albeit consistent with the testable predictions, OLS estimates might be significantly attenuated by measurement error, may be capturing reverse causality and/or may be driven by an omitted variables bias. Next, we assess these endogeneity issues in turn.

5.4.1 Evaluating Measurement Errors

A first source of concerns with our analysis is that our dependent and independent variables are measured with errors. To elaborate, our synthetic measure of the decentralization of the legal tradition might include dimensions not strictly related to the underlying primordial common law construct (Rosenthal and Voeten, 2007), and changes in the cardinal values of our proxy for the inclusiveness of the political process could just correspond to ordinal switches or even, no institutional evolution (Acemoglu et al., 2019). To evaluate this issue, we show in panel A of table 4 that the gist of our analysis is the same if either we substitute *Political-Institutions* with the dummy *Political-Institutions-D* or we consider as dependent

variable one among *Common-Law-A*, *Common-Law-E* and *Common-Law-O*.

5.4.2 Evaluating Reverse Causality

A second relevant criticism to our approach is that a more efficient legal tradition might favor at the same time a modernization effect and thus, the adoption of a more inclusive political process as well as the incentive to migrate towards the polity and thus, its degree of ethnolinguistic fractionalization (Inglehart and Welzel, 2005; Guerriero, 2026). If this was the case, then one would expect an even stronger correlations between the dependent variables and *Political-Institutions* and/or *Heterogeneity* lead one period, given the plausible lag with which the legal tradition affect migration patterns (Angrist and Pischke, 2009). Columns (1) to (3) of panel B of table 4 reveal that this is not the case.

5.4.3 Evaluating Unobserved Heterogeneity

Turning to the importance of unobserved heterogeneity, we pursue a three-step strategy.

Controlling for observables.—First, we evaluate the impact on the basic estimates of considering the other main determinants of legal evolution. We consider five factors.

First, an expanding time-inconsistency theory of state-building claims that adverse climate shocks magnify the incentives of the elites to grant strong political rights to the non-elites to garner their cooperation in joint farming investments (Boranbay and Guerriero, 2019; Benati and Guerriero, 2022). Hence, we consider the Palmer drought severity index—i.e., PDSI—averaged over all the seasons of the previous half-century, i.e., *PDSI*. The PDSI ranges between -10—i.e., extreme droughts—and 10—i.e., extremely wet conditions, equals 0 if the moisture degree is normal and is an—inverse—measure of the severity of droughts, i.e., periods over which the supply of soil moisture fails to meet its demand (Redmond, 2002).[29] Since the maximum distance between cultivated fields and settled center was 30 km [Wilkinson 2003, p. 125; Liverani 2014, p. 106], we average environmental variables over a 30 km radius around the coordinates of the major city of each polity.

Second, to pick the impact of trade expansion on the transaction costs of legal decen-

[29]Following Jacobi et al. (2013), the PDSI is constructed combining latitude, both temperature and rainfall simulated by Armstrong et al. (2019), and the available water storage capacity, all averaged over a 30 km radius and the previous half-century. The available water storage capacity is defined as the mm/m of water that a soil can make available to plants, is provided at the 30 arc-second spatial resolution by the HWSD FAO dataset and is a function of exogenous features such as soil texture and crop rooting depth.

tralization, we evaluate the inverse distance to the Old Babylonian and Old Assyrian trade circuits, i.e., *Trade-Potential*. Three were the key features of these networks. First, polities were involved in a single circuit by law [Barjamovic 2013, p. 128]. Second, the connecting nodes injected into the networks goods produced by the nearest external partner [Barjamovic 2018, p. 120-125]. Finally, the connecting nodes were divided in simple transit points and full-fledged hubs—i.e., Ashur, Babylon, Larsa, Kanesh and Sippar—in which professional merchants organized the inter-hub trade [Barjamovic 2018, p. 122-128]. Ultimately, *Trade-Potential* is: a) zero if the polity did not have any access to the trade circuits and so its distance to them was infinite; b) inverse distance to the nearest node of the network to which the polity belonged if it was part of a trade circuit but not a node; c) inverse distance to the nearest hub along the trade network to which the polity belonged if it was a node.

Third, a long economic tradition suggests that producing common interest goods, such as fighting external wars, is conducive to forceful private rights (Besley and Persson, 2009). Building on these remarks, we consider the number of external wars fought over the previous half-century in which the polity participated, i.e., *External-Conflicts*.

Fourth, a growing body of research entails, instead, that inter-groups conflicts might push the elites to grant more inclusive political institutions (Acemoglu and Robinson, 2000). Hence, we consider a dummy equal to one if the polity experienced either an uprising against the institutionalized power/s or a rebellion against an external ruler over the previous half-century, i.e., *Internal-Conflicts*. To construct *External-Conflicts* and *Internal-Conflicts*, we build on monumental inscriptions and secondary sources on warfare (Benati et al., 2022).

Finally, we incorporate in the specification a six-point proxy for the security of the non-elites' land tenure combining primary and secondary sources on the degree of elites' control over the land exploitation and on whether use rights were enforced *de jure* rather than *de facto* (Benati et al., 2022), i.e., *Property-Rights*. As aforementioned, a vast economic development literature links larger values of *Property-Rights* to institutions typical of the pure common law tradition (La Porta et al., 2008; Schmiegelow and Schmiegelow, 2014).

As columns (4) and (5) of panel B of table 5 suggests, controlling for all the aforementioned variables does not change our conclusions. Interestingly, while, as expected, the degree of trade expansion is inversely related to reforms towards the decentralized legal order, exter-

nal conflicts are uncorrelated with legal evolution and internal conflicts are unexpectedly and positively associated with legal centralization. Yet, these last two correlations reflect Benati et al.'s (2022) conclusions that, in our sample, conflicts have little institutional impact.

To further explore the role of unobserved heterogeneity, we show in table IV of the Internet appendix that the message of our test remains the same when we switch to alternative proxies, again defined over the previous half-century. These variables measure: 1. the inclusiveness of the political process of the dominating polity, which, in turn, increases the efficiency of primordial case and common law; 2. other shocks to the farming return, like the shift of the closest between the Tigris and the Euphrates; 3. other determinants of economic development, like the degree of environmental circumscription and the estimated settled area of the polity; 4. a factor curbing the severity of legal decentralization costs and notably, the diffusion of codification; 5. the provision of other common interest goods like public and ritual buildings; 6. an informal institution that distinguishes the two legal traditions and notably, the strength of norms of cooperation. To elaborate on the construction of the third and last regressors, we measure the incidence of codification with a dummy for the promulgation by the institutionalized decision-makers of codes of law and/or edicts (Westbrook, 2003; Wilcke, 2007), and we pick the citizens' cultural propensity to cooperate by abiding by the technologically efficient law, which, in turn, decreases the expected long run loss of social welfare driven by any possible bias in the *de facto* statute (Guerriero, 2016b), with the diffusion of interest-free loans of agricultural products such as cereals (Benati and Guerriero, 2026b).[30] These microcredit initiatives survived only when tenants impoverished by adverse climate shocks paid back the initial loans to abide by norms of cooperation [Garfinkle 2004, p. 3-5; Wilcke 2007, p. 111-112], and thus, their spread captures risk-sharing activities successful only because of cultural accumulation.

Bias from unobservables.—Second, we calculate how much greater the influence of unobservable factors, relative to that of all observables, would need to be to explain away the entire impact of the inclusiveness of the political process and the degree of legal preference diversity on the evolution of the legal tradition (Bellows and Miguel, 2009). To see how the

[30]Benati and Guerriero (2026b) construct this proxy by building on secondary sources on the distribution of loan contracts in the Alluvium and the 947 CDLI texts mentioning interest-free loans.

index is calculated, consider a regression with a restricted set of controls and one with a full set of controls. Next, denote the estimate of the coefficient on the variable of interest from the first regression θ^R, where R stands for "restricted," and that from the second regression θ^F, where F stands for "full." Then, the index is the absolute value of $\theta^F/(\theta^R - \theta^F)$. The intuition behind the formula is as follows. The lower the absolute value of $(\theta^R - \theta^F)$ is, the less the estimate of the coefficient on the variable of interest is affected by selection effects, and the stronger selection on unobservables needs to be to explain away the entire effect. The higher the absolute value of θ^F is, the greater is the effect that needs to be explained away by selection on unobservables. We consider the specifications reported in table 3 as the restricted regressions and those in columns (4) and (5) of panel B of table 4 as the full regressions, and we report the indexes calculated from the regressions with dependent variables *Case-Law* and *Common-Law* in, respectively, columns (1) and (2) of table 5. Crucially, the average (median) of the indexes is 10 (6.8) and thus, to attribute the entire estimates to selection on unobservables, it would have to be on average ten times greater than selection on all the main observables, which seems unlikely.

2SLS.—Our final strategy is to use an instrumental variables approach. To properly identify the single impact of the inclusiveness of the political process and the degree of legal preference diversity on the evolution of the legal tradition (Guerriero, 2020), this strategy requires instruments mainly correlated with one of the two factors but uncorrelated with any other characteristic of the polity shaping legal evolution. To achieve this goal, we rely on the impact of the mix of increasing political instability and decaying climate conditions on the political and population dynamics of Bronze Age Mesopotamia.

Starting with the inclusiveness of the political process, we elect as its main external instrument a measure of political instability, defined as the average of a dummy for the ascent to the other polities' thrones and over the previous half-century of kings twenty or younger weighted by their inverse distance, i.e., *Young-King*. Intuitively, inexpert rulers are more vulnerable to external and internal attacks (Cassidy et al., 2015). Therefore, even if, within a polity, such an occurrence might be related to palace conspiracies and local revolts [Foster 2016, p. 8-10], its incidence in neighboring polities is unrelated to local legal institutions while indirectly affecting local political institutions. Two are the key

channels. First, inexpert rulers might be more likely replaced or defeated at war leading to less inclusive political institutions and in turn, softening the neighbors' incentives to reform their institutions to avoid internal unrest and migration (Fleck and Hanssen, 2013). Second, they might be more willing to give up decision-making power (Acemoglu and Robinson, 2000; Besley and Persson, 2009), sorting the opposite effects. In our sample, the first effect dominates as confirmed by the fact that the correlation between the presence of a young king in a polity and the inclusiveness of local political institutions is negative and significant at 1%, conditional on polity and half-century dummies. As a result, larger values of *Young-King* are strongly and negatively linked to *Political-Institutions* in both Upper and Lower Mesopotamia (see figure 2). Crucially, conditional on local climate shocks, trade potential, strength of the non-elites' property rights and especially, the severity of external and internal conflicts, the age of neighboring rulers is very likely unrelated to local legal institutions.

Turning to the legal preference heterogeneity, we construct external instruments capturing the climate-driven migration waves that hit the Akkadian and post-Akkadian empires. Operationally, *Migration-Akkad* equals the ratio of the PDSI of each polity plus ten to the value of the PDSI in Akkad plus ten between 2300 and 2150 BCE and 0 otherwise, and the indicator *Migration-North* is given by the ratio of the PDSI of each polity plus ten to the PDSI plus ten average over the ancestral locations of the Amorites, Gutians and Hurrians weighted by their inverse distance between 2100 and 1750 BCE and 0 otherwise. As figure 2 reveals, larger values of *Migration-Akkad* and/or *Migration-North*, which pick better climate conditions within the polity than outside, are strongly and positively related to a rise in ethnolinguistic fractionalization both in Upper and Lower Mesopotamia. Crucially, conditional on trade potential, strength of non-elites' property rights, severity of external and internal conflicts and especially local climate shocks, the severity of droughts in distant polities is very likely uncorrelated with the evolution of local legal institutions.

Table 6 reports the instrumental variables estimates of equation (4) from specifications considering unobserved heterogeneity and employing either a 2SLS estimator in columns (1) and (2), a LIML estimator in columns (3) and (4) or a 3SLS estimator in columns (5) and (6). While incorporating relevant observables helps us defend our exclusion restriction, considering also the LIML and 3SLS estimators allow us to evaluate, respectively, whether possibly

weak instruments are impairing identification or if there are efficiency gains in allowing a nonzero correlation among first and second-stages residuals. Three are the key observations. First, the estimates are even more in tune with the model predictions since the inclusiveness of the political process is negatively and significantly—at 1%—linked to reforms towards primordial case and common law and the degree of legal preference diversity is always positively and significantly—at 10%—related to primordial case law. Second, *Political-Institutions* is mainly and strongly predicted by *Young-King* only and *Heterogeneity* is mainly and strongly predicted by *Migration-Akkad* and *Migration-North* only. More important, we can always reject at 1% that the estimated equation is underidentified, and the Sargan test of overidentifying restrictions do not reject—at 9% or more—that the instruments are uncorrelated with the error term, i.e., are correctly excluded from the estimated equation.

6 Conclusions

Our analysis documents how fundamental social and environmental forces, which modulated the inclusiveness of the political process and the degree of legal preference heterogeneity, have shaped the first legal systems in recorded human history and notably, the institutions determining how they trade-off legal biases with technological efficiency. To illustrate, the mix of political instability and decaying climate conditions in the periphery of the Akkadian empire induced increasingly less inclusive political institutions and a rising ethnolinguistic diversity in the core, driving the dominated polities to prefer discretionary adjudication by a local court making the law and treating her own and the imperial rulings as binding, to lawmaking by an imperial envoy. The latter would have pandered to the most extremist local group to maximize transfers towards the ruler. Similarly, the culturally homogeneous pre-Akkadian polities and the increasingly interconnected and politically weak post-Akkadian reigns embraced statute law along with bright-line adjudication institutions.

From a policy point of view, our estimates qualify the legal origins literature mantra that a decentralized legal traditions is always superior (World Bank, 2004), clarifying, instead, that decentralization can be socially efficient only for a sufficiently extractive political process and/or sufficiently heterogeneous legal preferences (Guerriero, 2016a,b; 2026).

To conclude, we propose three avenues for future research. First, the external validity of

our approach should be tested by studying other instances of evolution of the legal traditions in societies sufficiently simple to credibly link legal evolution to its determinants. Ancient Rome is an obvious candidate. There, political instability combined to epochal migration waves were accompanies to changes in the degree of centralization of the legal order (Stein, 1999). Second, an important factor confounding our study is the strength of norms of cooperation molding society's ability to regulate harmful action via informal enforcement (Dari-Mattiacci and Guerriero, 2015). Shedding light on the relationship between formal and informal norms of conduct is a particularly topical question in a world of conflicting codified norms. Finally, an obvious extension to our analysis is the evaluation of the impact of the endogenous legal tradition on economic outcomes (Guerriero, 2023).

Appendix

Proofs

Socially Optimal Versus Technologically Efficient Legal Rules

$\frac{1}{3}\left(\hat{A}_M+\hat{A}_P+\hat{A}_T\right)\geq\hat{A}_P$ is equivalent to $\Gamma(\lambda\pi)+\Gamma(\lambda/\pi)\geq 2\Gamma(\lambda)$ or $(1+\lambda\pi)(1+\lambda)+(\pi+\lambda)(\pi-\pi\lambda-2)\geq 0$, which is the case if $(1-\pi)^2(1-\lambda)\geq 0$ or $\lambda\leq 1$. □

Proof of the Lemma

Problem (1) is strictly concave and the relative necessary and sufficient first order condition is $(1-\mu)\left[\hat{A}^s(l)-\tilde{A}\right]+\mu\left[|l|\hat{A}^s(l)-\sum_{j\in l}\hat{A}_j\right]=0$, which implies that the unique and global solution is $\hat{A}^s(l)=\left[(1-\mu)\tilde{A}+\mu\sum_{j\in l}\hat{A}_j\right](1-\mu+|l|\mu)^{-1}$. To elaborate,
$\hat{A}^s(\{\phi\})=\tilde{A}=\hat{A}^s(\{M,P,T\})$; $\hat{A}^s(\{P\})=(1-\mu)\tilde{A}+\mu\hat{A}_P$; $\hat{A}^s(\{M\})=(1-\mu)\tilde{A}+\mu\hat{A}_M$;
$\hat{A}^s(\{T\})=(1-\mu)\tilde{A}+\mu\hat{A}_T$; $\hat{A}^s(\{M,P\})=\tilde{A}+\mu(1+\mu)^{-1}\left(\tilde{A}-\hat{A}_T\right)$;
$\hat{A}^s(\{P,T\})=\tilde{A}+\mu(1+\mu)^{-1}\left(\tilde{A}-\hat{A}_M\right)$; $\hat{A}^s(\{M,T\})=\tilde{A}+\mu(1+\mu)^{-1}\left(\tilde{A}-\hat{A}_P\right)$.
Coalition $\{M,P,T\}$ does not pay the fixed cost since its willingness to pay is zero. Consequently, the polity's court selects another coalition comparing the following payoffs
$U\left(\hat{A}^s(\{\phi\})\right)=0$; $U\left(\hat{A}^s(\{M\})\right)=\frac{\mu^2\left(\hat{A}_P+\hat{A}_T-2\hat{A}_M\right)^2}{18}-3\mu\Psi$;
$U\left(\hat{A}^s(\{P\})\right)=\frac{\mu^2\left(\hat{A}_M+\hat{A}_T-2\hat{A}_P\right)^2}{18}-3\mu\Psi$; $U\left(\hat{A}^s(\{T\})\right)=\frac{\mu^2\left(\hat{A}_M+\hat{A}_P-2\hat{A}_T\right)^2}{18}-3\mu\Psi$;
$U\left(\hat{A}^s(\{P,T\})\right)=\frac{\mu^2+\mu^3}{18(1+\mu)^2}\left(\hat{A}_P+\hat{A}_T-2\hat{A}_M\right)^2-3\mu\Psi=\frac{\mu^2}{18(1+\mu)}\left(\hat{A}_P+\hat{A}_T-2\hat{A}_M\right)^2-3\mu\Psi$;
$U\left(\hat{A}^s(\{M,T\})\right)=\frac{\mu^2}{18(1+\mu)}\left(\hat{A}_M+\hat{A}_T-2\hat{A}_P\right)^2-3\mu\Psi$;
$U\left(\hat{A}^s(\{P,M\})\right)=\frac{\mu^2}{18(1+\mu)}\left(\hat{A}_M+\hat{A}_P-2\hat{A}_T\right)^2-3\mu\Psi$.
$\{P,M\}$, $\{P,T\}$, and $\{M,T\}$ are never picked being $\frac{\mu^2}{18(1+\mu)}<\frac{\mu^2}{18}$ and either $\{M\}$ or $\{T\}$ are preferred to $\{P\}$ since $\max\left\{\left|\tilde{A}-\hat{A}_M\right|,\left|\tilde{A}-\hat{A}_T\right|\right\}>\left|\tilde{A}-\hat{A}_P\right|>0$. The polity's court chooses $\{M\}$ over $\{T\}$ if $\left|\hat{A}_P+\hat{A}_T-2\hat{A}_M\right|=2\hat{A}_M-\hat{A}_P-\hat{A}_T>\hat{A}_M+\hat{A}_P-2\hat{A}_T\leftrightarrow\lambda\leq 1$ and $\{T\}$ over $\{M\}$ if $\lambda>1$. Her payoffs from selecting $\{M\}$ for $\lambda\leq 1$ and $\{T\}$ for $\lambda>1$ and the willingness to pay of the two coalitions rise with μ by inspection and with π since $\partial\left(\hat{A}_P+\hat{A}_T-2\hat{A}_M\right)^2/\partial\pi=2\lambda\left(2\hat{A}_M-\hat{A}_P-\hat{A}_T\right)\left[2(1+\lambda\pi)^{-2}+(\pi+\lambda)^{-2}\right]>0$ and $\partial\left(\hat{A}_M+\hat{A}_P-2\hat{A}_T\right)^2/\partial\pi=2\lambda\left(\hat{A}_M+\hat{A}_P-2\hat{A}_T\right)\left[(1+\lambda\pi)^{-2}+2(\pi+\lambda)^{-2}\right]>0$.

For Ψ not too large and $\lambda\leq 1$, $\frac{\mu}{54}\left(\hat{A}_P+\hat{A}_T(\bar{\pi}_M)-2\hat{A}_M(\bar{\pi}_M)\right)^2=\Psi$ implicitly defines a $\bar{\pi}_M$ such that the polity's court picks $\hat{A}^s(\{M\})$ for $\pi\geq\bar{\pi}_M$ and $\tilde{A}$ otherwise. For

$\pi \geq \bar{\pi}_M$, group $\{M\}$, which has the largest willingness to pay being $\lambda \leq 1$, is organized since $\frac{\mu(2-\mu)}{54}\left(\hat{A}_P + \hat{A}_T - 2\hat{A}_M\right)^2 > \frac{\mu}{54}\left(\hat{A}_P + \hat{A}_T - 2\hat{A}_M\right)^2 > \Psi$. For Ψ not too large and $\lambda > 1$, $\frac{\mu}{54}\left(\hat{A}_M(\bar{\pi}_T) + \hat{A}_P - 2\hat{A}_T(\bar{\pi}_T)\right)^2 = \Psi$ implicitly defines a $\bar{\pi}_T$ such that the polity's court picks $\hat{A}^s(\{T\})$ for $\pi \geq \bar{\pi}_T$ and $\tilde{A}$ otherwise. For $\pi \geq \bar{\pi}_T$, group $\{T\}$, which has the largest willingness to pay being $\lambda > 1$, is organized since $\frac{\mu(2-\mu)}{54}\left(\hat{A}_M + \hat{A}_P - 2\hat{A}_T\right)^2 > \frac{\mu}{54}\left(\hat{A}_M + \hat{A}_P - 2\hat{A}_T\right)^2 > \Psi$. No coalition pays a $\Psi > 1/27$. $\mathrm{E}\left(\Lambda\left(\hat{A}^i\right)\right)$ is proportional to $\frac{\mu^2}{18}\left(\hat{A}_P + \hat{A}_T - 2\hat{A}_M\right)^2$ for $\lambda \leq 1$ and $\pi \geq \bar{\pi}_M$ and $\frac{\mu^2}{18}\left(\hat{A}_M + \hat{A}_P - 2\hat{A}_T\right)^2$ for $\lambda > 1$ and $\pi \geq \bar{\pi}_T$. $\frac{\mu}{54}\frac{\partial\left(\hat{A}_P+\hat{A}_T(\bar{\pi}_M)-2\hat{A}_M(\bar{\pi}_M)\right)^2}{\partial\pi}d\bar{\pi}_M - d\Psi = 0 \rightarrow \frac{d\bar{\pi}_M}{d\Psi} > 0$, $\frac{\mu}{54}\frac{\partial\left(\hat{A}_P+\hat{A}_T(\bar{\pi}_M)-2\hat{A}_M(\bar{\pi}_M)\right)^2}{\partial\pi}d\bar{\pi}_M + \frac{1}{54}\left(\hat{A}_P + \hat{A}_T(\bar{\pi}_M) - 2\hat{A}_M(\bar{\pi}_M)\right)^2 d\mu = 0 \rightarrow \frac{d\bar{\pi}_M}{d\mu} < 0$. Similarly, $\frac{d\bar{\pi}_T}{d\Psi} > 0$ and $\frac{d\bar{\pi}_T}{d\mu} < 0$. $\square$

Proof of Proposition 1

By plugging the functional forms of $\mathrm{E}\left(\hat{A}_b\right)$ in $\mathrm{E}\left(\Lambda\left(\hat{A}^c\right)\right) = \frac{\left[\mathrm{E}\left(\hat{A}_b\right)-\tilde{A}\right]^2}{2} + \frac{\mathrm{V}\left(\hat{A}_b\right)}{2(1+2K)}$, it follows that the expected long run loss of social welfare under primordial case law is proportional to $\frac{\hat{\mu}^2\left(\hat{A}_M-\tilde{A}\right)^2}{8} + \frac{\hat{\mu}^2\left(\hat{A}_M-\tilde{A}\right)^2}{16(1+2K)} + \frac{\left(\hat{A}_M-\hat{A}_{b,M}\right)^2+\left(\hat{A}_{b,M}-\hat{A}_P\right)^2+\left(\hat{A}_{b,M}-\hat{A}_T\right)^2}{12(1+2K)}$ for $\lambda \leq 1$ and $\pi \geq \bar{\pi}_M(\hat{\mu})$, $\frac{\hat{\mu}^2\left(\tilde{A}-\hat{A}_T\right)^2}{8} + \frac{\hat{\mu}^2\left(\tilde{A}-\hat{A}_T\right)^2}{16(1+2K)} + \frac{\left(\hat{A}_M-\hat{A}_{b,T}\right)^2+\left(\hat{A}_{b,T}-\hat{A}_P\right)^2+\left(\hat{A}_{b,T}-\hat{A}_T\right)^2}{12(1+2K)}$ for $\lambda > 1$ and $\pi \geq \bar{\pi}_T(\hat{\mu})$, $\frac{\left(\hat{A}_M-\tilde{A}\right)^2+\left(\tilde{A}-\hat{A}_P\right)^2+\left(\tilde{A}-\hat{A}_T\right)^2}{12(1+2K)}$ for $\lambda \leq 1$ and $\pi < \bar{\pi}_M(\hat{\mu})$ and $\frac{\left(\hat{A}_M-\tilde{A}\right)^2+\left(\hat{A}_P-\tilde{A}\right)^2+\left(\tilde{A}-\hat{A}_T\right)^2}{12(1+2K)}$ for $\lambda > 1$ and $\pi < \bar{\pi}_T(\hat{\mu})$. While the last two quantities are bounded above by, respectively, $\frac{4\left(\hat{A}_M-\tilde{A}\right)^2}{16} < \frac{\left(\hat{A}_M-\tilde{A}\right)^2}{2}$ and $\frac{4\left(\tilde{A}-\hat{A}_T\right)^2}{16} < \frac{\left(\tilde{A}-\hat{A}_T\right)^2}{2}$, the first two are strictly lower than, respectively, $\frac{\left(\hat{A}_M-\tilde{A}\right)^2}{2}$ and $\frac{\left(\tilde{A}-\hat{A}_T\right)^2}{2}$ for Ψ not too small. To see why the last two inequalities are true, consider the $\lambda \leq 1$ and $\pi \geq \bar{\pi}_M(\hat{\mu})$ case being the $\lambda > 1$ and $\pi \geq \bar{\pi}_T(\hat{\mu})$ case symmetrical. Since the expected long run loss of social welfare under primordial case law increases with $\hat{A}_{b,M}$, the inequality is true for every K and every $\hat{\mu}$ whenever $3\hat{A}_M^2+3\tilde{A}^2+6\hat{A}_M\tilde{A}+4\hat{A}_M^2+4\hat{A}_P^2+4\hat{A}_T^2-12\hat{A}_M\tilde{A}-12\tilde{A}^2-15\hat{A}_M^2-15\tilde{A}^2+30\hat{A}_M\tilde{A} < 0$ where we substituted $\frac{\tilde{A}+\hat{A}_M}{2}$ for $\hat{A}_{b,M}$. This last inequality, in turn, is true when $-\hat{A}_M + 2\tilde{A} < 0$, which is the case when π is large enough being Ψ not too small and $\bar{\pi}_M(1)$ large.

Since the ruler decentralizes whenever $\frac{\left(\hat{A}_M-\tilde{A}\right)^2}{2} \geq \Theta + \mathrm{E}\left(\Lambda\left(\hat{A}^c\left(\hat{A}_{b,M}\right)\right)\right)$ for $\lambda \leq 1$ and $\pi \geq \bar{\pi}_M(\hat{\mu})$, $\frac{\left(\tilde{A}-\hat{A}_T\right)^2}{2} \geq \Theta + \mathrm{E}\left(\Lambda\left(\hat{A}^c\left(\hat{A}_{b,T}\right)\right)\right)$ for $\lambda > 1$ and $\pi \geq \bar{\pi}_T(\hat{\mu})$, $\frac{\left(\hat{A}_M-\tilde{A}\right)^2}{2} \geq \Theta + \mathrm{E}\left(\Lambda\left(\hat{A}^c\left(\tilde{A}\right)\right)\right)$ for $\lambda \leq 1$ and $\pi < \bar{\pi}_M(\hat{\mu})$ and $\frac{\left(\tilde{A}-\hat{A}_T\right)^2}{2} \geq \Theta + \mathrm{E}\left(\Lambda\left(\hat{A}^c\left(\tilde{A}\right)\right)\right)$ for $\lambda > 1$ and $\pi < \bar{\pi}_T(\hat{\mu})$, primordial case law must prevails whenever $\Theta \rightarrow 0$.

Finally, to see why the bias under primordial statute law by a ruler's envoy increases

with π quicker than the expected long run loss of social welfare under primordial case law does, it is sufficient to notice that this is less likely the case for $\hat{\mu}=1$ and that for:

1. $\lambda \leq 1$ and $\pi \geq \bar{\pi}_M(1)$, $\frac{\partial\left(\hat{A}_M-\tilde{A}\right)^2/2}{\partial\pi} > \frac{\partial \mathrm{E}\left(\Lambda\left(\hat{A}^c\left(\hat{A}_{b,M}\right)\right)\right)}{\partial\pi}$ if $-\frac{\partial\hat{A}_T}{\partial\pi}\left(\hat{A}_M+\hat{A}_T-2\hat{A}_P\right)+\frac{\partial\hat{A}_M}{\partial\pi}\left(2\hat{A}_M-\hat{A}_P-\hat{A}_T\right)$, which is always the case being $\tilde{A}\geq\hat{A}_P$.

2. $\lambda > 1$ and $\pi \geq \bar{\pi}_T(1)$, $\frac{\partial\left(\tilde{A}-\hat{A}_T\right)^2/2}{\partial\pi} > \frac{\partial \mathrm{E}\left(\Lambda\left(\hat{A}^c\left(\hat{A}_{b,T}\right)\right)\right)}{\partial\pi}$ if $-\frac{\partial\hat{A}_T}{\partial\pi}\left(2\hat{A}_P-\hat{A}_T-\hat{A}_M\right)+\frac{\partial\hat{A}_M}{\partial\pi}\left(\hat{A}_M+\hat{A}_P-2\hat{A}_T\right)$, which is always the case being $\tilde{A}<\hat{A}_P$.

3. $\lambda \leq 1$ and $\pi < \bar{\pi}_M(1)$, $\frac{\partial\left(\hat{A}_M-\tilde{A}\right)^2/2}{\partial\pi} > \frac{\partial \mathrm{E}\left(\Lambda\left(\hat{A}^c\left(\tilde{A}\right)\right)\right)}{\partial\pi}$ being true the chain of inequalities $\left(\hat{A}_M-\tilde{A}\right)\left(\frac{2}{3}\frac{\partial\hat{A}_M}{\partial\pi}-\frac{1}{3}\frac{\partial\hat{A}_T}{\partial\pi}\right) > \frac{\hat{A}_M-\tilde{A}}{3}\left(\frac{2}{3}\frac{\partial\hat{A}_M}{\partial\pi}-\frac{1}{3}\frac{\partial\hat{A}_T}{\partial\pi}\right) > \frac{\partial \mathrm{E}\left(\Lambda\left(\hat{A}^c\left(\tilde{A}\right)\right)\right)}{\partial\pi}$.

4. $\lambda > 1$ and $\pi < \bar{\pi}_T(1)$, $\frac{\partial\left(\tilde{A}-\hat{A}_T\right)^2/2}{\partial\pi} > \frac{\partial \mathrm{E}\left(\Lambda\left(\hat{A}^c\left(\tilde{A}\right)\right)\right)}{\partial\pi}$ being true the chain of inequalities $\left(\tilde{A}-\hat{A}_T\right)\left(\frac{1}{3}\frac{\partial\hat{A}_M}{\partial\pi}-\frac{2}{3}\frac{\partial\hat{A}_T}{\partial\pi}\right) > \frac{\tilde{A}-\hat{A}_T}{3}\left(\frac{1}{3}\frac{\partial\hat{A}_M}{\partial\pi}-\frac{2}{3}\frac{\partial\hat{A}_T}{\partial\pi}\right) > \frac{\partial \mathrm{E}\left(\Lambda\left(\hat{A}^c\left(\tilde{A}\right)\right)\right)}{\partial\pi}$. □

Bestowing a Monopoly over Judge-made Law on the Most Extremist Group

Under this scenario, the polity's court would pick $\hat{A}_M$ for $\lambda \leq 1$ and $\hat{A}_T$ otherwise, and the legal bias and legal uncertainty are $\frac{(1+\hat{\mu})^2\left(\hat{A}_M-\tilde{A}\right)^2}{8}$ and $\frac{(1-\hat{\mu})^2\left(\hat{A}_M-\tilde{A}\right)^2}{8(1+2K)}$ for $\lambda \leq 1$ and $\pi \geq \bar{\pi}_M(\hat{\mu})$, $\frac{(1+\hat{\mu})^2\left(\tilde{A}-\hat{A}_T\right)^2}{8}$ and $\frac{(1-\hat{\mu})^2\left(\tilde{A}-\hat{A}_T\right)^2}{8(1+2K)}$ for $\lambda > 1$ and $\pi \geq \bar{\pi}_T(\hat{\mu})$, $\frac{\left(\hat{A}_M-\tilde{A}\right)^2}{8}$ and $\frac{\left(\hat{A}_M-\tilde{A}\right)^2}{8(1+2K)}$ for $\lambda \leq 1$ and $\pi < \bar{\pi}_M(\hat{\mu})$, and $\frac{\left(\tilde{A}-\hat{A}_T\right)^2}{8}$ and $\frac{\left(\tilde{A}-\hat{A}_T\right)^2}{8(1+2K)}$ for $\lambda > 1$ and $\pi < \bar{\pi}_T(\hat{\mu})$. Therefore, the expected long run loss of social welfare is larger than under primordial case law. □

Proof of Proposition 2

The expected *de jure* common law $\mathrm{E}\left(\hat{A}^{c,t,F}\right)$ equals $\mathrm{E}\left(\hat{A}^{c,t,J}+\tilde{\alpha}\right)$, where evidence manipulation $\tilde{\alpha}$ takes the value α with probability $\alpha/2$ for $\lambda \leq 1$ and the value $-\alpha$ with probability $\alpha/2$ for $\lambda > 1$. By substituting $\mathrm{E}\left(\hat{A}^{c,t,F}\right)$ for $A^{c,t}$ in equation (3), then $\mathrm{E}\left(\hat{A}^{c,J}\right)$ equals $\hat{A}_{b,M}-\alpha^2/2$ for $\lambda \leq 1$ and $\pi > \bar{\pi}_M$, $\hat{A}_{b,T}+\alpha^2/2$ for $\lambda > 1$ and $\pi > \bar{\pi}_T$, $\tilde{A}-\alpha^2/2$ for $\lambda \leq 1$ and $\pi \leq \bar{\pi}_M$ and $\tilde{A}+\alpha^2/2$ otherwise. As a result, the bias brought by the expected *de facto* common law—i.e., $\frac{\left[\mathrm{E}\left(\hat{A}^{c,F}\right)-\tilde{A}\right]^2}{2}$—equals the bias prevailing under the mixed common law system combining primordial case law and bright-line adjudication rules, i.e., $\frac{\left[\mathrm{E}\left(\hat{A}_b\right)-\tilde{A}\right]^2}{2}$. Turning to the variance of the expected *de facto* common law $\mathrm{V}\left(\mathrm{E}\left(\hat{A}^{c,F}\right)\right)$, it equals $\mathrm{V}\left(\mathrm{E}\left(\hat{A}^{c,J}\right)+\tilde{\alpha}\right)=\mathrm{V}\left(\mathrm{E}\left(\hat{A}^{c,J}\right)\right)+\mathrm{V}\left(\tilde{\alpha}\right)+2\mathrm{COV}\left(\mathrm{E}\left(\hat{A}^{c,J}\right),\tilde{\alpha}\right)$, which is given by:

1. $\frac{\hat{\mu}^2\left(\hat{A}_M-\tilde{A}\right)^2}{8}+\frac{\left(\hat{A}_M-\hat{A}_{b,M}\right)^2+\left(\hat{A}_{b,M}-\hat{A}_P\right)^2+\left(\hat{A}_{b,M}-\hat{A}_T\right)^2}{6}+\frac{\alpha}{2}\left(\alpha-\frac{\alpha^2}{2}\right)^2+\frac{2-\alpha}{2}\left(-\frac{\alpha^2}{2}\right)^2-\frac{\alpha^2}{2}\left(\frac{\alpha^2}{2}\right)+-\frac{\alpha^2}{2}\left(\alpha-\frac{\alpha^2}{2}\right)=\frac{\hat{\mu}^2\left(\hat{A}_M-\tilde{A}\right)^2}{8}+\frac{\left(\hat{A}_M-\hat{A}_{b,M}\right)^2+\left(\hat{A}_{b,M}-\hat{A}_P\right)^2+\left(\hat{A}_{b,M}-\hat{A}_T\right)^2}{6}-\frac{\alpha^4}{4}$ if $\lambda \leq 1$ and $\pi \geq \bar{\pi}_M$.

2. $\frac{\hat{\mu}^2\left(\tilde{A}-\hat{A}_T\right)^2}{8}+\frac{\left(\hat{A}_M-\hat{A}_{b,T}\right)^2+\left(\hat{A}_{b,T}-\hat{A}_P\right)^2+\left(\hat{A}_{b,T}-\hat{A}_T\right)^2}{6}+\frac{\alpha}{2}\left(-\alpha+\frac{\alpha^2}{2}\right)^2+\frac{2-\alpha}{2}\left(\frac{\alpha^2}{2}\right)^2-\frac{\alpha^2}{2}\left(\frac{\alpha^2}{2}\right)+\frac{\alpha^2}{2}\left(-\alpha+\frac{\alpha^2}{2}\right)=\frac{\hat{\mu}^2\left(\tilde{A}-\hat{A}_T\right)^2}{8}+\frac{\left(\hat{A}_M-\hat{A}_{b,T}\right)^2+\left(\hat{A}_{b,T}-\hat{A}_P\right)^2+\left(\hat{A}_{b,T}-\hat{A}_T\right)^2}{6}-\frac{\alpha^4}{4}$ if $\lambda>1$ and $\pi\geq\bar{\pi}_T\left(\hat{\mu}\right)$.

3. $\frac{\left(\hat{A}_M-\tilde{A}\right)^2+\left(\tilde{A}-\hat{A}_P\right)^2+\left(\tilde{A}-\hat{A}_T\right)^2}{6}-\frac{\alpha^4}{4}$ if $\lambda\leq 1$ and $\pi<\bar{\pi}_M\left(\hat{\mu}\right)$.

4. $\frac{\left(\hat{A}_M-\tilde{A}\right)^2+\left(\hat{A}_P-\tilde{A}\right)^2+\left(\tilde{A}-\hat{A}_T\right)^2}{6}-\frac{\alpha^4}{4}$ if $\lambda>1$ and $\pi<\bar{\pi}_T\left(\hat{\mu}\right)$.

Hence, $\mathrm{V}\left(\mathrm{E}\left(\hat{A}^{c,F}\right)\right)$ is smaller than the *de jure* mixed common law variance $\mathrm{V}\left(\hat{A}_b\right)$. □

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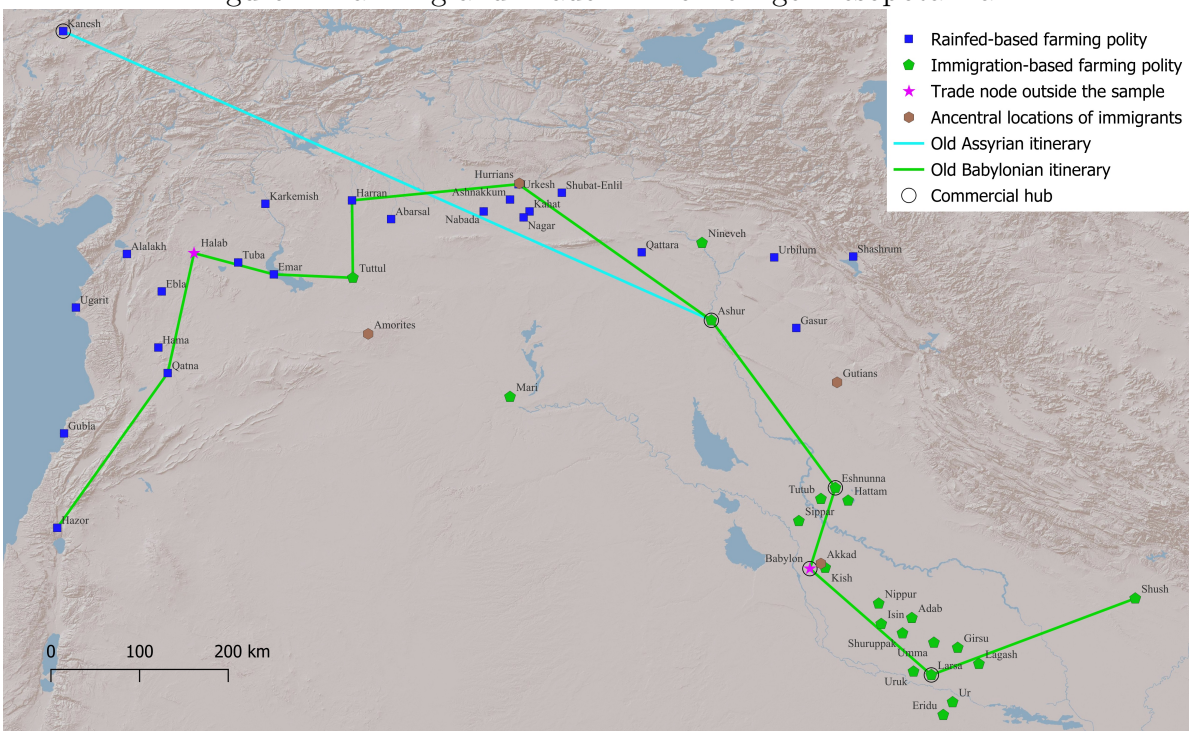
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Tables and Figures

Figure 1: Farming and Trade in Bronze Age Mesopotamia



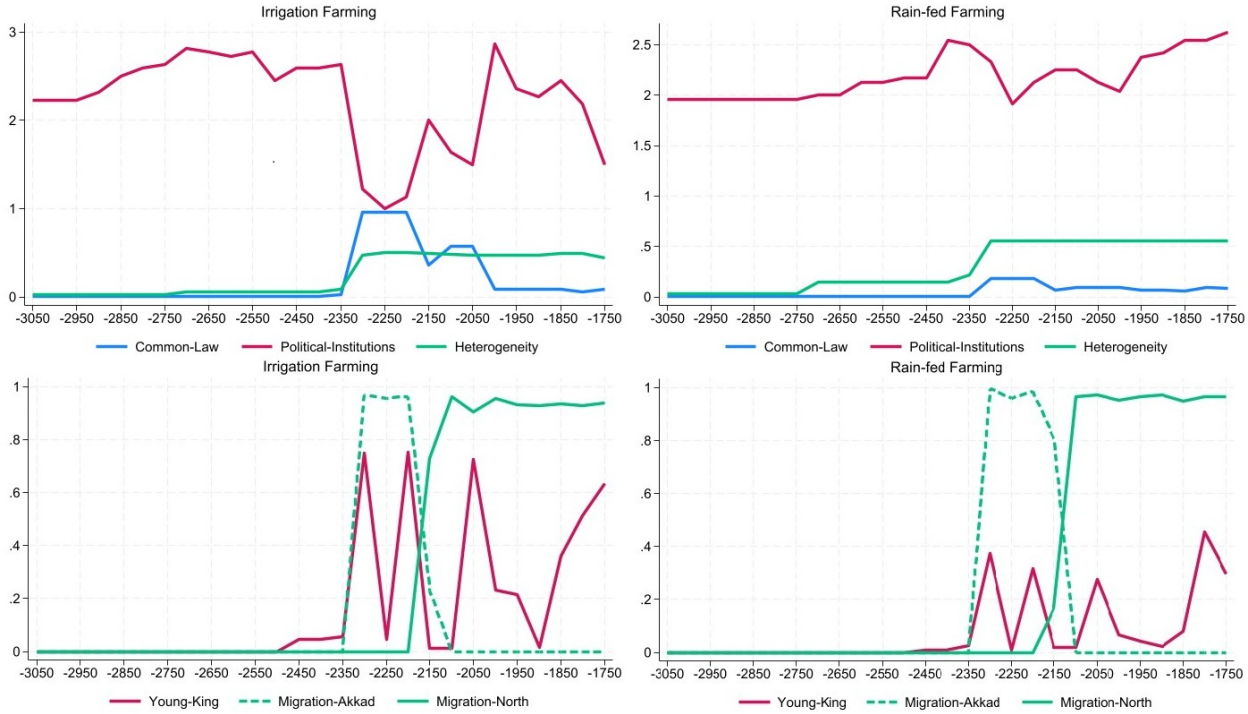
Note: 1. The figure depicts the locations of the polities part of the sample, those of the hydro-climatic records and the structure of both the Old Assyrian and Old Babylonian trade networks. The latter is extrapolated from figure 12.4 in Liverani (2014).

Table 1: Major Bronze Age Mesopotamian Polities and Origins of Migration Waves

IRRIGATION FARMING: Adab (*Bismaya*), Ashur (*Qal'aat Sherqat*), Eridu (*Abu Shahrein*), Eshnunna (*Tell Asmar*), Girsu (*Tello*), Hattam (*Tell Agrab*), Isin (*Ishan Bahriyat*), Kish (*Tell Uhaimir*), Lagash (*Tell al-Hiba*), Larsa (*Tell Senkereh*), Mari (*Tell Hariri*), Nineveh (*Ninive*), Nippur (*Nuffar*), Shuruppak (*Fara*), Shush (*Susa*), Sippar (*Abu Habbah*), Tuttul (*Tell Bi'a*), Tutub (*Khafajah*), Umma (*Tell Jokha*), Ur (*Tell al-Muqayyar*), Uruk (*Tell al-Warka*). RAIN-FED FARMING: Abarsal (*Tell Khuera*), Alalakh (*Tell Atchana*), Ashnakkum (*Chagar Bazar*), Ebla (*Tell Mardikh*), Emar (*Tell Meskene*), Gasur (*Yorgan Tepe*), Gubla (*Byblos*), Hama (*Hama*), Harran (*Harran*), Hazor (*Hazor*), Kahat (*Tell Barri*), Kanesh (*Kultepe*), Karkemish (*Karkemish*), Nabada (*Tell Beydar*), Nagar (*Tell Brak*), Qatna (*Tell Mishrifeh*), Qattara (*Tell Rimah*), Shashrum (*Tell Shemshara*), Shubat-Enlil (*Tell Leilan*), Tuba (*Umm el-Marra*), Ugarit (*Ras Shamra*), Urbilum (*Erbil*), Urkesh (*Tell Mozan*). ANCENSTRAL LOCATIONS OF IMMIGRANTS: Akkad (*Nile*), Amorites (*Bi'r Rasum*), Gutians (*Luristan*), Hurrians (*Gire Mozan*).

Note: 1. The historical names of the polities part of the sample and the ancestral locations of immigrants are in regular lowercase type, whereas those of the present-day archaeological sites are in Italic lowercase font.

Figure 2: Legal Traditions, Politics, Heterogeneity and Migration Waves



Note: 1. The left (right) graphs illustrate the links among our proxies for the centralization of the legal order—i.e., *Common*, inclusiveness of the political process—i.e., *Political-Institutions*, diversity of legal preferences—i.e., *Heterogeneity*, degree of political instability—i.e., *Young-King*—and climate-driven incentives to migrate from either Akkad—i.e., *Migration-Akkad*—or the ancestral locations of the Amorites, Gutians and Hurrians, i.e., *Migration-North*—for the sub-sample of irrigation(rain-fed)-based farming polities. Table 1 lists the polities part of the two groups, whereas table 2 reports the definition and sources of each variable.

Table 2: Summary of Variables

	Variable	Definition and Sources	Statistics
Primordial lawmaking and adjudication institutions:	*Case*:	1 for law selected, over a 40 years window, by a polity's court abiding to their precedents and those of the emperor and 0 otherwise. Sources: see Internet appendix.	0.064 (0.245)
	Appeal:	0 if, over a 40 years window, there was an appeal before the king and 1 if there was no appeal. Sources: see Internet appendix.	0.165 (0.371)
	Equity:	0 if, over a 40 years window, appeals were on law only, and 1 when they may be also based on equity grounds. Sources: see Internet appendix.	0.993 (0.082)
	Oral:	0 if, over a 40 years window, the evidence is mostly submitted to the court in written form and 1 otherwise. Sources: see Internet appendix.	0.962 (0.191)
	Adversarial:	0 if, over a 40 years window, judges could request or take new evidence and could refuse proofs brought by the parties, and 1 otherwise. Sources: see Internet appendix.	0.867 (0.340)
	Common-Law:	Normalized—to range between 0 and 1—first principal component extracted from *Case*, *Appeal*, *Equity*, *Oral* and *Adversarial*.	0.120 (0.276)
	Common-Law-A:	Normalized—to range between 0 and 1—first principal component extracted from *Case*, *Equity*, *Oral* and *Adversarial*.	0.232 (0.220)
	Common-Law-E:	Normalized—to range between 0 and 1—first principal component extracted from *Case*, *Appeal*, *Oral* and *Adversarial*.	0.122 (0.276)
	Common-Law-O:	Normalized—to range between 0 and 1—first principal component extracted from *Case*, *Appeal*, *Equity* and *Adversarial*.	0.114 (0.278)
Political Process:	*Political-Institutions*:	Five-point score rising with the division of the decision-making power over a 40 years window around each date. Source: Benati and Guerriero (2025).	2.235 (1.060)
	Political-Institutions-D:	1 when *Political-Institutions* is strictly greater than 2 and 0 otherwise. Source: Benati and Guerriero (2024).	0.293 (0.455)
Diversity:	*Heterogeneity*:	Ethnolinguistic fractionalization index based on the available names of the citizens of our polities in the 50 years before each observation. Sources: see the Internet appendix.	0.261 (0.269)
Control variables	*PDSI*:	PDSI averaged over the previous 50 years. Source: Armstrong et al. (2019).	- 0.256 (0.337)
	Trade-Potential:	Inverse distance to the Babylonian and/or the Assyrian trade networks. Source: Benati and Guerriero (2026b).	0.002 (0.007)
	External-Conflicts:	Number of external conflicts over the previous 50 years. Source: Benati et al. (2022).	0.301 (1.469)
	Internal-Conflicts:	Dummy for uprisings and/or rebellions over the previous 50 years. Source: Benati et al. (2022).	0.029 (0.169)
	Property-Rights:	Six-point score rising with the strength of the non-elites' use rights to land over a 40 years window around each date. Source: Benati et al. (2022).	2.162 (1.032)
Excluded instruments:	*Young-King*:	Average of a dummy for ascent to the other polities' throne, over the previous 50 years, of kings 20 or younger weighted by inverse distance. Source: see the Internet appendix.	0.122 (0.230)
	Migration-Akkad:	Ratio of the polity's PDSI plus ten to the value of PDSI in Akkad plus ten between 2300 and 2150 BCE and 0 otherwise. Source: Armstrong et al. (2019).	0.133 (0.343)
	Migration-North:	Ratio of the polity's PDSI plus ten to the average of PDSI plus ten across the ancestral locations of northern immigrants weighted by their inverse distance between 2100 and 1750 BCE and 0 otherwise. Source: Armstrong et al. (2019).	0.311 (0.461)

Note: 1. The last column reports the mean value and, in parentheses, the standard deviation of each variable. Both are computed building on the sample used in tables 3 to 6.

Table 3: The Origins of Legal Traditions

	(1)	(2)	(3)	(4)	(5)	(6)
	The dependent variable is:					
	Case-Law	*Appeal*	*Equity*	*Oral*	*Adversarial*	*Common-Law*
Political-Institutions	- 0.034	- 0.041	0.003	- 0.023	0.046	- 0.040
	(0.005)***	(0.009)***	(0.002)	(0.005)***	(0.007)***	(0.006)***
Heterogeneity	0.066	0.124	- 0.032	0.025	- 0.235	0.134
	(0.042)	(0.074)*	(0.021)	(0.041)	(0.061)***	(0.049)***
Estimation	OLS					
Within R^2	0.58	0.40	0.09	0.31	0.51	0.53
Number of observations	1188	1188	1188	1188	1188	1188

Notes: 1. Standard errors in parentheses. *** denotes significant at the 1% confidence level; **, 5%; *, 10%.
2. All specifications include polity and half-century fixed effects.

Table 4: Gaining More Insights About Causality

	(1)	(2)	(3)	(4)	(5)
	Panel A. The dependent variable is:				
	Case-Law	*Common-Law*	*Common-Law-A*	*Common-Law-E*	*Common-Law-O*
Political-Institutions-D	- 0.061	- 0.059			
	(0.012)***	(0.014)***			
Political-Institutions			- 0.062	- 0.059	- 0.059
			(0.011)***	(0.014)***	(0.014)***
Heterogeneity	0.060	0.126	0.106	0.128	0.126
	(0.043)	(0.049)***	(0.038)***	(0.050)***	(0.050)***
Estimation			OLS		
Within R^2	0.57	0.52	0.57	0.52	0.52
Number of observations	1188	1188	1188	1188	1188
	Panel B. The dependent variable is:				
	Case-Law	*Common-Law*	*Common-Law*	*Case-Law*	*Common-Law*
Political-Institutions	- 0.031	- 0.039	- 0.040	- 0.020	- 0.018
	(0.006)***	(0.006)***	(0.007)***	(0.010)**	(0.011)*
Heterogeneity	0.081	0.074	0.074	0.061	0.129
	(0.074)	(0.085)	(0.086)	(0.042)	(0.048)***
Political-Institutions(+1)	- 0.005		0.001		
	(0.006)		(0.007)		
Heterogeneity(+1)	- 0.016	0.072	0.071		
	(0.074)	(0.085)	(0.085)		
PDSI				0.034	0.011
				(0.027)	(0.031)
Trade-Potential				- 1.972	- 5.018
				(0.970)**	(1.113)***
External-Conflicts				- 0.005	- 0.004
				(0.004)	(0.004)
Internal-Conflicts				0.135	0.092
				(0.031)***	(0.036)***
Property-Rights				- 0.018	- 0.029
				(0.010)*	(0.011)***
Estimation			OLS		
Within R^2	0.58	0.53	0.53	0.59	0.55
Number of observations	1188	1188	1188	1188	1188

Notes: 1. Standard errors in parentheses. *** denotes significant at the 1% confidence level; **, 5%; *, 10%.
2. All specifications include polity and half-century fixed effects.

Table 5: Using Selection on Observables to Assess the Bias from Unobservables

	(1)	(2)
	The dependent variable is	
	Case-Law	*Common-Law*
The index is calculated for		
Political-Institutions	1.4	0.8
Heterogeneity	12.2	25.8

Note: 1. The restricted set of controls includes those employed in the specifications reported in columns (1) and (6) of table 3, whereas the "full set" of covariates incorporates those used in the specifications listed in columns (8) and (9) of table 4. The sample size is 1188.

Table 6: 2SLS, LIML and 3SLS

	(1)	(2)	(3)	(4)	(5)	(6)
	The dependent variable is:					
	Case-Law	*Common-Law*	*Case-Law*	*Common-Law*	*Case-Law*	*Common-Law*
Political-Institutions	- 0.705	- 0.957	- 0.763	- 1.138	- 0.705	- 0.957
	(0.221)***	(0.286)***	(0.251)***	(0.384)***	(0.216)***	(0.280)***
Heterogeneity	2.159	2.643	2.512	3.733	2.159	2.643
	(1.301)*	(1.685)	(1.533)*	(2.448)	(1.277)*	(1.654)
	First-Stage for *Political-Institutions*					
Young-King	- 0.408	- 0.408	- 0.408	- 0.408	- 0.444	- 0.349
	(0.170)**	(0.170)**	(0.170)**	(0.170)**	(0.161)***	(0.161)**
Migration-Akkad	2.848	2.848	2.848	2.848	2.304	3.731
	(1.695)*	(1.695)*	(1.695)*	(1.695)*	(1.568)	(1.559)**
Migration-North	2.869	2.869	2.869	2.869	2.436	3.570
	(1.711)*	(1.711)*	(1.711)*	(1.711)*	(1.610)	(1.604)**
	First-Stage for *Heterogeneity*					
Young-King	0.081	0.081	0.081	0.081	0.087	0.073
	(0.040)**	(0.040)**	(0.040)**	(0.040)**	(0.038)**	(0.038)*
Migration-Akkad	1.025	1.025	1.025	1.025	1.115	0.898
	(0.395)***	(0.395)***	(0.395)***	(0.395)***	(0.374)***	(0.375)**
Migration-North	1.073	1.073	1.073	1.073	1.144	0.972
	(0.399)***	(0.399)***	(0.399)***	(0.399)***	(0.381)***	(0.381)**
Estimation	2SLS	2SLS	LIML	LIML	3SLS	3SLS
P-value of underidentification test	0.01	0.01	0.01	0.01		
P-value of overidentification test	0.26	0.09	0.28	0.12		
Number of Observations	1188	1188	1188	1188	1188	1188

Notes:
1. Standard errors in parentheses. *** denotes significant at the 1% confidence level; **, 5%; *, 10%.
2. All specifications include polity and half-century fixed effects, *PDSI*, *Trade-Potential*, *External-Conflicts*, *Internal-Conflicts* and *Property-Rights*. Control variables used in second-stages are included in the first-stages.
3. The endogenous variables are *Political-Institutions* and *Heterogeneity*, and the excluded instruments are *Young-King*, *Migration-Akkad* and *Migration-North*.
4. The joint null hypothesis of the Anderson underidentification test is that the excluded instruments are uncorrelated with the endogenous variables.
5. The joint null hypothesis of the Sargan overidentification test is that the instruments are uncorrelated with the error term, i.e., are correctly excluded from the estimated equation.

APPENDIX (FOR ONLINE PUBLICATION)

I Supplementary Tables

Table I: Summary of Variables

	Variable	Definition and Sources	Statistics
Extra control variables:	*Political-Institutions*:	Five-point score rising with the division of the decision-making power in the reign's capital over a 40 years window around each date. Source: Benati and Guerriero (2025).	2.869 (1.031)
	River-Shift:	Dummy for a shift over the previous 50 years of the closest between Tigris and Euphrates. Sources: Adams (1965, 1981) and Adams and Nissen (1972).	0.012 (0.108)
	Circumscription:	Ratio of the temperature to its average over the remaining polities weighted by their inverse distance, all averaged over the previous 50 years. Source: Armstrong et al. (2019).	0.977 (0.122)
	Polity-Size:	Estimated settled area of the polity in hectares over the previous 50 years. Source: Benati et al. (2022).	50.621 (79.871)
	Urban-Potential:	Distance-weighted sum of the product of each polity's estimated settled area and that of neighboring polities. Source: Benati and Guerriero (2025).	831.049 (1949.491)
	Law-Codes:	Dummy turning on when the institutionalized decision-makers issued, over the previous 50 years, law codes and/or edicts. Sources: Roth (1995) and Westbrook (2003).	0.056 (0.273)
	Public-Buildings:	Number of public and ritual buildings built over the previous 50 years. Source: Benati et al. (2022).	1.085 (1.831)
	Microcredit:	Share of previous 50 years during which the institutionalized decision-makers issued interest-free loans of agricultural products. Source: Benati and Guerriero (2026b).	0.024 (0.142)

Note: 1. The last column reports the mean value and, in parentheses, the standard deviation of each variable. Both are computed building on the sample used in tables II to IV.

Table II: Clustered and Wild Bootstrapped Standard Errors

	(1)	(2)	(3)	(4)
	The dependent variable is:			
	Case-Law	*Common-Law*	*Case-Law*	*Common-Law*
Political-Institutions	- 0.034	- 0.039	- 0.034	- 0.039
	(0.005)***	(0.007)***	(- 7.093)***	(- 5.328)***
Heterogeneity	0.066	0.134	0.066	0.134
	(0.066)	(0.106)	(1.008)	(1.256)
Estimation	OLS			
Within R^2	0.58	0.53	0.58	0.53
Number of Observations	1188	1188	1188	1188

Notes: 1. Standard errors clustered at the polity level (T-test obtained from wild bootstrapped standard errors clustered at the polity level) in the parentheses of columns (1) and (2) ((3) and (4)). *** denotes significant at 1% confidence level; **, 5%; *, 10%.
2. All specifications include polity and half-century fixed effects.

Table III: Allowing for Spatial Correlation

	(1)	(2)	(3)	(4)	(5)	(6)
	The dependent variable is:					
	Case-Law	*Common-Law*	*Case-Law*	*Common-Law*	*Case-Law*	*Common-Law*
Political-Institutions	- 0.034	- 0.039	- 0.034	- 0.039	- 0.034	- 0.039
	(0.005)***	(0.006)***	(0.005)***	(0.006)***	(0.006)***	(0.006)***
Heterogeneity	0.066	0.134	0.066	0.134	0.066	0.134
	(0.041)*	(0.048)***	(0.042)	(0.048)***	(0.041)*	(0.047)***
Estimation	OLS					
Within R^2	0.60	0.58	0.60	0.58	0.60	0.58
Number of observations	1188	1188	1188	1188	1188	1188

Notes: 1. Conley's (1999) standard errors with Bartlett kernel. The distance beyond which the correlation between error terms is assumed to be zero is 30 km in columns (1) and (2), 60 km in columns (3) and (4) and 90 km otherwise. *** denotes significant at the 1% confidence level; **, 5%; *, 10%.
2. All specifications include polity and half-century fixed effects.

Table IV: Alternative Control Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Panel A. The dependent variable is:							
	Case-Law	*Common-Law*	*Case-Law*	*Common-Law*	*Case-Law*	*Common-Law*	*Case-Law*	*Common-Law*
Political-Institutions	- 0.064	- 0.051	- 0.062	- 0.040	- 0.060	- 0.039	- 0.069	- 0.044
	(0.013)***	(0.006)***	(0.012)***	(0.006)***	(0.012)***	(0.006)***	(0.013)***	(0.006)***
Heterogeneity	0.059	0.116	0.060	0.133	0.053	0.131	0.057	0.130
	(0.043)	(0.048)**	(0.043)	(0.049)***	(0.043)	(0.049)***	(0.043)	(0.049)***
Political-Institutions-C	0.004	0.045						
	(0.008)	(0.008)***						
River-Shift			- 0.061	- 0.051				
			(0.048)	(0.054)				
Circumscription					9.824	3.861		
					(3.588)***	(4.105)		
Polity-Size							0.0002	0.0003
							(0.0001)**	(0.0001)***
Estimation	OLS							
Within R^2	0.57	0.54	0.57	0.53	0.57	0.53	0.57	0.54
Number of Observations	1188	1188	1188	1188	1188	1188	1188	1188
	Panel B. The dependent variable is:							
	Case-Law	*Common-Law*	*Case-Law*	*Common-Law*	*Case-Law*	*Common-Law*	*Case-Law*	*Common-Law*
Political-Institutions	- 0.068	- 0.042	- 0.061	- 0.040	- 0.063	- 0.042	- 0.063	- 0.039
	(0.012)***	(0.006)***	(0.012)***	(0.006)***	(0.012)***	(0.006)***	(0.012)***	(0.006)***
Heterogeneity	0.055	0.129	0.061	0.138	0.057	0.123	0.065	0.138
	(0.043)	(0.049)***	(0.043)	(0.049)***	(0.043)	(0.049)**	(0.043)	(0.049)***
Gravity	$8.32e^{-06}$	$7.89e^{-06}$						
	$(3.73e^{-06})$**	$(4.29e^{-06})$*						
Law-Codes			0.003	0.033				
			(0.019)	(0.022)				
Public-Buildings					0.003	0.009		
					(0.003)	(0.004)**		
Microcredit							- 0.088	- 0.081
							(0.037)**	(0.042)*
Estimation	OLS							
Within R^2	0.57	0.53	0.57	0.53	0.57	0.53	0.57	0.53
Number of Observations	1188	1188	1188	1188	1188	1188	1188	1188

Notes: 1. Standard errors in parentheses. *** denotes significant at the 1% confidence level; **, 5%; *, 10%.
2. All specifications include polity and half-century fixed effects.

II Endogenous Group Formation and Cooperation

Alternative theories of state-building embrace views different from our own. Acemoglu and Robinson (2012) and Boix (2015) agree on the opposite roles of the church and the merchants, whereby only the latter facilitated reforms towards more inclusive political institutions and a market structure rewarding producers, but they have different views of the military. While Boix (2015) claims that military techniques advantaging the looters (producers) ease the formation of stable (unstable) monarchical (republican) regimes, Acemoglu and Robinson (2012) consider the army as the keeper of the status quo. Similarly, North et al. (2009) maintain that the military specialists keep their strength "both to balance one another's power and to overawe their respective clients" [North et al. 2009, p. 20], whereas "nonmilitary elites either control or enjoy privileged access to a vital function like religion, production, community allocation of resources, justice, trade, or education" [North et al. 2009, p. 19-20]. Next, we discuss the inconsistency between these claims and the economic and institutional evidence on Bronze Age Mesopotamia. While doing so, we emphasize that religious, military and merchant ranks arose because of unforeseen technological shocks endowing them with skills complementary to those of the existing elites and that their participation in institutional formation eventually turned them in elite members. As discussed in section 4, these institutional dynamics constitute a key implicit assumption of our model.

Temple.—During the urban revolution period, priestly figures, able to coordinate public good provision, formed the first "great organizations" [Liverani 2014, p. 53, 62-63]. Not only could these religious households co-opt the farmers that migrated from the rain-fed North to the Alluvium during the increasingly dry Chalcolithic period to organize irrigation infrastructures, but they also oversaw the rise of an easily taxable manufacturing sector (Hole, 1994; Dow and Reed, 2023). These dynamics eased urbanization, the rise of city-states and a growing elite-nonelite cooperation in investment [Hole 1994, p. 138-139]. Hence, once part of the elites, religious ranks supported state-building by cooperating with rising non-elite groups. Moreover, they provided guidance on how to share consumption risk to the palatial ranks, first, and the merchants, later, and they limited inter-polity conflicts by promoting shared cultic practices to deities [Matthews and Richardson 2019, p. 21]. These activities

helped lock the non-elites in the agreements previously reached with the temple. Even if subordinate to the city rulers, the temples continued to be very influential up to the end of the third millennium by providing military aids and/or performing gubernatorial functions during crises [Steinkeller 2019, p. 126, 132-133]. Finally, during the empires period, the religious elites outsourced economic activities to farmers and private traders [Van De Mieroop 2015, p. 84]. This shift eased the economic and political integration of the merchants and induced the economic supremacy of the palatial ranks (Adams, 2009).

Military.—The expansion of the *sŭku* agreements and the resulting rise of military organizations during the city-states period did not freeze the status quo but induced a further division of the decision-making power whereby the palace jointly organized with the temple farming activities and public good provision (Prentice, 2010; Richardson, 2011). During the kingdoms period, then, new and costly technologies, such as the war-cart and tin-bronze weapons, together with the increased returns on farming, further empowered the military ranks [Marchesi and Marchetti 2011, p. 203, 213, 216; Richardson 2011, p. 18]. Contrary to Boix's (2015) claim however, the palatial households did not crush the other decision-makers, as attested by their cooperation with the temples in the management of economic assets. A case in point is the series of reforms issued by Urukagina, king of Lagash (ca 2330 BCE), who reduced the tax-raising power of temples but outsourced to them the control over farming activities in exchange for a steady flow of revenues [Sallaberger 2018, p. 184]. In a similar manner, in Lagash, even if the digging and maintenance of main watercourses was a royal prerogative, the religious households maintained the control over local irrigation [Rost 2017, p. 10]. During the empires period, finally, despite the rising costs of armory and incidence of warfare [Lafont, 2009; Richardson 2011, p. 34-39; Foster 2016, p. 166-168], palatial ranks favored the enfranchisement of both the merchant families and the farmers of the annexed polities [Seri, 2005; Adams, 2009; Barjamovic 2018, p. 128-129]. Moreover, through the distribution of tenured lands, military conscription turned the soldiers into economic stakeholders with their own collective political power [Richardson 2011, p. 20-48].

Merchants.—Contrary to Acemoglu and Robinson's (2012) and Boix's (2015) idea, the merchants did not simply acquire power when long-distance trades became lucrative. Their empowerment was only possible because of the contemporaneous fall in the returns on the

prevailing farming activities. To elaborate, during the fourth and third millennia, merchants merely converted, as private entrepreneurs and institutional agents, commodities into wealth without participating in decision-making [Wilcke 2007, p. 33, 37; Garfinkle, 2010; Foster 2016, p. 180-181; Winters, 2019]. Similarly, in the Ur III period, merchants were organized into guilds, embedded into the provincial administration of the empire [Steinkeller 2004, p. 97-103; Garfinkle 2010, p. 192-193]. The adverse climate shocks of the 2000 BCE, together with the unprecedented diffusion of metals and the collapse of the imperial administrative structure, changed this trend [Garfinkle 2010, p. 186-188; Greenfield, 2013; Barjamovic 2018, p. 123]. For the first time, long-distance trades were jointly organized by the institutionalized decision-makers and the merchant guilds [Adams, 2009; Barjamovic 2018, p. 128; Yoffee and Barjamovic 2018, p. 816-817], who gained the political role of the ex-Ur III administrators (Seri, 2005; Adams, 2009). More important, the merchants did not simply ease the protection of the status quo but championed reforms towards a more open social order. Notably, not only did the chamber of affairs—karum—of Sippar organize long-distance trade but it also supervised, together with the palace, tax collection, judicial activities, royal granaries, the construction of public buildings and defense [Harris 1975, p. 69-70].

III Sample Selection and Measurement Error

Sample Selection.—The city-based polities appeared during the late 4th millennium BCE and by the early 3rd millennium BCE were the dominant form of political unit throughout the Near East [Garfinkle 2013 p. 95]. Each polity was governed under different political institutions [Garfinkle 2013, p. 107-109]. Yet, the main ruler usually managed through the royal household and the palatial administration—i.e., scribes, military officials and governors—taxation, the provision of public goods, justice and mass economic production [Garfinkle 2013, p. 108-109]. This power was possibly shared with the temple and/or assemblies of elders and/or economic groups, i.e., merchants [Garfinkle 2013, p. 110].

To select our cross-section identifiers, we focus on the polities whose major city reached for most of the 3050-1750 BCE period an urban status, whose location is certain and for which sufficient information on institutional evolution is available. These cities developed political organization exceeding village-level and have been typically capitals of ancient city-

states/reigns/empires (Bauer et al., 1998; Wilcke, 2007; Sallaberger and Schrakamp, 2015). As a consequence of our selection criteria, we have excluded the following cities:

I. Cities that for most of the 3100-1750 BCE period did not reach urban status—i.e., an estimated settled area of more than four hectares—and thus, did not develop coordination systems above village-level. Notable examples of cities that reached an urban status outside the 3100-1750 BCE period are Arslantepe, Boğazkale, Jemdet Nasr, Tell al-Ubaid, Tell Ashara, Tell ed-Der, Tell Nebi Mend, Tell Sifr and Tell Uqair.

II. Cities that, albeit being documented as urban sites over the 3100-1750 BCE period, have been interested by limited or no archaeological exploration, e.g. sites not systematically excavated or only subjected to surface sampling. Key examples are Aleppo, Babil, Birs Nimrud, Damascus, Drehem, Kirkuk, Tell Abu Duwari, Tell Abu Hatab, Tell Abu Sheeja, Tell Aqar, Tell al-Deylam, Tell al-Madain, Tell Asharneh, Tell as-Sadoum, Tell Hadidi, Tell Harmal, Tell Ibrahim, Tell Ibzaikh, Tal i-Malyan, Tell Yassir and Tell Zurghul.

III. Cities that, albeit being documented as urban sites over the 3100-1750 BCE period and systematically excavated, cannot be securely matched with ancient polities. Crucial examples are Abu Salabikh, Oylum Hoyuk, Tell al-Wilaya, Tell Arbid, Tell Hamoukar, Titrish Hoyuk, Tutul el-Baqarat, Umm al-Aqareb and Umm el-Jir.

IV. Cities that have not been surely located by archaeologists. The most notable examples are Akkad, Akshak, Armium and Irisagrig.

Measurement Error.—Two are the key sources of measurement error created by the low and/or asymmetric quality of some of our archaeological data. First, the middle chronology is affected by errors ranging between 8 and 30 years (Sallaberger and Schrakamp, 2015; Manning et al., 2016). This, however, is not a major issue in our case being our variables of interest based on the events in the previous half-century. Second, observations on the beginning of third millennium are obtained from deep stratigraphic soundings and not from the more reliable extensive excavations and modern surveys that have produced the data on the rest of the sample [Matthews 2004, p. 12-15, 159, 163; Banning, 2002; Wilkinson 2003, p. 33-43].[I] The fact, however, that this asymmetry uniformly affects the sample greatly

[I]Another source of noise in our estimates might be the asymmetry in the methodologies adopted for each archaeological site and reflecting the different periods in which they were applied. Yet, "several studies have shown broad agreement in the demographic trends produced by the SPD of radiocarbon dates and other

limits its impact since, conditional on half-century fixed effects, measurement errors assume a "classical" form, i.e., they are independent of all the true variables. This remark has two key consequences (Angrist and Pischke, 2009). First, errors in the measurement of the dependent variable do not affect the magnitude of the coefficients attached to the independent variables but inflate their standard errors decreasing, in this way, their statistical significance. Second, measurement errors in the independent variables decrease the relative coefficients making our estimates a lower bound of the true impact of environmental conditions on cultural evolution. Together the two effects do not affect the message of our empirical analysis.

IV Creating the *Young-King* Variable

To measure the degree of political instability, we rely on the average of a dummy for the ascent to the other polities' thrones and over the previous half-century of kings twenty or younger weighted by their inverse distance. To reconstruct the crowing age of the kings in the sample, we rely on polity- and period-specific secondary sources [Bonechi, 1997; Charpin 2004, p. 113-156; Marchetti 2008, table 1; Marchesi 2011, table 15; Seri, 2013; Liverani 2014, tables 11.1 and 14.1; Marchesi 2014, table 1; Marchesi, 2015a; Sallaberger and Schrakamp 2015, table 35-39; Palmisano 2018, p. 23-24; Peyronel 2018, table 11.1] as well as as primary sources extracted by the CDLI website, i.e., http://cdli.ox.ac.uk/wiki/rulers_of_mesopotamia

Building on these sources, we devise the following procedure. First, we estimate the average kings' life expectancy through the figures suggested by the bible for the kings of Judah (6000-1000 BCE), who lived under conditions similar to those experienced by the kings of ancient Mesopotamia, i.e., 52 ± 15.29 [Griffin 2008, table 1]. This estimate is consistent with large evidence from coeval burials (Bretschneider, 2005; Curchin, 1980; Kontopoulos, 2018). Second, we follow Snell (1982), and we assume that each king's reign endured as long as his life expectancy since kingship was hereditary and kings died mainly of natural causes. Only in a limited number of cases indeed, they passed away in battles, during uprising and as a result of palatial conspiracies and coup d'etat, etc. [Snell 1982, p. 94-95]. Consistent with this anecdotal evidence, the average length of the reigns of the Mesopotamian kings of the third and second millennium BCE is, according to royal inscriptions (Liverani, 2014; Sallaberger

archaeological indices (e.g. raw site count, estimated settlement size)" [Palmisano et al. 2021, p. 4].

and Schrakamp, 2015; Marchesi and Marchetti, 2011; Edzard, 1997; Grayson, 1987; Frayne, 1990, 1993, 1997, 2008; http://cdli.ox.ac.uk/wiki/rulers_of_mesopotamia), 16.28 years, which is similar to the estimate one obtains for medieval European kings [Snell 1982, p. 90]. Third, we obtain the age at coronation as the difference between a like expectancy of 52 and the average reign length if positive and the difference between 67 and the average reign length, otherwise. The patterns revealed by this three-step procedure are:

3100 — 2500 BCE: Data on rulers are scant for a twofold reason. First, they emerged in Lower Mesopotamia only around 2700 BCE (Steinkeller, 2018). Second, between 2700 and 2550 BCE, royal inscriptions are mainly concerned with cultic items [Marchesi and Marchetti 2011, 90-91, table 15a]. Archaeological and textual data suggest, however, that, from 2600 BCE, conflicts intensified (Peltenburg, 2013; Richardson, 2011).

2500 — 2000 BCE: From 2500 BCE on, royal deeds were recorded more extensively, and royal chronologies became better documented [Marchesi and Marchetti 2011, table 15b]. Adab, Girsu, Mari, Shush, Umma and Ur-Uruk provide the richest documentation [Sallaberger and Schrakamp 2015, p. 26-27, 67-104; De Graef, 2015; Steinkeller, 2018]. Ebla was ruled by a long local dynasty, first, and, from 2400 BCE on, by Syrian kingdoms (Bonechi, 2001; Archi, 2015). Turning to the Akkadian and the Ur III empires, information on the kings' ascents to throne are more reliable [Sallaberger and Schrakamp 2015, p. 105-136 and http://cdli.ox.ac.uk/wiki/rulers_of_mesopotamia].

2000 — 1750 BCE: The collapse of the major empires was followed by political fragmentation but the evidence on royal dynasties diffusion is more reliable and homogeneous [http://cdli.ox.ac.uk/wiki/rulers_of_mesopotamia; Charpin 2004, p. 45-55; Liverani 2014, table 11.1; "Mesopotamian Year Names" data set]. The only gap in the documentation is registered in Upper Mesopotamia between 2000 and 1800 BCE because of local disruptions [Ristvet and Weiss, 2013; Charpin 2004, p. 153-193].

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