# Organizing a Kingdom*

Charles Angelucci (MIT Sloan) Simone Meraglia (Exeter) Nico Voigtländer (UCLA, NBER, and CEPR)

26 June 2024

**Abstract**

We develop a framework that examines the organizational challenges faced by central rulers governing large territories, where administrative power needs to be delegated to local elites. We describe how economic change can motivate rulers to empower different elites and emphasize the interaction between local and nationwide institutions. We show that rising economic potential of towns leads to local administrative power (self-governance) of urban elites. As a result, the ruler summons them to central assemblies in order to ensure effective communication and coordination between self-governing towns and the rest of the realm. This framework can explain the emergence of municipal autonomy and towns' representation in early modern European parliaments – a blueprint for Western Europe's institutional framework that promoted state-formation and economic growth in the centuries to follow. We provide empirical evidence for our core mechanisms and discuss how the model applies to other historical dynamics (ancient Rome and Spanish America), as well as to contemporary organizational problems.

**Keywords:** Local and national institutions, political economy, administration

**JEL Codes:** D02, D72, D73, N43, N93, O43

*We would like to thank David Austen-Smith, Alberto Bisin, Alessandro Bonatti, Micael Castanheira, Wouter Dessein, James Fenske, Garance Genicot, Robert Gibbons, Avner Greif, Alessandro Lizzeri, Massimo Morelli, Juan Ortner, Nicola Persico, Heikki Rantakari, Michael Ting, Francesco Trebbi, Felipe Valencia Caicedo, Michael Whinston, Leeat Yariv, as well as seminar audiences at Berkeley, Bologna, Bristol, Columbia, Exeter, Harvard, King's College London, MIT Sloan, Monash, San Diego, Stanford, Trinity, Warwick, FRESH 2024, ESAM 2023, the 2023 Utah Winter Organizational and Political Economics Conference, ThReD 2023, and the 2023 IBEO Political Economy Workshop for helpful comments and suggestions. Roi Orzach provided outstanding research assistance. Corresponding author: Nico Voigtländer (nico.v@ucla.edu).

# 1 Introduction

Ever since the formation of centrally organized polities, competing groups have vied for influence over their political institutions. This contest for power spans from the dominance of military and landed elites in ancient and medieval times, to the rise of merchant elites in the early modern period, and later on, the prominence of financiers and industrialists. A substantial body of research has shed light on the way elites design institutions (North, Wallis, and Weingast, 2009), and on specific mechanisms through which different groups can gain political power, such as responding to threats of revolt (Acemoglu and Robinson, 2001), or addressing the need to fund public goods (Lizzeri and Persico, 2004).

In this paper, we expand on this literature by examining the challenges faced by a central ruler through an organizational lens. This approach provides a novel rationale to explain how different elites can gain access to political institutions. We show that as a local elite becomes economically more important, a central ruler may choose to delegate more administrative power to them. The administrative empowerment of an elite, in turn, necessitates the establishment of a direct communication channel with the center in order to coordinate decision-making. This can involve the inclusion of the elite in general assemblies, lifting them into the circle of power-holders.

These dynamics are reflected in the institutional evolution of Western Europe following the Commercial Revolution of the 11th-13th centuries. During this period, monarchs delegated administrative control over merchant towns to urban elites, separating town jurisdictions from the influence of the landed elite (Downing, 1989; Van Zanden, Buringh, and Bosker, 2012). Concomitantly, monarchs reshaped the composition of central assemblies by including representatives from self-governing towns. This process marked the birth of parliaments, a blueprint for Western Europe's institutional framework that promoted state-formation and economic growth throughout the centuries to come (Acemoglu, Johnson, and Robinson, 2005; Angelucci, Meraglia, and Voigtländer, 2022).

Key to our analysis are the organizational challenges that centralized rulers faced in governing large territories (Greif, 2008). The first challenge involves the choice to delegate administrative control over localities to specific groups. Delegating town administration to local urban elites allows them to adapt to their specific conditions and needs, and thus to benefit from economic opportunities. However, administrative autonomy of local elites can clash with the second challenge: establishing an effective system of communication to coordinate collective action and tackle external threats, especially when ruler and elites have heterogeneous preferences over policies. This trade-off between adaptation and coordination is at the heart of our model, allowing us to rationalize how rulers allocate control over local administrations and design communication structures – such as choosing whom to summon to central assemblies.

In our model, a ruler interacts with a rural (landed) elite and an urban elite (merchants). Each elite makes economic decisions that need to be adapted to a common state (e.g., external war threats), but also to their own local states (e.g., local economic shocks or opportunities). In addition, the elites benefit from coordinating their decisions with each other. For example, merchants and nearby rural producers may agree on which commodities to specialize in – if sheep herding is important, merchants may want to trade wool. Local administrations can affect these economic decisions through rules and regulations. When delegating control over local administrations to the elites, the ruler takes into account both the economic potential of rural and urban areas, and the weight that the corresponding elites assign to the common state. A possibility available to the ruler is for one elite to govern both areas, anticipating that this elite will use its control to serve its own interests. For example, if rural elites govern towns, they may impose market regulations to favor the trade of local wool, even if merchants could profit more from trading wine or silk from abroad. The other possibility is for the ruler to separate jurisdictions, letting each elite govern their own areas. This improves adaptation to local shocks but reduces coordination across areas.

The ruler possesses superior information about the common state. She must decide how to share this information with the urban and landed elites in order to allow for adaptation to the common state and coordination of their decisions. The ruler communicates in a central assembly. Given the need to organize the selection of representatives and their travel to a central location, direct communication between ruler and elites in this assembly is costly. One option is to communicate solely with one elite, relying on it to inform the other elite. For example, the ruler may summon only the landed elite to assemblies and expect it to inform the merchants about a looming war. This option of "sequential communication" is less costly. However, it poses the risk that the elite acting as an intermediary may manipulate information for their own advantage and hurt overall coordination within the polity.

Alternatively, the ruler can engage in direct communication with both elites in an assembly, retaining control over information transmission but incurring higher costs.

Our model predicts that changes in the economic potential of urban (relative to rural) areas trigger a reorganization of both local administrations and communication between the center and localities. When towns are relatively unimportant, the ruler delegates control over both rural and urban administrations to the landed elite and communicates directly only with this elite. The landed elite then informs merchants about the common state. Because the landed elite governs the town, it has no reason to manipulate the urban elite by misrepresenting this information – it can simply set regulations to influence merchants' actions. This leads to a high level of alignment with the policies favored by the landed elite, at the expense of the urban elite's preferences. As the economic potential of towns grows, the resulting efficiency losses become more severe. For example, towns may forego significant profits from trading oriental spices if they are governed by landed elites who favor trade of their own rural products. Eventually, the ruler finds it more efficient to let the urban elite run the town administration independently. The loss of administrative control by the landed elite means it can no longer be trusted to accurately convey information to the urban elite. For example, the landed elite may exaggerate the threat of a looming war in order to deter merchants from international trade. To restore effective communication, the ruler *directly* communicates with the urban elite by summoning it to the central assembly. As a result of this dual institutional process, the landed elite is forced to accommodate the urban elite's preferences when choosing its own actions. In summary, an exogenous increase in the economic potential of towns leads to their administrative autonomy from the surrounding landed elite, direct communication with the ruler, and more influence on policy-making.

Beyond the economic potential of rural versus urban areas, institutional dynamics are further affected by the alignment of players' preferences regarding the common state. For instance, if the merchant elite is significantly less aligned with the ruler than the landed elite, and the ruler places high weight on the common state, then granting administrative autonomy to towns may be unattractive, despite their economic potential. This is because urban administrative autonomy would impede coordination around the common state. Shifting our focus from the medieval context to the European colonial empires of the modern era in the Americas, this reasoning can explain why distant European rulers often concentrated a significant amount of administrative power in the colonies among few elites whose interests closely aligned with their own. This effectively excluded others, especially indigenous elites (Engerman and Sokoloff, 2002).

In an extension of our model, the ruler coordinates an action with the elites but lacks knowledge of local conditions. This analysis allows us to more fully capture the role of assemblies, namely that of transferring information not only from the center to the localities but also in the opposite direction. We show that our key mechanisms continue to hold in this modified setting: As towns become more important, they gain administrative autonomy from the landed elite. Consequently, it becomes key for the ruler to establish direct communication channels with the urban elite to acquire more accurate information about their local conditions.

We highlight the relevance of our framework by applying it to diverse historical contexts where rulers faced the challenge of organizing polities that varied in size and heterogeneity of preferences. Our model rationalizes the empirical patterns documented for medieval England by Angelucci et al. (2022), who show that towns located on trade routes (reflecting higher economic potential) were significantly more likely to attain self-governance. This administrative autonomy, in turn, boosted their odds of being summoned to Parliament. We show that, in line with our model, this mechanism was particularly strong for towns that were more closely aligned with the ruler's preferences. We then discuss our mechanism in the broader context of early modern Western Europe, and we show that our model can also rationalize institutional dynamics in colonial Spanish America and ancient Rome. In the concluding remarks, we discuss insights for the governance structures of contemporary corporations that emerge from novel features of our model, such as sequential communication. We emphasize the trade-offs in organizational decision-making about the autonomy of firm divisions and the selection of their managers to the C-Suite in order to ensure effective top-down communication.

*Related Literature.* Our model shows that organizational features – delegation and communication – can provide novel mechanisms that drive institutional change in response to economic shocks, emphasizing the interplay between local and nationwide institutions. In what follows, we discuss the related literatures and highlight our contribution.

We contribute to a nascent literature that introduces insights from organizational economics in the literature on political economy and institutions (see, for instance, Foarta and Ting, 2023; Snowberg and Ting, 2023). We build upon the models of coordinated-adaptation developed by Dessein and Santos (2006), Alonso, Dessein, and Matouschek (2008) and Rantakari (2008), who study the optimal allocation of decision authority and design of communication structures within multi-divisional firms. Our analysis goes beyond previous models by considering a scenario where (i) the ruler is not a social planner but instead acts in her self-interest; (ii) the ruler has private information about a state of nature of interest to all; (iii) the ruler can employ alternative modes of communication to share her private information, including sequential ones in which one elite acts as an intermediary; and (iv) local elites make inalienable decisions, meaning that coordination with all is always needed regardless of who controls local administrations. Our framework captures the historical institutional setting, where initially communication between the ruler and urban elites occurred through landed elites as intermediaries. In Section 6, we come full circle by discussing the relevance of our framework to the study of modern organizations.

We are related to several strands of literature in political economy. We contribute to the body of work that looks at the rise of the merchant class and the associated Western institutional dynamics. In the context of a city-state, Puga and Trefler (2014) document how international trade led to the ascent to political power of the Venetian merchant class. We study a similar question, but in the context of a large kingdom in which delegation of administrative power and communication between the center and the localities are key. Our emphasis on elites' local administrative power also connects our work with Barzel (1989), González de Lara, Greif, and Jha (2008), and Greif (2008). We contribute by formalizing the interplay between local administrations and 'nationwide' institutions such as parliaments. Further, we complement Acemoglu et al. (2005), who find that the extent of merchants' political power before 1500 mattered in the context of the rise of Atlantic Trade. Our model offers a mechanism whereby merchant elites gain nationwide political clout by controlling local administrations. As highlighted above, our focus on institutional change connects our research with studies exploring how various groups compete for influence over political institutions (Acemoglu and Robinson, 2001; Lizzeri and Persico, 2004; North et al., 2009). Our framework emphasizes how economic changes can alter the structure of local and nationwide institutions, determining the inclusion of different elites.

We also contribute to the literature on the role played by assemblies in governing polities. In Levi (1988) and North and Weingast (1989), assemblies discipline rulers. In Myerson (2008), an assembly increases rulers' credibility by exposing them to collective punishments in case of opportunistic behavior.[1] In our setting information sharing in an assembly acts as a mechanism to have local administrations adapt to and coordinate on common objectives. Our argument is in line with Epstein (2000), who states that parliaments were created by monarchs to coordinate autonomous jurisdictions.

Our work is further related to the literature that examines the functioning of assemblies and legislatures. In Weingast and Marshall (1988), assemblies enable representatives to bargain over policies. In our model, even though representatives do not hold agenda-setting authority, they accommodate each other to achieve some degree of coordination. We are especially related to the strand of this literature that highlights the importance of information acquisition in legislative committees.[2] Our approach emphasizes the interdependence between administrative control over localities and membership in central assemblies.

Finally, our paper is related to the literature on federalism (Tiebout, 1956; Oates, 1972), in particular the strand that studies the decentralization of government functions (Treisman, 1999; Bardhan and Mookherjee, 2000, 2006), as well as the literature on state capacity (e.g., Besley and Persson, 2010). In our setting, centralization is not feasible. The ruler cannot govern the localities by appointing bureaucrats and must instead rely on local elites, who are motivated to run local administrations for their own advantage.[3] Because some elites have preferences that align more closely with those of the central ruler, delegating administrative authority to one elite or the other generates trade-offs that are reminiscent of centralization vs. decentralization decisions. Our work is also connected to the literature on the size of nations (see Alesina and Spolaore, 1997, 2003, for early contributions), even though we take boundaries as given. Similar to this body of work, in our setting greater administrative concentration can foster policy coordination. However, this concentration may also have drawbacks due to differences in the preferences of local elites.

[1] For a related reasoning, see Fearon (2011).

[2] See Gilligan and Krehbiel (1987, 1989, 1990); Baron (2000), and Dewan, Galeotti, Ghiglino, and Squintani (2015).

[3] Our work is also related to Martinez-Bravo, Padró i Miquel, Qian, and Yao (2022), who show that local self-governance can enhance the accountability of local officials.

The rest of the paper is structured as follows. Section 2 describes the model, followed by its analysis in Section 3 and a discussion of our modeling choices in Section 4. In Section 5, we provide historical evidence for our mechanisms in medieval and early modern Western Europe, as well as in ancient Rome and Spanish America. Section 6 concludes and discusses how our model applies to modern organizations.

## 2 Model

*Players and Actions.* Our model consists of three players: a principal $P$ and two agents $A_i$, where $i = \{L, T\}$. Given our primary focus on the medieval European context, we refer to the principal as the 'ruler' (i.e., king or queen), and to the two agents as the landed ($A_L$) and town ($A_T$) 'elites'. The two elites $A_i$ inhabit the corresponding administrative units $D_i$, representing rural areas and towns, respectively. Specifically, we think of $D_L$ as the rural part of a county, and $D_T$ as a town within this county. Correspondingly, $A_L$ and $A_T$ are *local* elites. Each elite chooses an action $a_i$, reflecting their own economic activity. Moreover, to each administrative unit $D_i$ corresponds a regulatory decision $r_i$, which we interpret as the administration of the unit. For example, $r_T$ reflects market rights and market taxes, adjudication of disputes, and other regulations of town business.

$P$ allocates the right to make the regulatory decision $r_i$ to either $A_i$ or $A_j$, for $i, j \in \{L, T\}$. This includes the possibility that rural elites govern towns, and vice versa. By contrast, the local economic action $a_i$ is inalienable. For example, town merchants ($A_T$) choose which commodities to trade ($a_T$), and this choice cannot be directly made by landed elites ($A_L$). However, we will see below that if landed elites are in control of town administration (i.e., they choose $r_T$), they can use this to influence the choice of $a_T$ by $A_T$. Note that our model does not allow $P$ to directly choose the regulatory decisions in the local units. This reflects the historical reality that territories were typically too large for rulers to directly govern all areas of the realm, especially given the inefficient bureaucracies at the time. In other words, medieval and early modern rulers had no choice but to delegate administrative power. However, we do assume that the ruler can choose *which* local elite is responsible for making administrative decisions, as documented by the rich historical records of royal grants delegating administrative power (see references in Angelucci et al., 2022). Our analysis is thus relevant to situations in which a ruler has a degree of control over a sizable territory. Prominent examples include the polities forming in Western Europe during the medieval and early modern periods, as well as the colonial empires of the modern era.

*Information Structure.* Players care about the realization of three independently distributed states of nature: $\theta_P$, $\theta_L$, and $\theta_T$, with $\theta_P \sim U\left[-\overline{\theta}, \overline{\theta}\right]$ and $\theta_i \sim U\left[-\underline{\theta}, \underline{\theta}\right]$, for $i = \{L, T\}$. The variable $\theta_p$ denotes the state of the realm, such as the presence or nature of external threats, while the variables $\theta_L$ and $\theta_T$ indicate conditions in rural areas and towns, respectively, like local economic shocks impacting rural and urban economies. The realization of each of these variables requires adjustments in the economic actions chosen by the two elites, as well as in the regulatory measures applied to the landed and urban areas. In our baseline model, $P$ is privately informed about the realization of $\theta_P$, but the realizations of $\theta_L$ and $\theta_T$ are publicly observable, i.e., known to $P$, $A_L$, and $A_T$. This is the simplest case of the organization-communication problem that we analyze. It implies that information flows only top-down, with the ruler informing local elites about the state of the realm $\theta_P$. For example, rulers often possessed insider knowledge about war threats due to the intricate networks of the European nobility. In an extension, we also analyze the case where $\theta_L$ and $\theta_T$ are known to both elites but not to $P$, and communication occurs bottom-up (Online Appendix, Section C). Thus, in both the baseline model and the extension, we continue with the assumption that local elites are aware of each other's local states, primarily because of their close geographical proximity (i.e., their location in the same county). For example, in 13th century England, county officials in charge of tax collection were local landholders and thus 'had personal knowledge of men and conditions [in the localities]' (Mitchell, 1951, pp. 69-70). Finally, we assume $\underline{\theta} < \overline{\theta}$ (**A1**), which simplifies our analysis of communication.

*Communication.* $P$ chooses whether to set up a *direct* communication channel with $A_i$, for $i \in \{L, T\}$. Under direct communication, $P$ reports *hard* evidence about $\theta_P$ at a cost. In the historical context, this reflects summoning $A_i$ to Parliament, which was costly not only because it required extensive travel, but also because it took time, delaying decision making (see, for instance, Stasavage, 2011; Mazín, 2013). Parliament was key for the ruler to present evidence on the state $\theta_P$ to representatives of the localities, who were assembled 'to hear and to do' what was revealed to them by monarch and royal officials (Mitchell, 1951, p. 226). For example, in 1346, a detailed French plan for the invasion of England fell into English hands and was read in Parliament (Harriss, 1975, p. 316).[4] This motivates our simplifying assumption that vertical (top-down) communication reports *hard* information regarding $\theta_P$. In contrast, horizontal communication between the two elites is *soft* and thus subject to cheap talk: $A_L$ and $A_T$ can communicate with each other at no cost about $\theta_P$. If $P$ communicates directly with only one elite – i.e., only one elite is summoned to Parliament – the informed elite $A_i$ sends a message $m_i \in \left[-\overline{\theta}, \overline{\theta}\right]$ to $A_j$. We assume that $P$ cannot stop elites from communicating with each other. This captures the fact that, in practice, local elites could easily and costlessly communicate due to their close proximity. We refer to an outcome in which $A_j$ receives information about $\theta_P$ through $A_i$ as *indirect* communication between $P$ and $A_j$. As mentioned earlier, and in line with the historical records, in an extension in the Online Appendix we consider a scenario in which Parliament serves as a forum for elites to inform the ruler about local conditions.[5]

*Governance Structure.* $P$ chooses the administrative and communication structure: $\mathbf{g} = \{R_L, R_T, C_L, C_T\}$, where $R_L \in \{L, T\}$ and $R_T \in \{L, T\}$ denote the identity of the elite (either $A_L$ or $A_T$) to whom $P$ delegates decision rights over local regulation $r_L$ and $r_T$, respectively. For example, $R_T = L$ means that town regulations $r_T$ are chosen by the landed elite $A_L$. $C_L \in \{0, 1\}$ and $C_T \in \{0, 1\}$ denote communication: they take value $1$ if $P$ opens a direct communication channel with $A_L$ or $A_T$, respectively. As an illustration, consider $\mathbf{g} = \{L, L, 1, 0\}$. In this configuration, $A_L$ controls regulation in both the rural area and in the town, and $L$ is also the sole elite to communicate directly with $P$. A historical example is a sheriff ("shire-reeve," who was typically part of the landed elite) being in charge of $i$) the regulation throughout the shire, including towns, and $ii$) communication between center and localities via shire courts.

We define as *i-Integration* the allocation of decision rights in which $A_i$ controls regulatory decisions in both units. We define as *Separation* the allocation of decision rights such that $A_i$ controls $r_i$, for $i \in \{L, T\}$ – that is, each elite chooses the regulatory decision within their own unit. The corresponding historical example is merchant towns obtaining royal grants of self-governance, effectively separating their jurisdiction from the surround-

[4]Often, prominent figures like high-ranking officials (for instance, those returning from military campaigns) were called upon to provide testimony regarding important issues (Harriss, 1975, p. 344).

[5]In this case, the cost to the ruler of direct communication with both elites, as opposed to communication mediated by one of the two elites, could capture in reduced form the cost associated with processing information from multiple sources (see for instance Mauro, 2021, p. 233).

ing shire and putting the merchant elites in charge of local regulations.[6]

*Payoffs.* The ex-post payoff of elite $A_i$ is given by the following loss function:

$$U_i(\gamma_i) = -k_i \Bigg\{ (1-\rho) \underbrace{\left[\gamma_i \theta_P + (1-\gamma_i)\theta_i - a_i\right]^2}_{\text{Adaptation to } A_i\text{'s ideal point}} \tag{1}$$

$$+\rho \left[ (1-\lambda) \underbrace{(r_i - a_i)^2}_{\text{Internal Coord.}} + \lambda \underbrace{(a_j - a_i)^2}_{\text{External Coord.}} \right] \Bigg\}, \tag{2}$$

where $k_i \geq 0$ is a measure of unit $D_i$'s economic potential. Note that the actual economic *performance* of unit $D_i$ is also affected by the choice of $a_i$. Similar to Rantakari (2008), $A_i$'s expected loss depends $i)$ on the degree of *adaptation*, and $ii)$ on both *internal* (intra-units) and *external* (inter-units) coordination. In particular, the adaptation term captures $A_i$'s loss when he is unable to match his economic action to his 'ideal point' $(1-\gamma_i)\theta_i + \gamma_i\theta_P$ – a weighted mix of the local state $\theta_i$ and the common state $\theta_P$, where the parameter $\gamma_i \in [0,1]$ denotes the weight that $A_i$ attaches to the common state relative to the local state. This parameter differs across players, as it reflects the extent to which they are affected by shocks to the realm. Next, internal coordination reflects the loss that results if the local economic action $a_i$ is not aligned with the local regulation $r_i$. For example, if market regulation in towns ($r_T$) imposes high taxes on silk, then choosing an economic activity $a_T$ that relies heavily on silk trade will imply a larger loss than trading goods with low tax rates. Finally, external coordination represents the need to coordinate economic activities $a_i$ and $a_j$ across units. For example, if the countryside produces wool, then both elites can benefit if the town merchants trade local wool. The parameter $\rho \in [0,1]$ represents the importance of (overall) coordination versus adaptation, and $\lambda$ reflects the relevance of external vs. internal coordination.[7] As will become clear below, an elite $A_i$ will only suffer internal coordination losses when the regulation of their unit is chosen by the other elite.[8]

[6]See Angelucci et al. (2022) and references therein. In Section 4, we offer a brief discussion of an additional structure (*Cross-Separation*), in which $A_i$ controls $r_j$ but not $r_i$.

[7]We assume for simplicity that the weights $\rho$ and $\lambda$ are identical for all players. We also note that our setting coincides with Rantakari (2008)'s when setting $\gamma_P = \gamma_L = \gamma_T = 0$ and $\lambda = 1$, meaning that players do not attach any weight to the common state nor wish to coordinate regulatory and economic actions.

[8]Internal coordination losses can also be thought of as capturing the social cost of having a community be run by outsiders. For example, towns in medieval times would frequently complain about the behavior of officials who were not townsmen (see Cam, 1963; Carpenter, 1976, for the case of medieval England).

Further, $P$'s ex-post payoff is:

$$U_P = -\sum_{i\in\{L,T\}} k_i \Bigg\{ (1-\rho) \underbrace{\left[\gamma_P \theta_P + (1-\gamma_P)\,\theta_i - a_i\right]^2}_{\text{Adaptation to } P\text{'s ideal point}} \tag{3}$$

$$+ \rho \left[ (1-\lambda) \underbrace{(r_i - a_i)^2}_{\text{Internal Coord.}} + \lambda \underbrace{(a_j - a_i)^2}_{\text{External Coord.}} \right] \Bigg\} - F\left(C_L, C_T\right), \tag{4}$$

where $\gamma_P \in [0,1]$ denotes the weight that $P$ attaches to the common state. Given agents' decisions $r_i$ and $a_i$, $P$ internalizes the loss generated by *both* units, weighting each by the relative economic potential of the unit, $k_i$. $F(\cdot)$ denotes the fixed cost of setting up a direct communication channel with the elites, with $F(1,1) = 2f > F(1,0) = F(0,1) = f > F(0,0) = 0$. For simplicity, the cost of communication is borne entirely by $P$.

Regarding the weights that different players assign to the common state, and regarding the economic potential of rural versus urban areas, we make the following assumptions:

$$\textbf{A2:} \quad \gamma_P \geq \gamma_L \geq \gamma_T, \qquad \textbf{A3:} \quad k_L \geq k_T.$$

**A2** states that, relative to elites' preferences, $P$ is weakly biased in favor of the common state. This reflects the intuitive idea that rulers assign a greater weight on the common state compared to local actors. **A2** also implies that the landed elite's preferences for the common state align more closely with those of the ruler, as compared to the town elites' preferences. This is motivated by the fact that landed elites were medieval rulers' military force and would thus benefit (or suffer) from wars more immediately than merchants (Harriss, 1975, p. 98).[9] Finally, **A3** assumes that the landed economy is (weakly) more important than the urban economy. Together, **A2** and **A3** ensure that if the ruler delegates control over regulatory decisions to one elite over both units, she will opt for the landed elite.

We further assume:

$$\textbf{A4:}\ \rho = \tfrac{1}{2} \text{ and } \lambda = \tfrac{1}{2}.$$

**A4** allows us to focus on the variables of interest – i.e., the size of the two units ($k_L$ and $k_T$) and players' preferences for the common state ($\gamma_P$, $\gamma_L$ and $\gamma_T$) – in determining the

[9] Of course, the latter could also be influenced by wars, for example if international trade routes were affected. The more important such ramifications were, the closer is $\gamma_T$ to $\gamma_L$.

equilibrium governance structure.[10]

*Timing*. Players interact for one period. The timing of the game is as follows:

1. $P$ chooses the governance structure **g**;
2. $P$ learns $\theta_P$. All players learn $\{\theta_L, \theta_T\}$;
3. $P$ communicates with elites $A_i$ in accordance with **g**;
4. If $C_i = 1$ and $C_j = 0$, $A_i$ sends a message $m_i$ to $A_j$, for $i, j \in \{L, T\}$ and $i \neq j$;
5. The two elites simultaneously choose $\{r_i, a_i\}_{i \in \{L,T\}}$ in accordance with **g**;
6. Payoffs realize.

Our solution concept is Perfect Bayesian Equilibrium. Within this set of equilibria, in the case of *i-Integration*, we focus on the equilibrium that maximizes the expected payoff of the player who controls both regulatory decisions.[11] Further, in the cheap-talk game, we focus on the most informative equilibria.

Finally, we set the cost of *direct* communication between $P$ and any of the two elites, $f$, equal to $\epsilon > 0$, with $\epsilon$ taken to be arbitrarily small. This assumption greatly simplifies the presentation of the results, as it allows us to focus on environments with large scope for communication, while maintaining the idea that direct communication is costly.

# 3 Analysis

To highlight the basic trade-offs between *Integration* and *Separation*, we first analyze the case in which the common state $\theta_P$ is publicly observable. Thus, $P$ allocates regulatory control over both units $\{R_L, R_T\}$, but she does not need to choose the communication structure $\{C_L, C_T\}$. This allows us to understand the role played by units' relative size ($k_L/k_T$) and players' preferences ($\gamma_P$, $\gamma_L$, and $\gamma_T$) in determining $P$'s preferred allocation of regulatory control. We then solve the model of incomplete information and study how the allocation of decision rights over local regulations interacts with the structure of communication between $P$ and the elites.

## 3.1 The Complete Information Benchmark

Suppose $\theta_P$ is observable to *all* players. We analyze the two possible governance structures, *Integration* and *Separation*, and derive the equilibrium regulatory decisions and eco-

[10] We are able to solve the model absent **A4**, but comparisons of expected payoffs become cumbersome.

[11] One microfoundation of this equilibrium selection is an alternative sequential timing whereby regulatory decisions are taken before elites choose their economic activity.

nomic actions, along with players' payoffs. We then compare $P$'s expected payoff under these two structures to determine her preferred governance structure. The trade-offs analyzed in this benchmark are similar to those in Alonso et al. (2008) and Rantakari (2008).

*Integration.* Suppose $P$ allocates control over both regulatory decisions to a single elite, $A_i$. Formally, $P$ sets $\{R_L, R_T\} = \{i, i\}$, for $i \in \{L, T\}$. Given (1), and ignoring for the moment the choice of $r_j$ (which is also made by $A_i$), the three first-order conditions (FOCs) corresponding to the elites' optimization problems are:

$$r_i(i,i) = a_i(i,i), \tag{5}$$

$$a_i(i,i) = \frac{2}{3}\underbrace{[\gamma_i\theta_P + (1-\gamma_i)\theta_i]}_{A_i\text{'s ideal point}} + \frac{1}{3}\mathbb{E}_i(a_j), \tag{6}$$

$$a_j(i,i) = \frac{1}{2}\underbrace{[\gamma_j\theta_P + (1-\gamma_j)\theta_j]}_{A_j\text{'s ideal point}} + \frac{1}{4}\mathbb{E}_j(a_i) + \frac{1}{4}\mathbb{E}_j(r_j). \tag{7}$$

Equation (5) states that the elite in control of both regulatory decisions, $A_i$, sets his own unit's regulatory decision equal to his own economic action to ensure perfect internal coordination. Equations (6) and (7) state that each elite sets their economic action to target a convex combination of three elements: $i$) their ideal point; $ii$) their conjecture about the other elite's economic action; and $iii$) their conjecture about the regulatory decision within their own unit (which is relevant only for $A_j$, as $A_i$ chooses $r_i$ himself). In addition, $A_i$ chooses unit $D_j$'s regulatory decision $r_j$. To solve for all four decisions, we proceed in two steps. First, we solve for the optimal choices of actions $a_i$ and $a_j$ by taking $r_j$ as given. Second, we minimize $A_i$'s expected loss in (1) with respect to $r_j$, plugging in the solutions for $a_i$ and $a_j$. It follows that, in equilibrium, elites set $r_L(\boldsymbol{g}), r_T(\boldsymbol{g}), a_L(\boldsymbol{g})$, and $a_T(\boldsymbol{g})$:[12]

$$r_i(i,i) = a_i(i,i) = a_j(i,i) = (1-\gamma_i)\theta_i + \gamma_i\theta_P, \tag{8}$$

$$r_j(i,i) = 3(1-\gamma_i)\theta_i - 2(1-\gamma_j)\theta_j + [3\gamma_i - 2\gamma_j]\theta_P, \tag{9}$$

for $i, j \in \{L, T\}$ and $i \neq j$. From (8) and (9), we see that $A_i$ exploits his control over regulatory decisions in both units to achieve perfect *internal* and *external* coordination.

[12] Throughout, we report the governance structure **g** chosen by $P$ as an argument of the equilibrium actions $r_L(\boldsymbol{g}), r_T(\boldsymbol{g}), a_L(\boldsymbol{g})$, and $a_T(\boldsymbol{g})$. For instance, in the complete information game, $a_T(L,L)$ denotes the equilibrium economic action chosen by $A_T$ when $\boldsymbol{g} = \{L, L\}$ – i.e., when $P$ chooses *L-Integration*.

Specifically, $A_i$ designs $r_j$ to induce $A_j$ to choose an economic action $a_j$ that matches $A_i$'s ideal point. To achieve this goal, the regulation $r_j$ puts positive weight on $\theta_i$, a weight on $\theta_P$ that takes into account the difference in $A_i$ and $A_j$'s preferences towards the common state ($\gamma_i$ and $\gamma_j$), and a negative weight on $\theta_j$. By doing so, $A_i$ obtains the highest possible payoff (i.e., zero loss: $U_i = 0$). The observation that $U_i = 0$ under *i-Integration* and complete information about $\theta_P$ will later explain why an elite who controls both regulatory decisions will have incentives to truthfully communicate $\theta_P$ to the other elite.

An *i-Integrated* governance structure implies perfect internal coordination within unit $D_i$ and perfect external coordination between the two units around elite $A_i$'s ideal point. Note that *i-Integration* comes with a loss for $A_j$, as his optimal action $a_j$ (given the regulation $r_j$ imposed by $A_i$) deviates from $A_j$'s ideal point.

Next, we turn to the ruler's expected payoffs under *i-Integration*. Given $\text{Var}(\theta_L) = \text{Var}(\theta_T) = \frac{\theta^2}{3}$ and $\text{Var}(\theta_P) = \frac{\bar{\theta}^2}{3}$, from (3), it follows that $P$'s expected payoff is equal to:

$$U_P(i,i) = -\left\{\frac{k_i}{2}(\gamma_P - \gamma_i)^2 + \frac{k_j}{2}\left[3(1-\gamma_i)^2 + 2(1-\gamma_j)^2 + (1-\gamma_P)^2\right]\right\}\frac{\theta^2}{3} \tag{10}$$

$$-\left\{\left[\frac{k_i}{2} + \frac{k_j}{2}\right](\gamma_P - \gamma_i)^2 + k_j(\gamma_i - \gamma_j)^2\right\}\frac{\bar{\theta}^2}{3}. \tag{11}$$

Finally, under *i-Integration*, which elite should the ruler choose to exert regulatory control over the other? Given our assumptions **A2** and **A3**, $P$ (weakly) prefers to allocate regulatory authority to $A_L$ over $A_T$. This occurs both because $A_L$ is the elite whose preferences are (weakly) closer to $P$'s and because the rural economy is at least as important as the urban economy (i.e., $k_L \geq k_T$). This statement is proven in the following lemma.

**Lemma 1.** *$P$ weakly prefers L-Integration to T-Integration, $\forall k_T \leq k_L$.*

*Proof.* See Appendix A. □

*Separation.* Suppose now that $P$ lets each elite choose their unit's regulatory decision. Formally, $P$ sets $\{R_L, R_T\} = \{L, T\}$. The first-order conditions associated with each elite's problem are:

$$r_i(i,j) = a_i(i,j) = \frac{2}{3}(1-\gamma_i)\theta_i + \frac{2}{3}\gamma_i\theta_P + \frac{1}{3}r_j. \tag{12}$$

Thus, under *Separation*, both units achieve perfect internal coordination ($r_i = a_i$). Solving for the corresponding system of linear equations leads to the equilibrium decisions:

$$r_i\left(i,j\right)=a_i\left(i,j\right)=\frac{3}{4}\left(1-\gamma_i\right)\theta_i+\frac{1}{4}\left(1-\gamma_j\right)\theta_j+\left[\frac{3}{4}\gamma_i+\frac{1}{4}\gamma_j\right]\theta_P. \tag{13}$$

These decisions reflect a process of adaptation (of each elite to its own ideal point) and accommodation (to the other elite's ideal point) where the latter ensures some degree of coordination across units (see Rantakari, 2008). From (3) and (13), $P$'s expected utility is:

$$\begin{aligned} U_P\left(L,T\right)=-\Bigg\{&\frac{k_L}{2}\left[\left(\left(1-\gamma_P\right)-\frac{3}{4}\left(1-\gamma_L\right)\right)^2+\frac{1}{16}\left(1-\gamma_T\right)^2\right] \\ &+\frac{k_T}{2}\left[\left(\left(1-\gamma_P\right)-\frac{3}{4}\left(1-\gamma_T\right)\right)^2+\frac{1}{16}\left(1-\gamma_L\right)^2\right] \\ &+\left(\frac{k_L}{4}+\frac{k_T}{4}\right)\frac{1}{4}\left[\left(1-\gamma_L\right)^2+\left(1-\gamma_T\right)^2\right]\Bigg\}\frac{\underline{\theta}^2}{3} \\ &-\Bigg\{\frac{k_L}{2}\left(\gamma_P-\frac{3}{4}\gamma_L-\frac{1}{4}\gamma_T\right)^2+\frac{k_T}{2}\left(\gamma_P-\frac{3}{4}\gamma_T-\frac{1}{4}\gamma_L\right)^2 \\ &+\left(\frac{k_L}{4}+\frac{k_T}{4}\right)\frac{1}{4}\left(\gamma_L-\gamma_T\right)^2\Bigg\}\frac{\bar{\theta}^2}{3}. \end{aligned} \tag{14}$$

We make the following additional assumption:

**A5**: $\gamma_P\in\left[\gamma_L,\min\left\{\overline{\gamma},1\right\}\right]$, with $\overline{\gamma}\equiv\frac{15\gamma_L^2+7\gamma_T^2-22\gamma_L\gamma_T}{8(\gamma_L-\gamma_T)}>\gamma_L$.

**A5** states that, all else equal, the weight $\gamma_P$ the ruler places on the common state is not too high. If **A5** is violated, one can always find sufficiently high values for the variance of the common state such that $P$ benefits from choosing *L-Integration* over *Separation* even for the urban area, because it ensures that decisions in the town are tailored to the common state. **A5** is a sufficient (but not necessary) condition for the result established next.

**Lemma 2.** *Given assumptions **A1** to **A5**, $P$'s expected loss associated with unit $D_T$ is weakly lower under Separation than under L-Integration.*[13]

*Proof.* See Appendix A. □

[13] The result established in the Lemma may or may not hold when **A5** is violated. When Lemma 2 does not hold, $P$ chooses *L-Integration* $\forall k_T$, with $k_T\in[0,k_L]$.

Lemma 2 states that $P$'s loss from the town's economy ($D_T$) – i.e., ignoring $P$'s payoff from the rural economy ($D_L$) – is lower when the town elite ($A_T$) runs the urban administration. We are now in a position to state our main proposition concerning $P$'s preferred governance structure taking into account the payoff derived from both units, and hence exploring the trade-off when comparing *L-Integration* to *Separation*.

**Proposition 1.** *In the game of complete information, there exists a threshold $\underline{k}$ for $k_T$, with $\underline{k}$ increasing in $\gamma_P$, such that:*

*a) if $\underline{k} \leq k_L$, $P$ chooses L-Integration for $k_T \in [0, \underline{k}]$, and Separation for $k_T \in (\underline{k}, k_L]$.*

*b) if $\underline{k} > k_L$, $P$ chooses L-Integration $\forall k_T$.*

*Proof.* See Appendix A. □

The comparison between both governance structures depends $i$) on differences across the two units in terms of their size and $ii$) on the configuration of players' preferences regarding $\theta_P$. For any feasible configuration of preferences, compared to *Separation*, *L-integration* prioritizes the payoff generated by unit $D_L$, for both the ruler and the landed elite $A_L$. *Integration* thus prevails when $k_L$ is sufficiently large relative to $k_T$. Conversely, *Separation* allows for better adaptation to $A_T$'s ideal point and better internal coordination in $D_T$, at the cost of less adaptation to $A_L$'s ideal point in $D_L$. Moreover, *Separation* decreases the degree of coordination between the two units. This trade-off explains why the ruler may grant *Separation* when, all else equal, $k_T$ is sufficiently large. In the context of our historical application, this result captures the wave of self-governance for merchant towns that occurred throughout Western Europe following the Commercial Revolution.

Whether *Separation* prevails as the size of the urban economy grows depends on the configuration of preferences regarding $\theta_P$. For most configurations of preferences, there exists a threshold on the size of the town such that the ruler chooses *Separation* when $k_T$ exceeds the threshold (part $a$ in Proposition 1). If the ruler places more importance on the common state (i.e., $\gamma_P$ is larger), the threshold for choosing *Separation* over *L-Integration* increases. This is because the landed elite's preferences are closer to those of the ruler, so that having the landed elite in control results in decisions that better align with the common state.[14] As a consequence, there may also exists a scenario in which *Separation* does not

[14] The $\gamma$ parameters enter the threshold $\underline{k}$, which defines cases $a$) and $b$) in Proposition 1.

occur even when $k_T$ approaches $k_L$ (part $b$ in Proposition 1). This corresponds to the case in which $\gamma_P$ takes very high values, $\gamma_T$ is neither too distant nor too close to $\gamma_L$, and $\mathrm{Var}\left(\theta_P\right)$ is sufficiently large relative to $\mathrm{Var}\left(\theta_i\right)$. Intuitively, this corresponds to a situation where the ruler's central aim is to have all decisions align with the common state, while agents' preferences are neither too homogeneous nor too different from each other.[15]

In summary, Proposition 1 states that, because the preferences of the landed elite are closer to the ruler's, the urban economy must be significant enough for the ruler to allow the urban elite to govern the urban area. Figure 1 illustrates this trade-off by plotting the ruler's expected losses under *L-Integration* and *Separation*.

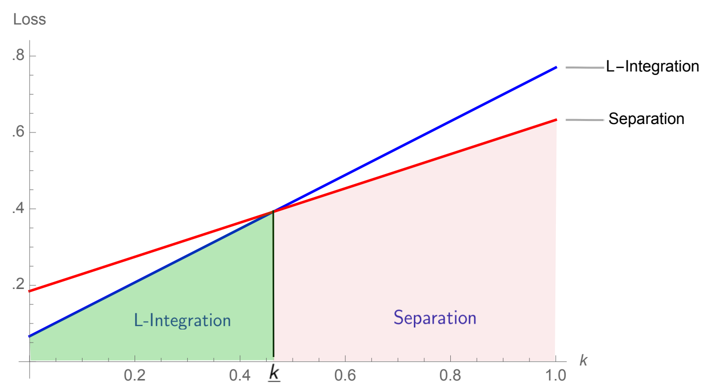



Figure 1: Trade-off between *L-Integration* and *Separation*

*Note*: The figure illustrates the ruler's expected losses under *L-Integration* and *Separation* as a function of $k_T$ (the economic potential of the town), where $k$ is defined as $\frac{k_T}{k_L}$, with $k_L$ normalized to 1. The figure shows that the ruler's expected loss is lower under *L-Integration* (resp. *Separation*) for values of $k_T$ lower (resp., higher) than $\underline{k}$. Parameters' values in the figure are: $\gamma_P = 0.9$, $\gamma_L = 0.7$, $\gamma_T = 0.3$, $\underline{\theta} = 1$, $\overline{\theta} = 3$.

## 3.2 The Game of Incomplete Information

In this section, we examine the general case in which $P$ has private information about the common state $\theta_P$. In this case, the allocation of decision rights over the regulatory decisions interacts with the selection of communication structures between the ruler and the elites, as well as between the elites. We show that the basic trade-off between *Separation*

[15] If $\gamma_T$ approaches $\gamma_L$ (i.e., $\gamma_T \approx \gamma_L$), and, therefore, $\gamma_P$, we are in case $a$) where the ruler opts for *Separation* for sufficiently high values of $k_T$. This choice aims to improve adaptation around local states, while maintaining a sufficiently high degree of coordination on the common state. Similarly, if agents' preferences differ significantly, we are again in case $a$), with the ruler also choosing *Separation* for sufficiently high values of $k_T$ to prevent the landed elite from causing excessive internal mis-coordination in the town.

and *Integration* shown in Section 3 will carry over to the case of incomplete information, where we explore its consequences regarding the ruler's decision of whether and with whom to engage in direct communication about $\theta_P$.

In what follows, we focus on the cases of *L-Integration* and *Separation*.[16] For each of these two cases, we distinguish between three possible communication structures: $i)$ 'no communication' with any of the two elites (i.e., $\{C_L, C_T\} = \{0, 0\}$), $ii)$ 'direct communication' with *both* elites (i.e., $\{C_L, C_T\} = \{1, 1\}$), and $iii)$ 'indirect communication', in which direct communication between $P$ and $A_i$ is followed by communication between elites, with $A_i$ informing $A_j$ about $\theta_P$ (i.e., $\{C_i, C_j\} = \{1, 0\}$).

#### *3.2.1 L-Integration*

Mirroring the complete information analysis, we first consider the case in which $P$ allocates control over both units' regulatory decisions to $A_L$. $P$ chooses $\{R_L, R_T\} = \{L, L\}$. As before, under *L-Integration*, the landed elite exploits its administrative control over the town to force the urban elite to coordinate their economic action on the landed elite's ideal point. However, the benefit the landed elite draws from being able to influence the urban elite depends on what each elite knows about the common state $\theta_P$.

No Communication. Suppose $\mathbf{g} = \{L, L, 0, 0\}$. In this instance, both $A_L$ and $A_T$ remain uninformed about the common state $\theta_P$, and they have no choice but to act based on their prior belief. Because $\mathbb{E}_L(\theta_P) = \mathbb{E}_T(\theta_P) = 0$, it follows from (8) and (9) that:

$$r_L(L, L, 0, 0) = a_L(L, L, 0, 0) = a_T(L, L, 0, 0) = (1 - \gamma_L)\theta_L, \tag{15}$$

$$r_T(L, L, 0, 0) = 3(1 - \gamma_L)\theta_L - 2(1 - \gamma_T)\theta_T. \tag{16}$$

Plugging these decisions into $P$'s expected utility gives:

$$U_P(L, L, 0, 0) = -\frac{k_L}{2}(\gamma_P - \gamma_L)^2 \frac{\theta^2}{3} \tag{17}$$

$$-\frac{k_T}{2}\left[3(1-\gamma_L)^2 + 2(1-\gamma_T)^2 + (1-\gamma_P)^2\right]\frac{\theta^2}{3} - \left\{\left[\frac{k_L}{2} + \frac{k_T}{2}\right]\gamma_P^2\right\}\frac{\bar{\theta}^2}{3}. \tag{18}$$

Comparing (17) and (10) shows that $P$ suffers from not communicating $\theta_P$ because it prevents $A_L$ from making decisions – and influencing decisions by $A_T$ – tailored to $\theta_P$.

[16] As we explain in Footnote 18, we can safely disregard the case of *T-Integration*.

*Direct Communication.* Suppose that $P$ communicates with both elites, i.e., $P$ sets $\mathbf{g} = \{L, L, 1, 1\}$. Except for the cost of communication, this scenario is identical to the benchmark case of complete information because $P$ discloses verifiable information about $\theta_P$. The actions chosen by the elites are given by (8) and (9), and $P$'s expected payoff is given by (10), setting $i = L$ and $j = T$ and subtracting the cost of communication $2\epsilon$.

*Indirect Communication.* Lastly, suppose that $P$ discloses the value of $\theta_P$ to the elite in control of both regulatory decisions, $A_L$, who then sends a message $m_L$ about $\theta_P$ to $A_T$. Formally, $P$ sets $\mathbf{g} = \{L, L, 1, 0\}$. We first show that when $A_L$ is in charge of both regulatory decisions, he will truthfully communicate $\theta_P$ to $A_T$ (i.e., $m_L = \theta_P$). To see this, suppose that communication between $A_L$ and $A_T$ has already taken place and note that the FOCs corresponding to the elites' optimization problems are given by:

$$r_L(L, L, 1, 0) = a_L(L, L, 1, 0) = \frac{2}{3}[(1-\gamma_L)\theta_L + \gamma_L\theta_P] + \frac{1}{3}\mathbb{E}_L(a_T), \tag{19}$$

$$a_T(L, L, 1, 0) = \frac{1}{2}[(1-\gamma_T)\theta_T + \gamma_T\mathbb{E}_T(\theta_P \mid m_L)] + \frac{1}{4}\mathbb{E}_T(r_T \mid m_L) + \frac{1}{4}\mathbb{E}_T(a_L \mid m_L), \tag{20}$$

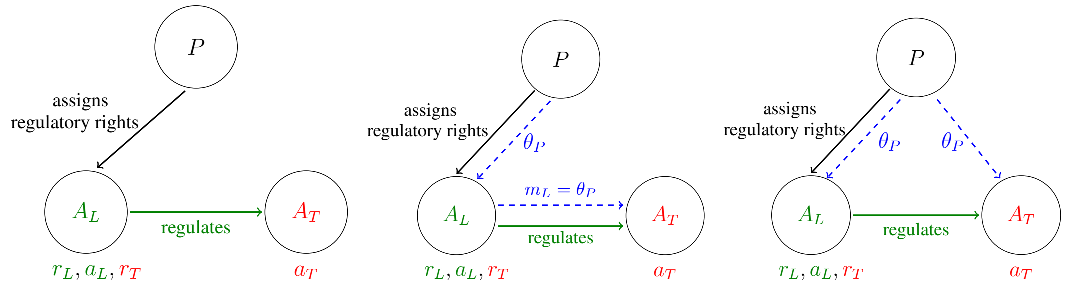
where $\mathbb{E}_T(\cdot \mid m_L)$ captures $A_T$'s beliefs following the message $m_L$ received from $A_L$. Moreover, $A_L$ sets $r_T$ so that $A_T$ chooses $a_T$ as close as possible to $a_L$.[17] If $m_L = \theta_P$, then the optimal actions are given by (8) and (9), where $i = L$ and $j = T$, which give $A_L$ the highest possible payoff (i.e., zero loss). The following lemma formally states that $A_L$ truthfully communicates $\theta_P$ to $A_L$ in equilibrium.

**Lemma 3.** *Suppose $P$ chooses L-Integration. Following communication between $P$ and $A_L$, in the most informative equilibrium of the cheap-talk game between $A_L$ and $A_T$, $A_L$ truthfully reveals $\theta_P$ to $A_T$.*

*Proof.* The proof follows from (8) and (9), and by noting that $A_L$ achieves his highest payoff ($U_L = 0$) by truthfully revealing $\theta_P$. □

When in control of regulatory decisions in both units, $A_L$ has an incentive to make $A_T$ symmetrically informed about $\theta_P$. By truthfully communicating the common state to $A_T$, $A_L$ can better exploit his control over the regulatory decision in $D_T$ to 'fully' steer $A_T$'s economic action towards $A_L$'s ideal point. In contrast, if communication is imperfect,

[17] Exactly as in the complete information benchmark, $A_L$ achieves this by choosing a decision $r_T$ that puts appropriate weights on $\theta_T$, $\theta_L$, and $\theta_P$.




(a) No Communication (b) Indirect Communication (c) Direct Communication

Figure 2: L-Integration: Landed Elite runs both Rural and Urban Administrations

*Note*: The figure depicts the three possible communication structures when the landed elite controls both the rural and the urban areas. In Figure (a), the ruler does not communicate with either elite. Therefore, elites do not communicate with each other either. In Figure (b), the ruler discloses the common state $\theta_P$ to the landed elite $A_L$ who, in turn, communicates $\theta_P$ truthfully to the urban elite $A_T$. In Figure (c), the ruler discloses the common state $\theta_P$ to both the rural elite and the urban elite.

$A_L$ would suffer from $A_T$'s inability to perfectly adapt to the urban regulatory decisions set by $A_L$, thereby preventing $A_L$ from reaching their ideal point. Having established that communication between $A_L$ and $A_T$ is truthful, it follows that $P$'s expected payoff is given by (10), subtracting the cost of communication $\epsilon$.

Figure 2 summarizes the case of *L-Integration* by illustrating the nature of information transmission from the ruler to the elites under the three possible communication structures.

*Equilibrium under L-Integration.* From the analysis of communication under *L-Integration*, the following result holds:

**Lemma 4.** *Under L-Integration, $P$ chooses $\{C_L, C_T\} = \{1, 0\}$ ('indirect communication').*

*Proof.* See Appendix A. □

Under *L-Integration*, communication takes the form of sequential (indirect) communication, where $P$ discloses $\theta_P$ to $A_L$, who then passes on this information truthfully to $A_T$. First, $P$ favors this pattern of communication to 'direct communication' because of the lower cost of communication involved and because $A_L$ can be trusted to convey information truthfully to $A_T$. Second, $P$ prefers to rely on $A_L$ rather than $A_T$ to act as her intermediary because communicating exclusively with $A_T$ – i.e., the elite without administrative control over either unit – would ultimately make $A_L$ imperfectly informed about $\theta_P$. This inefficient communication would arise because of $A_T$'s incentives to lie about $\theta_P$ in an attempt to influence $A_L$'s decision-making. Finally, given the low cost of communication, $P$ does not choose 'no communication' because she wishes both elites to become informed about $\theta_P$ so that all actions adapt to and coordinate around the common state.[18]

### *3.2.2 Separation*

Suppose $P$ allocates control over regulatory decision $r_i$ to $A_i$, for $i \in \{L, T\}$. Formally, $\{R_L, R_T\} = \{L, T\}$. Compared to *L-Integration*, $A_L$ can no longer manipulate $r_T$ to influence $A_T$'s economic action $a_T$. Instead, the two elites must find a balance between adapting to their ideal points and accommodating each other's preferences for local and common states to achieve a degree of coordination. The elites' ability to achieve their objectives depends on their information about $\theta_P$. Let $\mathbb{E}_i(\theta_P)$ denote $A_i$'s expected value of $\theta_P$. Under *Separation*, the FOCs corresponding to $A_i$'s optimization problem are:

$$r_i(L,T) = a_i(L,T) = \frac{2}{3}\left[(1-\gamma_i)\theta_i + \gamma_i \mathbb{E}_i(\theta_P)\right] + \frac{1}{3}\mathbb{E}_i(a_j), \tag{21}$$

for $i, j \in \{L, T\}$ and $i \neq j$. As in the game of complete information, both elites achieve perfect internal coordination by optimally setting their regulatory decisions and economic actions equal to each other. We again distinguish three communication scenarios.

*No Communication.* Suppose $\mathbf{g} = \{L, T, 0, 0\}$, that is, no communication between $P$ and the elites occurs. Because $\mathbb{E}_L(\theta_P) = \mathbb{E}_T(\theta_P) = 0$, from (21) we have:

$$r_i(L,T,0,0) = a_i(L,T,0,0) = \frac{3}{4}(1-\gamma_i)\theta_i + \frac{1}{4}(1-\gamma_j)\theta_j, \tag{22}$$

for $i, j = \{L, T\}$ and $i \neq j$. From (3) and (22), it follows that $P$'s expected payoff is:

$$U_P(i,j) = -\left\{\frac{k_i}{2}\left[\left((1-\gamma_P) - \frac{3}{4}(1-\gamma_i)\right)^2 + \frac{1}{16}(1-\gamma_j)^2\right]\right. \tag{23}$$

$$+\frac{k_j}{2}\left[\left((1-\gamma_P) - \frac{3}{4}(1-\gamma_j)\right)^2 + \frac{1}{16}(1-\gamma_i)^2\right] \tag{24}$$

$$\left.+\left(\frac{k_i}{4} + \frac{k_j}{4}\right)\frac{1}{4}\left[(1-\gamma_i)^2 + (1-\gamma_j)^2\right]\right\}\frac{\theta^2}{3} - \left\{\left[\frac{k_i}{2} + \frac{k_j}{2}\right]\gamma_P^2\right\}\frac{\bar{\theta}^2}{3}, \tag{25}$$

[18]We end by noting that we disregarded *T-Integration* because it is dominated by *L-Integration*. To see this, suppose $P$ sets-up *T-Integration* with 'indirect communication' in which $A_T$ sends a message to $A_L$. A reasoning similar to Lemma 3 establishes that truthful information sharing occurs. Thus, the result stated in Lemma 1 (which was derived for complete information) carries over to the case of incomplete information.

for $i, j \{L, T\}$ and $i \neq j$. Comparing (14) and (23) reveals that $P$ suffers from not communicating $\theta_P$ to the elites because they cannot target the common state.

*Direct Communication.* Suppose **g** $= \{L, T, 1, 1\}$, that is, $P$ communicates directly with both elites. Except for the cost of communicating, this scenario is identical to the benchmark case of complete information because we assume that $P$ discloses verifiable information about $\theta_P$. The choices made by the elites are given by (13), and $P$'s expected payoff is given by (14), subtracting the cost of communication $2\epsilon$.

*Indirect Communication.* Lastly, suppose **g** $= \{L, T, 1, 0\}$, that is, $P$ discloses the value of $\theta_P$ to $A_L$, who then sends a message $m_L$ about $\theta_P$ to $A_T$.[19] From (21), because $\mathbb{E}_L(\theta_P) = \theta_P$, the FOCs corresponding to the elites' optimization problems are given by:

$$\begin{aligned} r_L(L, T, 1, 0) = a_L(L, T, 1, 0) = \frac{3}{4}(1-\gamma_L)\theta_L + \frac{1}{4}(1-\gamma_T)\theta_T \\ + \frac{2}{3}\gamma_L\theta_P + \left[\frac{\gamma_T}{4} + \frac{\gamma_L}{12}\right]\mathbb{E}_T(\theta_P \mid m_L), \end{aligned} \tag{26}$$

$$\begin{aligned} r_T(L, T, 1, 0) = a_T(L, T, 1, 0) = \frac{3}{4}(1-\gamma_T)\theta_T + \frac{1}{4}(1-\gamma_L)\theta_L \\ + \left[\frac{3}{4}\gamma_T + \frac{1}{4}\gamma_L\right]\mathbb{E}_T(\theta_P \mid m_L), \end{aligned} \tag{27}$$

where $\mathbb{E}_T(\cdot \mid m_L)$ captures $A_T$'s beliefs following the message $m_L$ received from $A_L$.

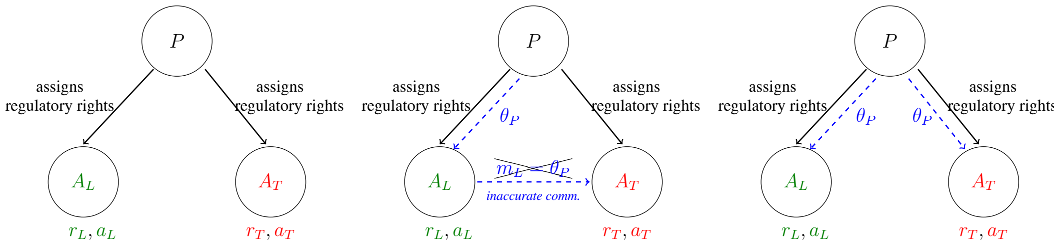
To compute $P$'s expected payoff, we first solve for the equilibrium of the cheap-talk game between elites that occurs in stage 4. The following lemma states its main features.

**Lemma 5.** *Under Separation and 'indirect communication' – i.e.,* **g** $= \{L, T, 1, 0\}$ *– there does not exist an equilibrium in which* $m_L = \theta_T$, $\forall \theta_T \in [\underline{\theta}, \overline{\theta}]$.

*Proof.* See Appendix A. □

As elites face different local conditions (i.e., $\theta_L \neq \theta_T$) and assign different weights to the common state, $A_L$ has an incentive to misrepresent the value of $\theta_P$ in order to induce $A_T$ to select an economic action that better aligns with $A_L$'s own ideal point. Accordingly, and as can be derived using the expressions provided in the proof, the quality of communication improves (but never reaches perfection) as $\gamma_T$ tends to $\gamma_L$. Figure 3 summarizes the case of *Separation* by illustrating the nature of information transmission from the ruler to the elites under the three possible communication structures.

[19] We anticipate that, given **A2**, the alternative scenario in which $P$ discloses the value of $\theta_P$ only to $A_T$ is




(a) No Communication (b) Indirect Communication (c) Direct Communication

Figure 3: Separation: Each Elite runs its own Administration

*Note*: The figure depicts the three possible equilibrium communication structures when each elite runs their unit's local administration. In Figure (a), the ruler does not communicate with either elite. Therefore, elites do not communicate with each other either. In Figure (b), the ruler discloses the common state $\theta_P$ to the landed elite $A_L$ who, in turn, imperfectly communicates $\theta_P$ to the urban elite $A_T$. In Figure (c), the ruler discloses the common state $\theta_P$ to both the rural elite and the urban elite.

The computation of $P$'s expected payoff is somewhat involved, as it requires plugging in the optimal decisions and the equilibrium messages sent by $A_L$. Appendix B states its value. Comparing equation (56) in Appendix B with (14), and ignoring the costs of communication, reveals that the imperfect communication that happens between the elites is detrimental to $P$.

*Equilibrium under Separation.* The following lemma states $P$'s preferred communication structure under *Separation*.

**Lemma 6.** *Under Separation, $P$ chooses $\{C_L, C_T\} = \{1, 1\}$ ('direct communication').*

*Proof.* See Appendix A. □

$P$ opts to disclose $\theta_P$ *directly* to both elites rather than to engage in 'indirect communication' via $A_L$ in order to prevent $A_L$ from manipulating information and causing mis-adaptation to and mis-coordination on the common state by both elites. Furthermore, as in the case of *L-Integration*, and given the low communication costs, $P$ opts to inform both elites about $\theta_P$ rather than forgoing communication with either elite. Finally, comparing Lemma 4 to Lemma 6 implies that 'direct communication' between the ruler and the urban elite can only emerge when the urban elite controls the town administration. This finding represents a cornerstone of the institutional dynamics that we study.

dominated by alternative structures. This is formally proven in Lemma 6 below.

### *3.2.3 Equilibrium Governance Structure*

We now study $P$'s preferred allocation of administrative control *and* communication structure for different configurations of parameters. In line with our leading application, we mainly focus on the effect of $\{k_L, k_T\}$ on $P$'s preferred governance structure. The following proposition states our main result.

**Proposition 2.** *In the game of incomplete information, there exists a threshold $\tilde{k}$ for $k_T$, with $\tilde{k}$ increasing in $\gamma_P$, such that:*

*a) if $\min\left\{\tilde{k}, k_L\right\} = \tilde{k}$, $P$ chooses L-Integration with 'indirect communication' for $k_T \in \left[0, \tilde{k}\right]$, and Separation with 'direct communication' for $k_T \in \left(\tilde{k}, k_L\right]$.*

*b) if $\min\left\{\tilde{k}, k_L\right\} = k_L$, $P$ chooses L-Integration and 'indirect communication' $\forall k_T$.*

*Proof.* See Appendix A. □

Proposition 2 states the equilibrium allocation of decision rights over regulatory actions and communication structure as a function of the relative size of the urban economy. Similar to Proposition 1, part $a$ establishes that $P$ allocates control over the town to the urban elite when the urban economy is sufficiently important. Under incomplete information, a change in the allocation of decision rights results in an adjustment in the communication structure. Under *L-Integration*, $P$ relies on a system of 'indirect communication' to convey *perfect* information to both elites regarding the realization of the common state. In contrast, when *Separation* prevails, $P$ engages in direct communication with both the urban and landed elites to prevent the landed elite from manipulating information. By doing so, the newly empowered urban elite becomes well-informed about the common state. The shift in decision rights allocation, transitioning from *L-Integration* to *Separation*, and the alteration in the communication structure between the ruler and the urban elite, moving from 'indirect' to 'direct' communication, reinforce each other to lead to *all* actions assigning more weight to the preferences of the urban elite. Figure 4 illustrates these trade-offs by comparing the ruler's expected losses under *L-Integration* and *Separation*, with further distinction between 'indirect' and 'direct' communication in the *Separation* scenario.

Similarly to Proposition 1, the threshold value $\tilde{k}$ in Proposition 2 is a function of the players' preferences. Employing a reasoning analogous to that used in Proposition 1, the

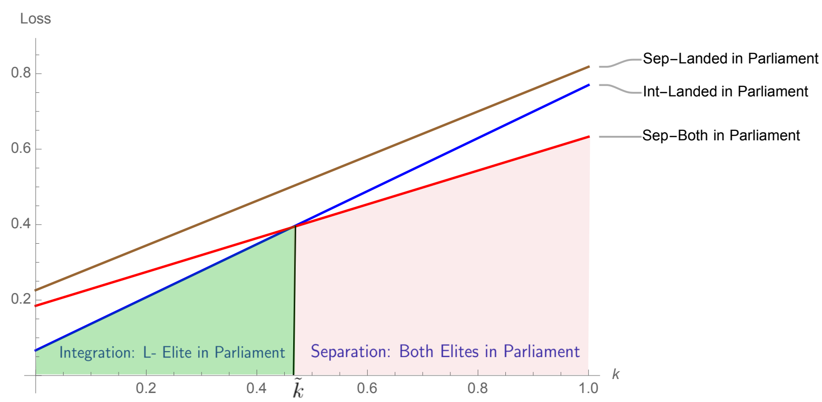



Figure 4: Trade-off between *L-Integration* and *Separation*

*Note*: The figure illustrates the ruler's expected losses under *L-Integration* and *Separation* as a function of $k_T$, where $k$ is defined as $\frac{k_T}{k_L}$, with $k_L$ normalized to 1. The figure shows that, as $k_T$ grows sufficiently large, the ruler transitions from *L-Integration* with 'indirect communication' to *Separation* with 'direct communication' with both elites. Parameters' values in the figure are: $\gamma_P = 0.9$, $\gamma_L = 0.7$, $\gamma_T = 0.3$, $\underline{\theta} = 1$, $\overline{\theta} = 3$.

threshold is increasing in $\gamma_P$: As the ruler places higher weight on $\theta_P$, the urban economy must exhibit greater economic potential for the urban elite to be given control over the town. Further, there exists a scenario where *Separation* does not occur, even as $k_T$ approaches $k_L$ (part $b$ in Proposition 2). This situation arises when $\gamma_P$ attains very high values, $\gamma_T$ is neither too distant nor too close to $\gamma_L$, and Var $(\theta_P)$ is sufficiently large relative to Var $(\theta_i)$.

The result stated in Proposition 2 captures the significant shift in the composition of medieval and early modern institutions that occurred throughout Western Europe. Following the Commercial Revolution, merchant towns obtained self-governance, and therefore had to be persuaded into contributing to common projects (e.g., war effort). As highlighted by Harriss (1975, pp. 41-2), in England the traditional assembly of landed elites saw a diminishing influence over the decision-making processes of these towns, prompting the monarch into initiating direct communication with urban representatives in parliament. We further discuss these institutional dynamics in Section 5.

## 4 Discussion of Modeling Choices and Extensions

In this section, we contrast some of our main modeling choices in our baseline setup (presented in Sections 2 and 3) with alternative approaches.

*Information about local states.* In our baseline setup, complete information about local states allows us to focus on top-down ruler-elite communication regarding the common state. In Online Appendix C, we explore an alternative scenario where assemblies serve as bottom-up information-gathering forums for rulers. Our modified setup makes the common state and rural conditions public, while town conditions remain known only to urban and landed elites. We introduce a ruler's action requiring coordination with elites' decisions and allow the ruler to choose between learning town conditions via landed or urban elites. As in the main analysis, we find that as towns gain importance, they achieve self-governance and are summoned to assemblies, as landed elites become unreliable intermediaries.

Our baseline model assumes that local elites know each other's states due to geographical proximity and can communicate without cost. Alternatively, we could have considered distant elites privately informed about their local conditions, communicating with each other at a cost within a central assembly (if both are summoned), and bottom-up with the ruler. In this scenario, the ruler would risk elites coordinating on local states instead of the common state when summoned (see Hernández, 2020, pp. 356-8). With these additional dynamics at play, the transition to town autonomy and representation in assemblies would only occur at a higher economic potential. However, our core qualitative results would remain the same.

*Incentives to learn the common state.* We assume that the cost of communication is entirely borne by $P$, and elites have no choice but to listen to $P$. Alternatively, we could have assumed that elites also bear a cost from listening to $P$, allowing them to choose whether to remain ignorant about the realization of the common state by deciding not to incur this cost. In this context, it can be shown that an elite has a stronger incentive to engage in communication with $P$ when in control of the administration of a given area than when not. Specifically, $A_T$ benefits more from learning $\theta_P$ under *Separation* than under *L-Integration*. This difference arises because $A_T$ can more effectively exploit information to target his own ideal point under *Separation*. This observation underscores a complementary mechanism by which the transition from *L-Integration* to *Separation* promotes the emergence of 'direct communication.' Online Appendix B offers a more detailed discussion.

*Voting.* In our model, the assembly serves as a forum for players to exchange information. Its function is deliberative, meaning that it does not reach a binding decision through mechanisms such as majority voting. This aligns with significant historical examples, like medieval and early modern parliaments that coordinated efforts by localities to meet war threats (see, for instance, Mitchell, 1951, p. 226). It also corresponds to modern organizational settings, such as inter-divisional meetings where headquarters and divisional leaders communicate to coordinate decision-making in response to changes in their environment.

*Alternative governance structure.* We have ignored the governance structure in which the ruler 'cross-delegates' control over regulatory decisions in the urban area to the rural elite and in the rural area to the urban elite. We exclude this allocation of decision rights for historical reasons. Our focus centers on a period characterized by administrations led by elites whose authority is based on the control of their own territories, which they leverage to govern immediately-surrounding areas.

*Monetary transfers.* Another notable feature of our model is the lack of monetary transfers and the inability of the players to enter agreements with each other. This assumption captures the idea that it is difficult to enforce complex contracts that would make the institutional setup irrelevant (see Acemoglu, 2003). However, the economic actions made by the elites can be interpreted as the allocation of resources, including money, to different goals, such as contributing to the war effort or improving local infrastructure.

# 5 Historical Applications

Our framework sheds light on the process of urban self-governance, whereby local urban elites obtained administrative control over towns and representation in central assemblies. Ultimately, this institutional shift enabled a broader spectrum of interests to influence policies across the larger polity. These dynamics played out in different historical and geographic contexts. In this section, we first discuss Western Europe and present empirical evidence for medieval England, focusing on the rise of the merchant class and the creation of parliaments. We then move on to the cases of Spanish America and ancient Rome.

## 5.1 Western Europe and Empirical Evidence for England

In the medieval period, before the Commercial Revolution, control over both rural and urban areas across Western Europe rested predominantly in the hands of (military) landed elites. These elites assumed positions as county officials, wielding extensive jurisdictional authority over towns and their merchant elites.[20] Central assemblies convened with the

[20] For the case of England, see Mitchell (1951). For the case of France and Spain, see Sanz (1994), Ladero Quesada (1994), and Hilton (1995).

participation of landed elites, sidelining merchants. Landed elites were key in facilitating administrative coordination across the realm: They reported on local conditions to the monarch and disseminated information about the policies agreed upon in the assembly to towns. This information dissemination through landed elites was possible because they were in frequent contact with towns, performing various local administrative tasks such as tax collection and handling contractual disputes in shire courts (see Harding, 1973, for the case of England). Based on our model's logic, this system proved effective because the landed elite could influence merchant decisions through regulations and did not have to fall back on biased communication.

The Commercial Revolution brought about a significant increase in the economic potential of trading towns. Beginning in the 12th century, central rulers entrusted merchant elites with control of urban administrations, recognizing the opportunity for maximizing gains. The wave of municipal autonomy weakened the influence of landed elites over municipal governance and consequently their ability to coordinate towns' decisions with the rest of the polity. In England, the Crown no longer required autonomous towns to attend county courts to conduct administrative business and exchange information, establishing instead direct communication channels with urban elites (Mitchell, 1951; Carpenter, 1996). In our model's logic, mediation by the landed elite was abandoned because they could no longer be trusted to act as reliable information intermediaries between the center and the towns. By the 13th century, central rulers across Western Europe requested representatives of autonomous towns to participate in regional and central assemblies, providing urban elites with voice and ears on matters concerning the entire polity (Marongiu, 1968). These changes influenced economic and institutional dynamics for the centuries to come inside and outside Western Europe – such as the financing of colonial enterprises, trade policies, and the gradual extension of the franchise and introduction of checks and balances on the executive (Acemoglu et al., 2005; Angelucci et al., 2022).

*Empirical Evidence for England*: In what follows, we confront some of the core mechanisms in our model with historical data. We leverage the dataset assembled by Angelucci et al. (2022) for England after the Norman Conquest in 1066. We examine the period until the Black Death in 1348, which saw the Commercial Revolution in England. We focus on the 141 towns in the royal demesne of England, where the crown had direct decision power over self-governance. These royal boroughs were relatively evenly distributed throughout England (see Figure 1 in Angelucci et al., 2022).

We begin with the prediction from Propositions 1 and 2 that rising economic potential of towns (high $k_T$) leads to administrative separation, i.e., self-governance. We use exposure to trade as a proxy for towns' economic potential during the Commercial Revolution. Those are towns located on the sea coast, on a navigable river, or on an ancient Roman road (which regained importance when trade expanded after the Dark Ages). In accordance with Angelucci et al. (2022), Panel A in Figure 5 shows that our model prediction is strongly borne out in the data: Trade towns were about three times more likely to receive self-governance before 1348 than other royal towns, and this difference is statistically highly significant. Next, we test another feature of our model: Towns whose preferences were more closely aligned with the crown should have been more likely to receive self-governance. This is because self-governance results in a smaller loss in coordination to the crown when the town's preferences are more aligned. As a proxy for the alignment of preferences we use an indirect measure: Whether a town received a Murage grant from the crown by 1348. These grants gave towns the right to collect taxes to maintain city walls – a crucial feature in defending the realm. Murage grants were therefore typically bestowed upon towns situated near the Welsh and Scottish borders, where strategic concerns dictated that the crown placed very high weight on the common state (i.e., $\gamma_P$ took high values). In these configurations, our model predicts that a town is more likely to receive a Farm Grant if it also assigns a high value to the common state, compared to one that assigns only moderate weight to it.[21] Because city walls could ultimately insulate towns from royal power, Murage grants were arguably a sign that the crown trusted these towns not to abuse their empowered position, i.e., $\gamma_T$ was also high and close to $\gamma_P$. Panel B in Figure 5 shows that, indeed, Murage towns were much more likely to receive self-governance.[22]

Next, we turn to Proposition 2:[23] That self-governing towns will be summoned to Par-

[21] See the discussion following Proposition 1, as well as the reasoning provided in footnote 15.

[22] Of course, this result has to be interpreted with caution, as it may also reflect unobserved organizational capacity of towns, leading to both Murage grants and self-governance. Similarly, it could be driven by trade (economic importance) driving both variables. However, this is unlikely: When restricting the sample to the 107 royal towns with trade geography, the proportions are very similar (89.2% of Murage towns obtaining self-governance, as compared to 42.8% of the remaining towns).

[23] This prediction also follows from Proposition C.2 in Online Appendix C, where communication is bottom-up rather than top-down.

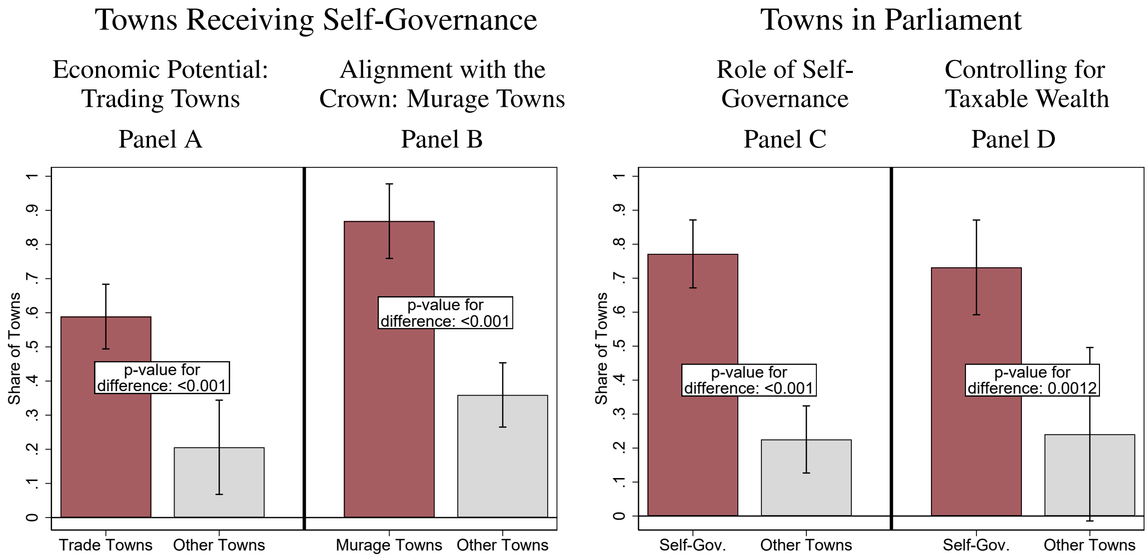



Figure 5: Testing Model Predictions in Medieval England

*Note*: The figure illustrates that central predictions of our model hold in the data for medieval England. Panel A shows that towns with trade geography (located on the sea coast, on a navigable river, or on an ancient Roman road) were significantly more likely to receive self-governance. Panel B shows that the same is true for towns whose preference were more closely aligned with the crown (as proxied by Murage grants – the rights to repair and maintain city walls, which was crucial for defense). Panel C provides evidence for the prediction that self-governing towns will be summoned to Parliament for direct communication with the Crown. Panel D shows that this holds also when balancing the sample with respect to town-level taxable wealth in 1086.

liament for direct communication with the ruler. Reflecting the findings of Angelucci et al. (2022), Panel C in Figure 5 shows that 77% of self-governing towns were represented in Parliament by 1348, as compared to only 22% of all other royal towns. A possible concern is that economic importance (towns' bargaining power) may have led directly to both self-governance and representation in Parliament.[24] Panel D addresses this concern by balancing town with and without self-governance in terms of their taxable wealth in 1086.[25] The relationship between self-governance and representation in Parliament is equally strong in the balanced sample, implying that towns' wealth (or bargaining power) are unlikely to confound our results.

[24]For example, one may worry that economically more important towns bought or demanded seats – although this contradicts the historical record, as representation in Parliament only became desirable for English towns after 1500 (Pasquet, 1964; Angelucci et al., 2022).

[25]We use entropy balancing, which creates balanced samples by reweighing the observations without self-governance to match the mean and variance of taxable wealth in royal towns with self-governance. Taxable wealth is from the Domesday Book. See Angelucci et al. (2022) for data sources.

Overall, the historical record for England strongly supports the key mechanisms in our model. We now discuss qualitative evidence for similar dynamics in other historical settings.

### 5.2 Qualitative Evidence for Mechanisms in other Regions

*Spanish America*: Our analysis also applies to 16-18C Spanish America. In the 16th century, the Spanish crown organized conquered territories into vice-royalties, each with provinces headed by tribunals (*audiencias*) overseeing provincial officials (governors, *corregidores* and *alcaldes mayores*). Spanish settlers established municipalities in the colonies with a governance structure similar to Castilian towns, featuring a municipal governing body (*cabildo*) consisting of mayors, aldermen (*alcaldes ordinarios* and *regidores*), and other minor officials.[26] Initially, the *cabildos* were dominated by local producers who exploited indigenous labor (*encomenderos*), with merchants playing a minor role (Garfias and Sellars, 2021). The *cabildo* was annually renewed through co-optation, with provincial governors influencing these appointments. Similarly, provincial officials, consistently drawn from regional landed and mining elites, held jurisdiction over towns, including trade matters (Morales, 1979; Alvarez, 1991; Domínguez-Guerrero and López Villalba, 2018). In the terminology of our framework, this early phase was characterized by low economic potential of the urban merchant elite ($k_T$) relative to that of the landed (and mining) elite ($k_L$). As a consequence, local administrative power was concentrated in the hands of the latter (i.e., *L-Integration*). Consistent with our model, provincial officials directly communicated with the central government (the council in Madrid or the viceroy), while communication between the central government and municipal bodies was primarily mediated by provincial governors (i.e., $\{C_L, C_T\} = \{1, 0\}$) to reduce costs (Mazín, 2013; Alarcón Olivos, 2017; Amadori, 2023).

By the late 16th century, the Spanish crown's profits from colonial trade had grown significantly compared to those from mining and production (Hernández, 2020, pp. 72-3, 105) – i.e., $k_T$ grew relative to $k_L$. Moreover, during the first half of the 17th century, the Spanish crown encountered threats to its American dominions from rival European powers. In response, the crown sought to increase contributions from its colonial subjects to finance the defense of the American possessions, exemplified by initiatives like the *Union de Ar-*

[26]This discussion focuses on Spanish settlers and institutions that largely excluded indigenous elites. Our framework can explain this setting by reinterpreting the two elites in the model as the Spanish elite and the indigenous elite. Indigenous elites would then not receive local administrative control if their preferences differed substantially from those of the Spanish crown.

*mas*. In this context, merchants secured entry into the municipal *cabildos*. Simultaneously, these councils gained more self-governance from the crown, securing increased jurisdictional power compared to provincial-level officials (Escamilla, 2008) – i.e., merchant towns achieved *Separation*.[27] Consistent with our model, the crown established direct channels of communication with self-governing municipalities, bypassing the mediation of provincial-level officials (Calvo and Gaudin, 2023; Mauro, 2021) – that is $\{C_L, C_T\} = \{1, 1\}$. In the first half of the 17th century, the consultations with colonial towns resulted in the implementation of trade taxes (e.g., *alcabala*) effectively administered by the municipalities – a practice referred to as *encabezamiento* (Arias, 2013). Notably, to prevent collective action by colonial towns, the Spanish monarchs prohibited them from assembling and communicating as a group (Lohmann Villena, 1947). Instead, they established a framework of bilateral direct communication to manage colonial affairs. Overall, urban elites exerted substantial influence on policy-making (Lynch, 1992; Grafe and Irigoin, 2012).[28]

*Ancient Rome*: A further application of our model is the organization of Roman provinces during the first century BC. As the Roman dominion expanded across Europe, it introduced a relatively homogeneous administrative structure, partitioning newly acquired territories into provinces ruled by centrally appointed officials.[29] In these provinces, tax collection in towns was primarily handled by outsiders (*publicani*), while local urban elites had limited influence over town administrations. Direct communication between provincial urban elites and Rome was infrequent, with indirect communication through provincial assemblies likely playing a more significant role.[30] During the 2nd and 1st centuries BC, as provincial towns grew economically vital (France, 2021, pp. 232-3), Rome restructured local governance, granting urban elites administrative control over selected towns. In line with our framework, these changes aimed to empower towns to adapt to local contingencies and

[27] See Morales (1979) and Barriera (2012) for the cases of Mexico City and Buenos Aires.

[28] In the latter half of the 18th century, the Bourbon monarchs initiated reforms aimed at diminishing the influence of local (creole) elites in the provincial government, replacing them with central bureaucrats (*intendants*). These reforms met with the resistance of the local elites, a process that arguably prompted the formation of independence movements, as highlighted by Chiovelli, Fergusson, Martinez, Torres, and Valencia Caicedo (2023).

[29] For the organization of the provinces see the contributions in Barrandon and Kirbihler (2019) and France (2021, pp. 105-9, 119-20, 151-5, 327-8).

[30] Instances of direct communication between Rome and delegates of provincial towns often revolved around grievances pertaining to the conduct of tax farmers. Little information survived about the participation of towns in provincial assemblies under the jurisdiction of centrally-appointed magistrates (France, 2021, pp. 133-4, 142-3, 279-81, 290-8).

curb discontent. However, the increased self-governance exacerbated coordination challenges, prompting Rome to establish direct ties with autonomous urban elites (see Fernoux, 2019; France, 2021, pp. 327-9, 375-6). This policy was implemented by increasing towns' participation in provincial assemblies and allowing them to send representatives to Rome, enhancing their influence over policies (France, 2021, pp. 401-2).

# 6 Conclusion

Over six decades after James March (1962) encouraged applying political science frameworks to firms, our paper takes a reverse approach. Anchored in organizational economics and the literature on multi-divisional firms, our model incorporates key elements to analyze the organizational challenges of historical central states.

In the spirit of March's call, our framework is also relevant to the study of modern organizations. In our framework, elites make inalienable decisions affecting the whole polity. For instance, urban elites control commerce even if they do not run town administrations, contrasting with the usual assumption of fully transferable decision rights. Analogous to a corporate setting, where a division like engineering might hold sway over product design, the decisions and information flow within the product design team remain essential. Our model shows that such dynamics are important in determining the overall organizational structure, including whether engineering should indeed control product design, or whether the latter should become a separate division within the firm.

Our model also emphasizes the role of the communication network among all players. It explores whether an elite should directly interact with a central authority, or communicate via another elite, balancing factors such as communication costs and the reliability of intermediaries. This parallels modern organizations contemplating executive team composition. For the specific example above, our model suggests that if product design gains autonomy, it should be directly represented in the executive team to prevent information distortion by other divisions seeking to manipulate product design decisions in their favor.

Lastly, our model emphasizes coalition dynamics, in line with Cyert and March (1963) who state that "our impression is that most actual managers devote much more time and energy to the problems of managing their [internal] coalition than they do to the problems of dealing with the outside world" (as cited by Gibbons, 2023). While models typically focus on headquarters' prioritization of divisions based on their importance, we add another layer: the central authority considers variations in preferences among herself and elites when designing the administrative structure. Likewise, in firms, the CEO and the various divisional leaders frequently hold contrasting perspectives. In this context, adapting our approach of modeling coalition dynamics to the study of corporate organizational design promises novel insights.

# References


Acemoglu, D. (2003). Why Not a Political Coase Theorem? Social Conflict, Commitment, and Politics. *Journal of Comparative Economics 31*(4), 620–652.

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

Acemoglu, D. and J. A. Robinson (2001). A Theory of Political Transitions. *American Economic Review*, 938–963.

Alarcón Olivos, M. G. (2017). *El Papel de los Cabildos en el Primer Orden Colonial Peruano, 1529-1548*. Ph. D. thesis, Pontificia Universidad Católica del Perú. Facultad de Letras y Ciencias Humanas.

Alesina, A. and E. Spolaore (1997, 11). On the Number and Size of Nations. *The Quarterly Journal of Economics 112*(4), 1027–1056.

Alesina, A. and E. Spolaore (2003, 11). *The Size of Nations*. The MIT Press.

Alonso, R., W. Dessein, and N. Matouschek (2008). When Does Coordination Require Centralization? *American Economic Review 98*(1), 145–79.

Alvarez, F. J. G. (1991). Algunas Reflexiones sobre el Cabildo Colonial como Institución. *Anales de Historia Contemporánea 8*, 151–161.

Amadori, A. (2023). Los Gobernadores del Río de la Plata y el Control de la Comunicación Atlántica a través de Buenos Aires.: El caso de Fray Horacio Genari, Procurador de Vilcabamba (1603-1604). *Prohistoria* (39), 1–17.

Angelucci, C., S. Meraglia, and N. Voigtländer (2022). How Merchant Towns Shaped Parliaments: From the Norman Conquest of England to the Great Reform Act. *American Economic Review 112*(10), 3441–87.

Arias, L. M. (2013). Building Fiscal Capacity in Colonial Mexico: From Fragmentation to Centralization. *The Journal of Economic History 73*(3), 662–693.

Bardhan, P. K. and D. Mookherjee (2000, May). Capture and governance at local and national levels. *American Economic Review 90*(2), 135–139.

Bardhan, P. K. and D. Mookherjee (2006). Decentralisation and accountability in infrastructure delivery in developing countries*. *The Economic Journal 116*(508), 101–127.

Baron, D. P. (2000). Legislative Organization with Informational Committees. *American Journal of Political Science 44*, 485–505.

Barrandon, N. and F. Kirbihler (Eds.) (2019). *Les Gouverneurs et les Provinciaux sous la République Romaine*. Presses Universitaires de Rennes.

Barriera, D. G. (2012). Tras las Huellas de un Territorio. In R. Fradkin (Ed.), *Historia de la Provincia de Buenos Aires. De la Conquista a la Crisis de 1820*, Volume 2, Chapter 2, pp. 53–84. UNIPE, Editorial Universitaria.

Barzel, Y. (1989). *Economic Analysis of Property Rights*. Cambridge University Press.

Besley, T. and T. Persson (2010). State capacity, conflict, and development. *Econometrica 78*(1), 1–34.

Calvo, T. and G. Gaudin (2023). Manila and Their Agents in the Court: Long-Distance Political Communication and Imperial Configuration in the Seventeenth-Century Spanish Monarchy. *European Review of History: Revue Européenne d'Histoire 30*(4), 624–644.

Cam, H. M. (1963). *Liberties & Communities in Medieval England: Collected Studies in Local Administration and Topography* (1st ed.). London: Merlin Press.

Carpenter, D. A. (1976). The Decline of the Curial Sheriff in England 1194–1258. *English Historical Review 91*(358), 1–32.

Carpenter, D. A. (1996). *The Reign of Henry III*. A&C Black.

Chiovelli, G., L. Fergusson, L. Martinez, J. D. Torres, and F. Valencia Caicedo (2023, August). Bourbon Reforms and State Capacity in the Spanish Empire. *Available at SSRN*.

Cyert, R. M. and J. G. March (1963). *A Behavioral Theory of the Firm*. Prentice Hall/Pearson Education.

Dessein, W. and T. Santos (2006). Adaptive Organizations. *Journal of Political Economy 114*(5), 956–995.

Dewan, T., A. Galeotti, C. Ghiglino, and F. Squintani (2015). Information Aggregation and Optimal Structure of the Executive. *American Journal of Political Science 59*(2), 475–494.

Domínguez-Guerrero, M. L. and J. M. López Villalba (2018). Una Institución Española en el Nuevo Mundo: El Cabildo de Cuzco en el Siglo XVI. *Colonial Latin American Review 27*(2), 153–177.

Downing, B. M. (1989). Medieval Origins of Constitutional Government in the West. *Theory and society 18*(2), 213–247.

Engerman, S. L. and K. L. Sokoloff (2002). Factor Endowments, Inequality, and Paths of Development among New World Economics.

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

Escamilla, I. (2008). La Representación Política en Nueva España: Del Antiguo Régimen al Advenimiento de la Nación. *Historias 46*, 23–43.

Fearon, J. D. (2011). Self-enforcing Democracy. *The Quarterly Journal of Economics 126*(4), 1661–1708.

Fernoux, H.-L. (2019). Les Ambassades Civiques des Cités de la Province d'Asie Envoyées à Rome au Ier s. av. J.-C. : Législation Romaine et Prérogatives des Cités. In N. Barrandon and F. Kirbihler (Eds.), *Les Gouverneurs et les Provinciaux sous la République Romaine*, pp. 77–99. Presses Universitaires de Rennes.

Foarta, D. and M. Ting (2023). Organizational capacity and project dynamics. *Stanford University Graduate School of Business Research Paper No. 4321890*. George J. Stigler Center for the Study of the Economy the State Working Paper No. 339.

France, J. (2021). *Tribut: Une Histoire Fiscale de la Conquête Romaine*. Les Belles Lettres.

Garfias, F. and E. A. Sellars (2021). From Conquest to Centralization: Domestic Conflict and the Transition to Direct Rule. *The Journal of Politics 83*(3), 992–1009.

Gibbons, R. (2023, May). From Coase to Culture: Visible Hands Build Equilibria. Technical report, MIT.

Gilligan, T. W. and K. Krehbiel (1987, 10). Collective Decisionmaking and Standing Committees: An Informational Rationale for Restrictive Amendment Procedures. *The Journal of Law, Economics, and Organization 3*(2), 287–335.

Gilligan, T. W. and K. Krehbiel (1989). Asymmetric Information and Legislative Rules with a Heterogeneous Committee. *American Journal of Political Science 33*, 459–490.

Gilligan, T. W. and K. Krehbiel (1990). Organization of Informative Committees by a Rational Legislature. *American Journal of Political Science 34*, 531–564.

González de Lara, Y., A. Greif, and S. Jha (2008). The Administrative Foundations of Self-enforcing Constitutions. *American Economic Review, Papers & Proceedings 98*(2), 105–109.

Grafe, R. and A. Irigoin (2012). A Stakeholder Empire: The Political Economy of Spanish Imperial Rule in America. *The Economic History Review 65*(2), 609–651.

Greif, A. (2008). The Impact of Administrative Power on Political and Economic Developments:

Toward a Political Economy of Implementation. In E. Helpman (Ed.), *Institutions and Economic Performance*, Chapter 1, pp. 17–63. Harvard University Press.

Harding, A. (1973). *The Law Courts of Medieval England*. London: George Allen & Unwin.

Harriss, G. L. (1975). *King, Parliament, and Public Finance in Medieval England to 1369*. Oxford: Clarendon Press.

Hernández, S. T. S. (2020). *Building an Empire in the New World. Taxes and Fiscal Policy in Hispanic America during the Seventeenth Century*. Ph. D. thesis, Universidad Carlos III de Madrid.

Hilton, R. H. (1995). *English and French Towns in Feudal Society: A Comparative Study*. Cambridge University Press.

Ladero Quesada, M. Á. (1994). Monarquía y Ciudades de Realengo en Castilla. Siglos XII-XV. *Anuario de Estudios Medievales 24*, 719–774.

Levi, M. (1988). *Of Rule and Revenue*. University of California Press.

Lizzeri, A. and N. Persico (2004). Why Did the Elite Extend the Suffrage? Democracy and the Scope of Government with an Application to Britain's "Age of Reform"'. *Quarterly Journal of Economics 119*(2), 707–765.

Lohmann Villena, G. (1947). Las Cortes en Indias. *Anuario de historia del derecho español*, 655–662.

Lynch, J. (1992). The Institutional Framework of Colonial Spanish America. *Journal of Latin American Studies 24*(S1), 69–81.

March, J. (1962). The Business Firm as a Political Coalition. *Journal of Politics 24*, 662–678.

Marongiu, A. (1968). *Medieval Parliaments: a Comparative Study*. London: Eyre & Spottiswoode.

Martinez-Bravo, M., G. Padró i Miquel, N. Qian, and Y. Yao (2022, September). The Rise and Fall of Local Elections in China. *American Economic Review 112*(9), 2921–58.

Mauro, I. (2021). La Justificación del Envío de Legaciones ante la Corte por las Ciudades de la Monarquía Hispánica (Siglos XVI-XVII). *Prohistoria* (35), 223–251.

Mazín, Ó. (2013). Leer la Ausencia: Las Ciudades de Indias y las Cortes de Castilla, Elementos para su Estudio (Siglos XVI y XVII). *Historias 84*, 99–110.

Mitchell, S. K. (1951). *Taxation in Medieval England*, Volume 15. Yale University Press.

Morales, M. A. (1979). El Cabildo y Regimiento de la Ciudad de México en el Siglo XVII – Un Ejemplo de Oligarquía Criolla. *Historia Mexicana*, 489–514.

Myerson, R. B. (2008). The Autocrat's Credibility Problem and Foundations of the Constitutional State. *American Political Science Review 102*(01), 125–139.

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

North, D. C. and B. R. Weingast (1989). Constitutions and Commitment: The Evolution of Institutions Governing Public Shoice in Seventeenth-Century England. *The Journal of Economic History 49*(04), 803–832.

Oates, W. E. (1972). *Fiscal Federalism*. New York: Harcourt Brace Jovanovich.

Pasquet, D. (1964). *An Essay on the Origins of the House of Commons* (2nd ed.). Merlin Press, London.

Puga, D. and D. Trefler (2014). International Trade and Institutional Change: Medieval Venice's Response to Globalization. *Quarterly Journal of Economics 129*(2), 753–821.

Rantakari, H. (2008). Governing Adaptation. *The Review of Economic Studies 75*(4), 1257–1285.

Sanz, P. (1994). The Cities in the Aragonese Cortes in the Medieval and Early Modern Periods. *Parliaments, Estates and Representation 14*(2), 95–108.

Snowberg, E. and M. M. Ting (2023). An Organizational Theory of State Capacity. Working Paper Columbia University.

Stasavage, D. (2011). *States of Credit: Size, Power, and the Development of European Polities*. Princeton University Press.

Tiebout, C. M. (1956). A Pure Theory of Local Expenditures. *Journal of Political Economy 64*(5), 416–424.

Treisman, D. (1999). Political Decentralization and Economic Reform: A Game-Theoretic Analysis. *American Journal of Political Science 43*, 488–517.

Van Zanden, J. L., E. Buringh, and M. Bosker (2012). The Rise and Decline of European Parliaments, 1188–1789. *The Economic History Review 65*(3), 835–861.

Weingast, B. R. and W. J. Marshall (1988). The industrial organization of congress; or, why legislatures, like firms, are not organized as markets. *Journal of Political Economy 96*(1), 132–163.

# Appendix A Proofs of Lemmas and Propositions

**Proof of Lemma 1.** Given **A2**, **A3**, and **A4**, the results follow from comparing (10) under $\{R_L, R_T\} = \{L, L\}$ to (10) under $\{R_L, R_T\} = \{T, T\}$. More specifically, suppose $k_L = k_T$. From (8) and (9), given **A2,** $P$'s expected loss in (10) is lower under *L-Integration* than under *T-Integration*. This occurs because $a_L$ and $a_T$ are closer in expectation to $P$'s preferred policy under *L-Integration* than under *T-Integration*. It follows that $P$ prefers

*L-Integration* to *T-Integration* for any $k_T \leq k_L$. ■

**Proof of Lemma 2.** From (10), $P$'s expected loss from unit $D_T$ under *L-Integration* equals:

$$k_T \left\{ \left[ \frac{1}{2} \left[ (1-\gamma_P)^2 + (1-\gamma_L)^2 \right] + \left[ (1-\gamma_L)^2 + (1-\gamma_T)^2 \right] \right] \frac{\theta^2}{3} \right. \tag{28}$$

$$\left. + \left[ \frac{1}{2} (\gamma_P - \gamma_L)^2 + (\gamma_L - \gamma_T)^2 \right] \frac{\bar{\theta}^2}{3} \right\}. \tag{29}$$

From (14), $P$'s expected loss from unit $D_T$ under *Separation* is equal to:

$$k_T \left\{ \frac{1}{2} \left[ \left( 1 - \gamma_P - \frac{3}{4}(1-\gamma_T) \right)^2 + \frac{1}{16}(1-\gamma_L)^2 \right] + \frac{1}{16} \left[ (1-\gamma_L)^2 + (1-\gamma_T)^2 \right] \right\} \frac{\theta^2}{3} \tag{30}$$

$$+ k_T \left\{ \frac{1}{2} \left( \gamma_P - \frac{3\gamma_T + \gamma_L}{4} \right)^2 + \frac{(\gamma_L - \gamma_T)^2}{16} \right\} \frac{\bar{\theta}^2}{3}. \tag{31}$$

The component multiplied by $\frac{\theta^2}{3}$ in (28) is greater than the corresponding term in (30). It is therefore sufficient for the result stated in the Lemma to hold that the component multiplied by $\frac{\bar{\theta}^2}{3}$ in (28) be greater than the corresponding component in (30), that is:

$$\frac{1}{2} \left( \gamma_P - \frac{1}{4}\gamma_L - \frac{3}{4}\gamma_T \right)^2 + \frac{1}{16}(\gamma_L - \gamma_T)^2 \leq \frac{1}{2}(\gamma_P - \gamma_L)^2 + (\gamma_L - \gamma_T)^2, \tag{32}$$

which holds under **A5**. ■

**Proof of Proposition 1.** We disregard *T-Integration* given Lemma 1. Consider the case in which $k_T = 0$. From (10) and (14), and given **A2**, we have that $P$ prefers *L-Integration* to *Separation*. As $k_T$ increases, $P$'s expected loss from unit $D_L$ remains unaffected under both *L-Integration* and *Separation*. By contrast, $P$'s expected loss from unit $D_T$ increases under both governance structures. From Lemma 2, we have that, for any $k_T \in (0, k_L]$, $P$'s expected loss from unit $D_T$ is lower under *Separation* than under *L-Integration*. Therefore, there must exist a threshold $\underline{k}$ such that, if $\min\{\underline{k}, k_L\} = \underline{k}$, $P$ chooses *Separation* (respectively, *L-Integration*) for $k_T \in (\underline{k}, k_L]$ (respectively, $k_T \in [0, \underline{k}]$). If $\min\{\underline{k}, k_L\} = k_L$, $P$ chooses *L-Integration* for all values of $k_T$. Finally, from (10) and (14), as $\gamma_P$ increases, $P$'s expected payoff from *Separation* decreases at a faster rate than the expected payoff from *L-Integration*. This observation establishes that $\underline{k}$ increases with $\gamma_P$. ■

**Proof of Lemma 4.** First, from Lemma 3 and $F(1,1) > F(1,0)$, we have that $P$ prefers $\{C_L, C_T\} = \{1, 0\}$ to $\{C_L, C_T\} = \{1, 1\}$. Second, we prove that $P$ prefers $\{C_L, C_T\} =$

$\{1,0\}$ to $\{C_L, C_T\} = \{0,1\}$. Suppose $P$ sets $\{C_L, C_T\} = \{0,1\}$. Then, given $\{\gamma_P, \gamma_L, \gamma_T\}$ and $\{\theta_L, \theta_T\}$, for all but one realization of $\theta_P$, truthtelling is not an equilibrium of the cheap-talk game between elites.[31] As a consequence, elites' economic actions would not be able to perfectly target $\theta_P$, leading to a higher expected loss for $P$ relative to $\{C_L, C_T\} = \{1,0\}$.Finally, $P$ compares $\{C_L, C_T\} = \{1,0\}$ to $\{C_L, C_T\} = \{0,0\}$. From Section 3.2.1, $P$'s expected payoff under *L-Integration* and 'indirect communication' is:

$$U_P(L,L) = -\left\{\frac{k_L}{2}(\gamma_P - \gamma_L)^2 + \frac{k_T}{2}\left[3(1-\gamma_L)^2 + 2(1-\gamma_T)^2 + (1-\gamma_P)^2\right]\right\}\frac{\underline{\theta}^2}{3} \tag{33}$$

$$-\left\{\left[\frac{k_L}{2} + \frac{k_T}{2}\right](\gamma_P - \gamma_L)^2 + k_T(\gamma_L - \gamma_T)^2\right\}\frac{\bar{\theta}^2}{3} - \epsilon. \tag{34}$$

From (17) and (33), if we ignore $\epsilon$ in (33), **A2-A3** imply that $P$'s expected payoff is higher under 'indirect communication' than under 'no communication'. Therefore, for $\epsilon$ arbitrarily small, $P$ prefers 'indirect communication' to 'no communication'. ■

**Proof of Lemma 5.** We denote a generic cutoff of the partitions by $\theta_{P,n}$, for $n \in \{-\infty, ..., +\infty\}$. We make the following technical assumption:

$$\textbf{A7}: \gamma_T \in \left[0, \underline{\gamma}\right], \text{ with } \underline{\gamma} = \frac{\bar{\theta}-\underline{\theta}}{\bar{\theta}+\underline{\theta}}\gamma_L.$$

**A7** (joint with **A1**) ensures that, for any $\{\theta_L, \theta_T\}$, there exists a realization of $\theta_P$ such that $A_L$ truthfully reports $\theta_P$ to $A_T$. Define $\theta_P^M$ as the state on the boundary between two partitions, $[\theta_{P,n-2}, \theta_{P,n-1})$ and $[\theta_{P,n-1}, \theta_{P,n}]$, with $\theta_P^M = \theta_{P,n-1}$. $A_L$ sends a message $m_L^l$ (resp., $m_L^h$) when $\theta_P \in [\theta_{P,n-2}, \theta_{P,n-1})$ (resp., $[\theta_{P,n-1}, \theta_{P,n}]$). When the realized state of nature is on the boundary between two partitions, $A_L$ must be indifferent between communicating $m_L = m_L^l$ and $m_L = m_L^h$. We can therefore write $A_L$'s incentive constraint ($IC$) at the communication stage as follows (where $B \equiv \frac{3\gamma_T+\gamma_L}{4}$ and $T \equiv \frac{3}{4}((1-\gamma_L)\theta_L - (1-\gamma_T)\theta_T)$):

$$\left\{\left[T + \gamma_L\theta_P^M - B\mathbb{E}_T\left(\theta_P \mid m_L^l\right)\right]^2 + \frac{1}{4}\left[-T - \gamma_L\theta_P^M + B\mathbb{E}_T\left(\theta_P \mid m_L^l\right)\right]^2\right\} = \tag{35}$$

$$\left\{\left[T + \gamma_L\theta_P^M - B\mathbb{E}_T\left(\theta_P \mid m_L^h\right)\right]^2 + \frac{1}{4}\left[-T - \gamma_L\theta_P^M + B\mathbb{E}_T\left(\theta_P \mid m_L^h\right)\right]^2\right\}. \tag{36}$$

Consider three cutoffs $\{\theta_{P,n}; \theta_{P,n-1}; \theta_{P,n-2}\}$, so that $\mathbb{E}_T\left(\theta_P \mid m_L^l\right) = \frac{\theta_{P,n-2}+\theta_{P,n-1}}{2}$ and $\mathbb{E}_T\left(\theta_P \mid m_P^h\right) = \frac{\theta_{P,n-1}+\theta_{P,n}}{2}$. After replacing $\theta_{P,n-1}$ for $\theta_P^M$, and given that $\theta_L$, $\theta_T$ and $\theta_P$

[31] The solution to the cheap talk-game is derived by following the procedure in the proof of Lemma 5.

are independently distributed, we write (35) as:

$$-\left[B^2\left(\frac{\theta_{P,n-2}+\theta_{P,n-1}}{2}\right)^2-2B\left(T+\gamma_L\theta_{P,n-1}\right)\left(\frac{\theta_{P,n-2}+\theta_{P,n-1}}{2}\right)\right] \tag{37}$$

$$-\frac{1}{4}\left[B^2\left(\frac{\theta_{P,n-2}+\theta_{P,n-1}}{2}\right)^2+2B\left(-T-\gamma_L\theta_{P,n-1}\right)\left(\frac{\theta_{P,n-2}+\theta_{P,n-1}}{2}\right)\right] \tag{38}$$

$$=-\left[B^2\left(\frac{\theta_{P,n-1}+\theta_{P,n}}{2}\right)^2-2B\left(T+\gamma_L\theta_{P,n-1}\right)\left(\frac{\theta_{P,n-1}+\theta_{P,n}}{2}\right)\right] \tag{39}$$

$$-\frac{1}{4}\left[B^2\left(\frac{\theta_{P,n-1}+\theta_{P,n}}{2}\right)^2+2B\left(-T-\gamma_L\theta_{P,n-1}\right)\left(\frac{\theta_{P,n-1}+\theta_{P,n}}{2}\right)\right]. \tag{40}$$

After some manipulation, because $\theta_{P,n}^2-\theta_{P,n-2}^2=\left(\theta_{P,n}-\theta_{P,n-2}\right)\left(\theta_{P,n}+\theta_{P,n-2}\right)$ we obtain the following non-homogeneous difference equation:

$$\theta_{P,n}-2\left(\frac{2\gamma_L-B}{B}\right)\theta_{P,n-1}+\theta_{P,n-2}=4\frac{T}{B}. \tag{41}$$

We look for the general solution to (41). As a first step, we consider the homogeneous difference equation:

$$\theta_{P,n}-2\left(\frac{2\gamma_L-B}{B}\right)\theta_{P,n-1}+\theta_{P,n-2}=0. \tag{42}$$

Suppose $\theta_{P,n}=Aw^n$. Then, from (42), we obtain:

$$w^2-2\left(\frac{2\gamma_L-B}{B}\right)w2+1=0 \quad\rightarrow\quad w=\frac{1}{B}\left[2\gamma_L-B\pm 2\sqrt{\gamma_L\left(\gamma_L-B\right)}\right], \tag{43}$$

which gives us two distinct real roots. The general solution to (42) is:

$$\theta_{P,n}=A_1\left\{\frac{1}{B}\left[2\gamma_L-B+2\sqrt{\gamma_L\left(\gamma_L-B\right)}\right]\right\}^n \tag{44}$$

$$+A_2\left\{\frac{1}{B}\left[2\gamma_L-B-2\sqrt{\gamma_L\left(\gamma_L-B\right)}\right]\right\}^n, \tag{45}$$

where $A_1$ and $A_2$ are two generic constants.

As a second step, we find a particular solution to the non-homogeneous difference equation in (41). Because the term on the right-hand side is a constant, we have:

$$\theta_{P,n}=\frac{4\frac{T}{B}}{1-2\left(\frac{2\gamma_L-B}{B}\right)+1} \quad\rightarrow\quad \theta_{P,n}=\frac{T}{B-\gamma_L}. \tag{46}$$

Therefore, from (44) and (46), the general solution to (41) is:

$$\theta_{P,n} = A_1 \left\{ \frac{2\gamma_L - B + 2\sqrt{\gamma_L(\gamma_L - B)}}{B} \right\}^n + A_2 \left\{ \frac{2\gamma_L - B - 2\sqrt{\gamma_L(\gamma_L - B)}}{B} \right\}^n + \frac{T}{B - \gamma_L}. \tag{47}$$

In order to find values for $A_1$ and $A_2$, we impose the following condition:

$$\theta_{P,0} = \frac{T}{B - \gamma_L} \quad \rightarrow \quad A_1 + A_2 = 0 \quad \rightarrow \quad A_1 = -A_2. \tag{48}$$

The equality in (48) holds because $A_L$ has no incentive to lie when $\theta_P = \frac{T}{B-\gamma_L}$. The second equality we exploit to find the solution to our difference equation is:

$$\theta_{P,1} = A_1 \left\{ \frac{2\gamma_L - B + 2\sqrt{\gamma_L(\gamma_L - B)}}{B} \right\} + A_2 \left\{ \frac{2\gamma_L - B - 2\sqrt{\gamma_L(\gamma_L - B)}}{B} \right\} + \frac{T}{B - \gamma_L}, \tag{49}$$

After substituting $A_1 = -A_2$ in (49), we obtain:

$$A_1 = \frac{B}{4\sqrt{\gamma_L(\gamma_L - B)}} \left( \theta_{P,1} + \frac{T}{\gamma_L - B} \right), \quad A_2 = -\frac{B}{4\sqrt{\gamma_L(\gamma_L - B)}} \left( \theta_{P,1} + \frac{T}{\gamma_L - B} \right).$$

We use these expressions to rewrite (47):

$$\theta_{P,n} + \frac{T}{\gamma_L - B} = \frac{B\left(\theta_{P,1} + \frac{T}{\gamma_L - B}\right)}{4\sqrt{\gamma_L(\gamma_L - B)}} \left\{ \frac{1}{B}\left[2\gamma_L - B + 2\sqrt{\gamma_L(\gamma_L - B)}\right] \right\}^n \tag{50}$$

$$+ \frac{B\left(\theta_{P,1} + \frac{T}{\gamma_L - B}\right)}{4\sqrt{\gamma_L(\gamma_L - B)}} \left\{ \frac{1}{B}\left[2\gamma_L - B - 2\sqrt{\gamma_L(\gamma_L - B)}\right] \right\}^n. \tag{51}$$

Take 2 cutoffs, $n - x$ and $n$. Let $Q = -T \equiv \frac{3}{4}\left((1 - \gamma_T)\theta_T - (1 - \gamma_L)\theta_L\right)$. After defining $H_+ \equiv 2\gamma_L - B + 2\sqrt{\gamma_L(\gamma_L - B)}$ and $H_- \equiv 2\gamma_L - B - 2\sqrt{\gamma_L(\gamma_L - B)}$, we have:

$$\frac{\theta_{P,n-x} - \frac{Q}{\gamma_L - B}}{\theta_{P,n} - \frac{Q}{\gamma_l - B}} = \frac{\frac{B\left(\theta_{P,1} + \frac{T}{\gamma_L - B}\right)}{4\sqrt{\gamma_L(\gamma_L - B)}} \left\{ \left[\frac{1}{B}(H_+)\right]^{n-x} - \left[\frac{1}{B}(H_-)\right]^{n-x} \right\}}{\frac{B\left(\theta_{P,1} + \frac{T}{\gamma_L - B}\right)}{4\sqrt{\gamma_L(\gamma_L - B)}} \left\{ \left[\frac{1}{B}(H_+)\right]^{n} - \left[\frac{1}{B}(H_-)\right]^{n} \right\}}. \tag{52}$$

As we let $n$ go to infinity to solve for the most informative partition, we obtain:

$$\frac{\theta_{P,n-x}-\frac{Q}{\gamma_L-B}}{\bar{\theta}-\frac{Q}{\gamma_l-B}}=\left[\frac{2\gamma_L-B+2\sqrt{\gamma_L\left(\gamma_L-B\right)}}{B}\right]^{n-x}\left[\frac{B}{2\gamma_L-B+2\sqrt{\gamma_L\left(\gamma_L-B\right)}}\right]^{n}, \quad (53)$$

because $\lim_{n\to\infty}\left[\frac{2\gamma_L-B-2\sqrt{\gamma_L(\gamma_L-B)}}{B}\right]^{n-x}=0$. From (53), we obtain:

$$\theta_{P,n-x}-\frac{Q}{\gamma_L-B}=\left[\frac{B}{2\gamma_L-B+2\sqrt{\gamma_L\left(\gamma_L-B\right)}}\right]^{x}\left(\bar{\theta}-\frac{Q}{\gamma_L-B}\right), \quad (54)$$

which gives the cutoffs of the finest incentive-compatible partitions:

$$\theta_{P,n}-\frac{Q}{\gamma_L-B}=\left(\alpha_L\right)^{|n|}\left(\bar{\theta}-\frac{Q}{\gamma_L-B}\right), \quad with \quad n\in\{-\infty,....,+\infty\}, \quad (55)$$

where $\alpha_L=\frac{B}{2\gamma_L-B+2\sqrt{\gamma_L(\gamma_L-B)}}\in[0,1]$, with $B\equiv\frac{3}{4}\gamma_T+\frac{1}{4}\gamma_L$ and $Q\equiv\frac{3}{4}\left(\left(1-\gamma_T\right)\theta_T-\left(1-\gamma_L\right)\theta_L\right)$.

Finally, the quality of communication improves ($\alpha_L$ approaches 1) as $\gamma_T$ tends to $\gamma_L$. ■

**Proof of Lemma 6.** We start by ignoring the structure $\{C_L,C_T\}=\{0,1\}$. From Section 3.2.2, when $\mathbf{g}=\{L,T,1,1\}$, $P$'s expected payoff is given by (14) minus $2\epsilon$. Note that, if we set the cost of communication to zero, from (23)-(14)-(56), $P$ prefers 'direct communication' to 'indirect communication' and 'no communication'. When comparing (14) and (56), we have that, for $f=0$, the information loss caused by 'indirect communication' negatively affects $P$'s payoff from both units. To prove that $P$ incurs a loss from $D_T$, note that the information loss implied by 'indirect communication' generates both less adaptation and less external coordination within this unit. To prove that $P$ incurs a loss from $D_L$, note that 1) $\mathbb{E}\left((\mathbb{E}\theta_P)^2\right)\leq\frac{\bar{\theta}^2}{3}$, 2) the term that multiplies $\mathbb{E}\left((\mathbb{E}\theta_P)^2\right)$ in (56) is negative when $k_T=0$, and 3) the sum of the two terms that multiply $\mathbb{E}\left((\mathbb{E}\theta_P)^2\right)$ and $\frac{\bar{\theta}^2}{3}$ in (56) is equal to the term that multiplies $\frac{\bar{\theta}^2}{3}$ in (14). Thus, $P$ prefers 'direct communication' to any of the alternative communication structures for $f=\epsilon>0$, with $\epsilon$ set arbitrarily small.

We conclude the proof by establishing that $\boldsymbol{g}=\{L,T,1,0\}\succeq_P\boldsymbol{g}=\{L,T,0,1\}$. Under $\boldsymbol{g}=\{L,T,0,1\}$, elites' regulatory decisions and economic actions are:

$$r_L(L,T,1,0)=a_L(L,T,1,0)=\frac{3}{4}(1-\gamma_L)\theta_L+\frac{1}{4}(1-\gamma_T)\theta_T+\frac{3\gamma_L+\gamma_T}{4}\mathbb{E}_L(\theta_P|m_T),$$

$$r_T(L,T,1,0)=a_T(L,T,1,0)=\frac{3}{4}(1-\gamma_T)\theta_T+\frac{1}{4}(1-\gamma_L)\theta_L+\frac{2}{3}\gamma_T\theta_P+\frac{3\gamma_L+\gamma_T}{12}\mathbb{E}_L(\theta_P|m_T),$$

where $m_T$ denotes the message sent by $A_T$ to $A_L$. Equilibrium messages can be computed by following the procedure shown in Lemma 5. From $\alpha_L$ (as defined in the proof of Lemma 5) and $\gamma_L \geq \gamma_T$, the quality of communication between elites is higher under $\boldsymbol{g} = \{L, T, 1, 0\}$ than $\boldsymbol{g} = \{L, T, 0, 1\}$.Because the elite who attaches the higher value to $\theta_P$ is the least informed, and because quality of communication decreases, we have that $P$'s expected loss is larger under $\boldsymbol{g} = \{L, T, 0, 1\}$ than under $\boldsymbol{g} = \{L, T, 1, 0\}$. ■

**Proof of Proposition 2.** Parts $a)$ and $b)$ follow from Lemma 4, Lemma 6, and Proposition 1. The threshold $\tilde{k}$ is computed by comparing $P$'s expected payoff under *L-Integration* with 'indirect communication' to $P$'s expected payoff under *Separation* with 'direct communication'. The computation of $\tilde{k}$ differs from that of $\underline{k}$ in the proof of Proposition 1 only because of the costs of communication. The inclusion of these costs implies that $\underline{k} < \tilde{k}$. ■

# Appendix B Additional Computations

$P$'s expected payoff under *Separation* and '*indirect communication*', $U_P(L, T, 1, 0)$, is as follows (see Online Appendix Section A for details):

$$\begin{aligned}
&-\left\{\frac{k_L}{2}\left[\left((1-\gamma_P)-\frac{3}{4}(1-\gamma_L)\right)^2+\frac{1}{16}(1-\gamma_T)^2\right]\right. \\
&\quad+\frac{k_T}{2}\left[\left((1-\gamma_P)-\frac{3}{4}(1-\gamma_T)\right)^2+\frac{1}{16}(1-\gamma_L)^2\right] \\
&\quad\left.+\left(\frac{k_L}{4}+\frac{k_T}{4}\right)\frac{1}{4}\left[(1-\gamma_L)^2+(1-\gamma_T)^2\right]\right\}\frac{\theta^2}{3} \\
&\quad-\left\{\frac{k_L}{2}\left(\gamma_P-\frac{2}{3}\gamma_L\right)^2+\frac{k_T}{2}\gamma_P^2+\left(\frac{k_L}{4}+\frac{k_T}{4}\right)\frac{4}{9}\gamma_L^2\right\}\frac{\bar{\theta}^2}{3} \\
&\quad-\mathbb{E}\left(\mathbb{E}_T(\theta_P)\right)^2\left\{\left(\frac{k_L}{18}+\frac{k_T}{2}\right)\left(\frac{3}{4}\gamma_T+\frac{1}{4}\gamma_L\right)^2+\left(\frac{k_L}{4}+\frac{k_T}{4}\right)\frac{4}{9}\left(\frac{3}{4}\gamma_T+\frac{1}{4}\gamma_L\right)^2\right. \\
&\quad\left.-2\left(\frac{3}{4}\gamma_T+\frac{1}{4}\gamma_L\right)\left[\frac{k_L}{6}\left(\gamma_P-\frac{2}{3}\gamma_L\right)+\frac{k_T}{2}\gamma_P+\left(\frac{k_L}{4}+\frac{k_T}{4}\right)\frac{4}{9}\gamma_L\right]\right\}-f,
\end{aligned} \tag{56}$$

where (with $\alpha_L$ defined in the proof of Lemma 5):

$$\begin{aligned}
\mathbb{E}\left((\mathbb{E}_T\theta_P)^2\right)=\frac{1}{4}\Bigg[&\left(1+\frac{\alpha_L(1-\alpha_L)}{1-\alpha_L^3}\right)\bar{\theta}_P^2-\left(1-\frac{3\alpha_L(1-\alpha_L)}{1-\alpha_L^3}\right)\left(\frac{\theta}{\gamma_L-\gamma_T}\right)^2 \\
&\times\left(\frac{(1-\gamma_L)^2}{3}+\frac{(1-\gamma_T)^2}{3}-\frac{(1-\gamma_L)(1-\gamma_T)}{2}\right)\Bigg].
\end{aligned} \tag{57}$$