Chapter 8 Building a State: Genoa's Rise and Fall

Many contemporary countries face the challenge of building states that effectively promote political stability, curtail political violence, and foster economic prosperity. Late medieval Europe witnessed a wave of attempts to create such states, particularly in the form of the city-states of northern Italy (see, e.g., Waley 1988). No microanalytical examination of this process of state building has been conducted, and its lessons have not been uncovered.

The city-state of Genoa emerged from obscurity to become one of the wealthiest cities in Europe, but its history was characterized by frequent intracity political violence and later also by relative economic decline. This chapter provides a microanalytical examination of the historical process of state building in Genoa, explicitly studying the polity as an equilibrium outcome in which actors can choose between predatory and economic behavior.

Two perspectives dominate the study of the relationships between political institutions and economic prosperity, neither of which adequately accounts for Genoa's experience. The first perspective assumes the existence of a predator-ruler, a ruler with a monopoly over coercive power. According to this view, promoting prosperity entails building institutions that enable the ruler to commit credibly to respecting property rights.[1] This perspective cannot be applied to the city-state of Genoa, which had no de facto ruler with or without a monopoly over coercive power at the time it was established.

The second, neo-Hobbesian, perspective on state building assumes that the state reflects attempts by economic agents to advance their interests, as "the state produces order" and provides other public goods that benefit them (Hardin 1997, p. 23). Achieving these benefits requires institutions that mitigate the agency problems inherent in relationships between the economic players on the one hand and politicians and bureaucrats on the other (see Buchanan 1999; Barzel 2002).

Economic historians have implicitly invoked the latter perspective to explain the rise of the Italian city-states that were established as republics. The prevailing view, articulated by

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[1] See, for example, North (1981); Levi (1988); North and Weingast (1989); Root (1989); Olson (1993); Greif et. al. (1994); Barzel (2002); and Greif (2004b).

Robert Lopez, the great historian of the commercial expansion of the late medieval period, is that these city-republics were "governments of the merchants, by the merchants, for the merchants" (1976, p. 71). Yet the political violence that was endemic in late medieval Italian cities often occurred among those who were otherwise engaged in economic activity (Martines, 1972; Tabacco 1989). This suggests the limitations of this view. Why the residents of these city-states traded rather then fought, is something to be explained rather than taken as given. We need to study the process of building an effective state as one of institutional development that causes individuals who can engage in either economic or predatory behavior to become merely economic agents.

Genoa's experiment in state building suggests the importance of recognizing that those processes entail a transition from one set of self-enforcing institutions to another. State building usually does not begin with a clean institutional slate. Rather, it arises from a situation in which existing institutions influence the behavior of potential and actual political actors, that is, actors who can muster coercive power. Often central to these institutions are political actors organized in such forms as clans, tribes, aristocracies, religious groups, castes, communities, and armed groups. These organizations—social structures— and the rules, beliefs, and norms that generate political and other behavior within and among them constitute institutions that influence political behavior. The institutions that generate behavior within and among social structures inherited from the past are part of the initial conditions in state-building processes.

It is sometime important, as the comparative discussion in Chapter 6 indicates, to consider explicitly consider the institutional elements that influence the behavior of the members of a social structure and render it a cohesive whole. Yet, for simplicity of presentation and analysis it is often useful to treat such social structures as monolithic entities with preferences, resources, and abilities to make decisions and act upon them. The position taken here is to focus on the analysis of the institutional elements that influence behavior among social structures treating each of them as a monolithic entity.

The difficulty in providing such state-coordinated motivation is that joint mobilization of resources to tasks that were not undertaken before may well undermine the self-enforcing institutions that govern the relationships among these social structures. It can undermine them

without providing a Pareto-improving institutional alternative, particularly because once cooperation increases the available economic resources, these resources can be used to muster military ability. Anticipating or fearing this outcome, the social structures are willing to mobilize their resources only for tasks that will not reduce their welfare, given the existing institutions. The resulting coordinating state, in which each social structure can decide whether to mobilize its resources for the state, is weak. Its ability to act is limited, because a social structure will contribute only to tasks that do not alter the capacity of others to use their coercive power ex post to expropriate the resulting gains or gain additional powers and resources, thereby leaving the relevant social structure or its leaders worse off.

Without countervailing considerations or an institutionalized commitment to their welfare, the initial social structures will be only limitedly motivated to mobilize their resources jointly for tasks that have not been undertaken before. Hence building an effective state requires creating new institutions that empower it to impose an ex post allocation of gains.[2] Yet a powerful state can alter the distribution of resources and shift institutional and other powers away from the social structures inherited from the past. If these social structures are to help the state gain this power, they must believe that the state's power will not be used ex post to reduce their welfare. Even if the resulting state is effective and promotes order and prosperity, it does not necessarily mean that particular social structures will benefit. Thus it is necessary to create a limited state or government.

Social scientists have long recognized the problem in creating a *powerful yet limited* government, one that is given sufficient power to institute behavior but is prevented from abusing its power. The experience of Genoa indicates that creating even a limited government with power over the social structures inherited from the past is insufficient for creating a stable, effective state. Achieving this goal requires a strong yet limited state whose institutional foundations undermine the capacity of the social structures inherited from the past, or new ones that the state's functioning entails, to use coercive power against it or capture it for their benefit.

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[2] Recall that those higher up an institutional hierarchy have power over others in the sense of being able to dictate the institution that generates behavior among them. See section 2.1.3.

Genoa's success in mobilizing resources, promoting prosperity, and containing political violence depended on the extent to which its spontaneous and designed institutional foundations influenced responses to this challenge. Genoa's institutional foundations—that is, institutions that generated behavior among actual and potential political actors—reflected the constraints implied by institutional elements inherited from the past on the set of new self-enforcing institutions and the degree to which they motivated and enabled social structures inherited from the past to mobilize their resources and create a limited government.

The dynamics of the institutional foundations of Genoa were shaped by exogenous shocks, the degree to which these institutions were self-undermining, and local learning that led to their refinement. Initially, under the consular system, Genoa was a coordinating state with a limited ability to mobilize resources among its clans. Indeed, the institutional foundations of this state were self-undermining. Particular historical circumstance and learning induced and enabled the Genoese to create a more effective and powerful, yet limited, state. Economic prosperity and political stability were the result. Yet Genoa's institutions were still self-undermining, because the system of clans inherited from the past was reinforced and motivated to retain extrastate coercive power.

Economic historians hold that the economic growth of northern Italy's city-states during the late medieval commercial expansion had a lasting impact on the economic development of Europe. "[W]estern wealth began with the growth of European trade and commerce, which started in the twelfth century in Italy" (Rosenberg and Birdzell, 1986, p. 35). Although the economic aspects of the growth of these cities have been examined by Robert Sabatino Lopez and others, its political foundations, by and large, have been ignored. (Although see Greif 1994c; 1998c.) The Genoese experience, examined in this chapter, however, indicates that we cannot understand this growth, and more, generally, economic, political, and social outcomes in these cities without studying their institutional foundations.

Genoa's rich historical records, dating back to the republic's establishment, facilitate this analysis. Annals written by contemporaries offer a detailed account of the period, beginning with the First Crusade (1096–9). The *Codice Diplomatico della Repubblica di Genova* (*CDG*) contains numerous political and commercial documents from as early as 1056. Cartularies of

scribes, which include private contracts, such as commercial agreements, real-estate transactions, wills, and marriage contracts, are also available from this period. Together, these primary sources provide unusual resources for analyzing Genoa's history. I used them extensively, along with the many excellent secondary sources.[3]

In addition to considering important historical details, section 8.1 describes the importance of two clans, the Manecianos and the Carmadinos, to Genoa's state-building process. Section 8.2 then provides a model of interclan relationships aimed at exploring possible institutions that could have governed these clans' relationships. Section 8.3 combines the model's insights with the historical evidence to analyze the consular system, which provided the institutional foundation of Genoa from 1099 to 1154. Section 8.4 discusses the endogenous dynamics and the exogenous factors that first reinforced and then undermined this system between 1154 and 1194, leading to prolonged periods of civil war. Sections 8.5 and 8.6 examine the subsequent institution of the *podesteria*, which restored interclan cooperation in the short run but undermined political order in the long run. In concluding, section 8.7 reflects on the European and Muslim worlds' experiments in state building in the Genoese mirror. To facilitate the presentation, technical details are relegated to annexes 8.1, 8.2, and 8.3.

8.1 Contracting for a State

During the late medieval period, Genoa emerged from obscurity to become one of the largest and wealthiest cities in northern Italy.[4] Initially, Genoa's economy was based mainly on piracy (including organized large-scale raids). Later its economy was based on "privileged" long-distance trade, an important source of growth and prosperity in the pre-modern world. This trade

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[3] Regarding the value of Genoa' s historical sources, see in particular Face (1980); Abulafia (1977, pp. 6-24); Epstein (1984, pp. 5-24); and the introduction to Giovanni Scriba (1154-1164). The excellent work by Genoa' s historians, including Gabriella Airaldi, Eugene Byrne, Franco Cardini, John Day, Gerald W. Day, Steve Epstein, Richard D. Face, Diane Owen Hughes, Hilmar C. Krueger, and Teoflio Ossian de Negri, has contributed much to our knowledge of Genoa. This chapter builds on but at times disputes their analyses. See Greif (1994c, 1995, 1998c, 2004a) for these disputes and the many important details omitted from this chapter.

[4] Genoa' s rise, like that of northern Italy in general, cannot be accounted for by technological and economic factors (Pryor 1988; Reynolds 1929, 1931; Krueger 1987; Greif 2004a).

was privileged in the sense that the Genoese merchants benefited from commercial privileges abroad, in the form of ports, quarters, customs reductions, and legal rights that reduced the risk and costs associated with trade and provided the merchants with a competitive advantage over other merchants.

Rulers along the Mediterranean shores gave privileges to political units whose naval and military forces merited their support or neutrality.[5] Gaining support or neutrality in this manner became common in the eleventh century, following the decline of the Muslim and Byzantine military and naval forces that had dominated the Mediterranean. As a result, to gain privileges abroad and achieve commercial success, merchants depended on their state's ability and motivation to provide the necessary military power.

In eleventh-century Genoa, there was no state to organize forces to protect the city's merchants from piracy or to obtain privileges for them abroad. Although Genoa was part of the Holy Roman Empire, for various reasons, including the civil war in Germany, the empire was in no position to provide the Genoese with naval or military support.[6]

The residents of Genoa stood to benefit from organizing themselves politically and mobilizing their own military and naval forces. They had much to gain from appropriate governance of a (political) transaction: mobilizing economic and military resources in order to benefit from the provision of a public good in the form of public order and privileges. Indeed, shortly after 1096 the Genoese organized themselves politically and established a commune—a temporarily sworn voluntary association—headed by consuls who were elected in the *parlamentum* (the gathering of all Genoese with "full rights") for a limited period of time (*Annali* 1099, vol. I, p. 9).[7]

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[5] See Heyd (1868, 1885); Lopez (1938); Luzzatto (1961, pp. 73 ff.); Hicks (1969, pp. 49-50); G. Day (1988, pp. 5-6); Jacoby (1997); and Greif (2004a).

[6] See Tabacco (1989, chap. 4); Schumann (1992, chap. 4); and Airaldi (1983).

[7] See Hyde (1973, pp. 29-52); Donaver (1990 [1890]); Lopez (1937); Vitale (1951, p. 17; 1955, 1:3ff.); de Negri (1986, pp. 232-4); D. Hughes (1978); and G. Day (1988, pp. 72-3). Genoa's bishop (later an archbishop) lost his de facto political autonomy shortly after the commune was established (S.A. Epstein 1996, pp. 33-4).

The historical records reveal the economic motivation beyond this social contract. A consul had to swear "not to diminish the honor of [the] city, nor [its] profit[s]" and to labor for "our city, with regard to movable and immovable goods" (*CDG*, vol. I, no. 20).[8] The Genoese annals provide detailed information on Genoa's economic gains from having sent a fleet and an army for the First Crusade (*Annali* 1101-2, vol. I, pp. 20-1). That economic considerations motivated establishing and joining the commune is reflected in the fact that the ultimate punishment for refusing to participate in its activities was exclusion from its overseas trade (*CDG*, vol. I, no. 285).

In evaluating the effectiveness of the commune in promoting Genoa's economy, one has to identify the institutional foundations that generated behavior among Genoa's political actors. Doing so, as I argued in Chapter 7, benefits from identifying the institutional elements inherited from the past that may have exerted environmental, coordination, and inclusion effects on these institutions. In the case of Genoa, clans and their beliefs and norms were the institutional elements around which new institutions emerged.

By the late eleventh century, clans became important economic, social, and political entities in northern Italy following a long period of decline in central authority (Herlihy 1969, pp. 174-8). Two viscountal clans, the Manecianos and the Carmadinos, were particularly important in Genoa. These clans, descended from a tenth-century feudal viscount of the area, had the economic and military resources needed to build a state in Genoa. In the early days of the commune, they had the resources required to launch large-scale piracy raids and obtain

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[8] Regarding the Genoese consulate, see Vitale (1955), de Negri (1986); Pertile (1966); and S.A. Epstein (1996). Waley (1988, pp. 35ff.) presents a general discussion of the city-republics in northern Italy. The choice of a republican system governed by elected consuls may have reflected ideas and beliefs inherited from the Roman period. " Italian city-dwellers, by the close of the eleventh century, had had enough of classical learning and legal training to conceive of themselves as the Roman people in minatory, to call their chosen officers consuls, and to claim rights of self-government as their lawful heritage" (Hearder and Waley 1963, p. 43).

commercial privileges abroad.[9] The commune gained privileges on a substantial scale only when these clans cooperated and mobilized their resources toward that end.

The historical records suggest that members of these clans internalized the norms and shared the beliefs of the feudal era. During this time nobles aspired to become independent lords reigning over a particular locality; they considered military force a legitimate means of achieving this goal. Various Genoese nobles became independent lords outside Genoa, often through force provided by their clans (Greif 1998c, 2004a).

To what extent did these institutional elements curtail commercially beneficial cooperation in Genoa? If the clans mobilized their resources for the sake of profit, each of them would have been unwilling to do so unless it expected to gain from it. In the absence of third-party enforcement, and the commitment it enables, an allocation of gains agreed upon ex ante had to be self-enforcing ex post, although clans could use force to break agreements. Did the need for self-enforceability limit Genoa''s commercial expansion?

8.2 A Model of Mutual Deterrence

A model of mutual deterrence is useful for addressing these questions. (The detailed model appears in annex 8.1.) Consistent with the historical evidence, assume that there are two clans with infinite life-spans and that at the beginning of a period each clan decides whether or not to cooperate in piracy. These decisions are made simultaneously. Piracy raids cannot be launched against a polity from which Genoa had already gained privileges. (Privileges were given to prevent such raids; the credibility of Genoa's commitment not to raid was achieved in a manner detailed later.) This implies that gains from cooperation in piracy declined with the number of privileges. To capture that long-distance trade was the key to economic prosperity , the model assumes that gross income increases as the number of privileges rose.

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[9] On the genealogy of these clans, see Olivieri (1861); Belgrano (1873, tables XIX-XXVI and XXIX ff.); Byrne (1920, pp. 200-1); Cardini (1978); and G. Day (1988, p. 74). The Maneciano clan comprised the Spinula, Castro, Embriachi, Bruscus, and Vicecome families. The Carmadino clan comprised the Piper, Ususmaris, Lusis, and Carmadino families. Genoa' s third viscountal clan, the delle Isole (Belgrano 1873, table XXXVIII) was not active politically. Other clans allied themselves with these clans and sometimes even assumed leadership. These clans were thus often at the center of political factions. For simplicity, I ignore these issues here but discuss them at length in Greif (2004a).

Whether or not the clans cooperated in piracy, they shared the income from cooperating in piracy and from Genoa's privileges possibly in an unequal manner. After obtaining this income, each clan decides *in turn* how much of it to divert to sunk investment in military strength (which would last until it is that clan's turn to invest again in the next period).[10] Past investment in military strength becomes obsolete only when the new investment is made (so the military strength of the second clan that invests in a particular period still prevails when the first clan to invest makes its decision). Military strength is public information and can be used to defend one's clan or to attack another clan in order to gain control of the city. Immediately after investing in military strength, a clan can decide whether to attack the other.[11]

An attack is costly. If neither clan attacks, each obtains a payoff equal to its share of the income minus its expenditure on military strength, and this stage game is repeated.[12] If a clan attacks, each clan's probability of winning increases with its relative military strength. A winning clan becomes a "controlling" clan, which receives all future income from privileges, but both clans lose any gains from future joint piracy.

The commune was peaceful for many years following its establishment. There are thus historical reasons to consider initially subgame perfect equilibria in which interclan conflicts do not occur. There are also theoretical reasons to consider such equilibria, as we are interested in evaluating whether Genoa's clan structure hindered building a state that was effective in promoting political order.

Examination of the set of subgame perfect equilibria in which an interclan attack does not transpire indicates that mutual deterrence can maintain interclan peace. In mutual-deterrence equilibria, each clan is deterred from attacking the other by the self-enforcing belief that an attack

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[10] The investment is assumed to last one period, because it supported a clan patronage network. For simplicity, I ignore military investment for piracy.

[11] Sequential moves are at the center of Powell' s (1993) work on mutual deterrence. The assumption made to capture that clans moves were obviously uncoordinated.

[12] The subsequent analysis is strengthened if either of the following historically reasonable assumptions is made: a clan reaps nonpecuniary benefits from gaining control of the city, and a defeated clan gets a positive continuation value.

will not pay, given the other clan's military strength, the cost of the attack, and the implied loss from forgoing future joint piracy.[13]

Interestingly, peace based on mutual-deterrence equilibria provides a disincentive to acquire privileges. To show why this is the case, I extend the model to allow the number of privileges to be determined endogenously. Specifically, because acquiring privileges required the clans to cooperate, I assume that the number of privileges is the largest that both clans agreed to acquire and then ask if this number of privileges is smaller than the efficient (joint income-maximizing) number.

Analyzing this game indicates that under a mutual-deterrence equilibrium, peace comes at the price of economic prosperity. The number of privileges that each clan finds optimal to acquire if the mutual-deterrence equilibria are characterized by a positive investment in military strength is less than the efficient number of privileges (proposition 8.1). Intuitively, when considering acquiring an additional privilege, a clan must take into account the implied additional expense (political cost) required to ensure deterrence. Everything being equal, the additional privilege increases each clan's benefit from attacking the other. There is more to gain by capturing the polity but less to lose from forgone future cooperation in piracy. Hence the investment in military strength required to deter the other clan from attacking before gaining this additional privilege would no longer be sufficient.[14] Therefore, the optimal number of privileges for each clan is not one that equates the marginal economic benefit with the marginal economic cost (which, for simplicity, I assume to be zero). Instead, a clan's optimal number of privileges—the number that maximizes its net income—equates the marginal economic cost with the sum of the marginal economic and political costs.

A mutual-deterrence equilibrium with the efficient number of privileges maximizes each clan's *gross* payoff but does not maximize its *net* payoff (Figure 8.1). A mutual-deterrence

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[13] Many mutual-deterrence equilibria can prevail, each of which entails a different allocation of gains from piracy and privileges.

[14] A clan has more to gain and more to lose if it attacks another clan after gaining additional privileges. In cases in which the clan was previously indifferent to attacking or not (as indicated by the other clan' s need to deter attack by having a military force), everything else being equal, the increase in gain will dominate.

equilibrium with fewer privileges is optimal for a clan. In this mutual-deterrence equilibrium, the
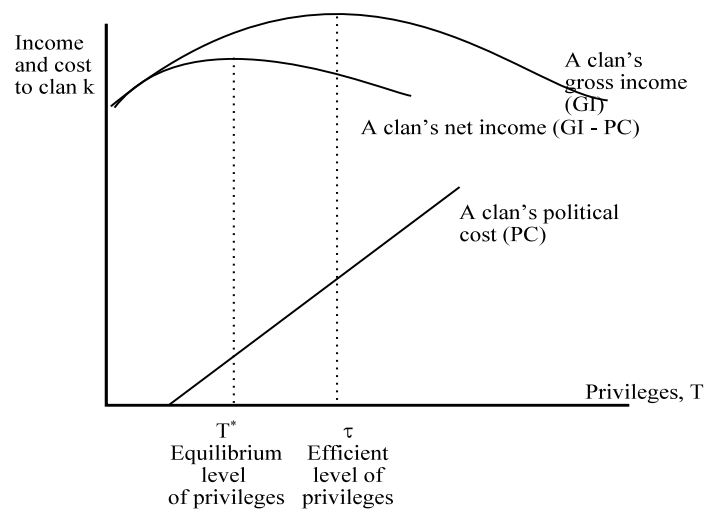

Figure 8.1. Equilibrium and efficient levels of privileges

marginal economic gain from additional privilege equals the marginal political and economic costs. This result holds whenever the mutual-deterrence equilibrium at the efficient level of privileges requires a positive military investment.[15]

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[15] Analytically, the results hold only at the efficient level of privileges. For ease of exposition, however, Figure 8.1 portrays the result as holding everywhere.

8.3 The Consular System, 1099–1154

If interclan mutual deterrence equilibrium indeed prevailed in Genoa, its institutional foundations reflected the coordination and inclusion effects of past institutional elements. Furthermore, the model suggests that the rise of an effective state was curtailed by clans' inability to commit to each other. Was this the case? Does the empirical evidence confirm the predictions of the model presented here? This section considers this evidence and establishes that the rise of an effective state in Genoa from 1099 to 1154 was hampered by the inability of the city's clans to commit to one another.

If a mutual-deterrence equilibrium prevailed, the analysis predicts that Genoa's economy would be biased toward piracy and away from privileged commerce, despite the contractual nature of the Genoese commune and the profitability of long-distance trade. Indeed, a contemporary traveler, Benjamin of Tudela, noted that the Genoese have "command of the sea and they build ships which they call galleys, and make predatory attacks upon Edom [the land of the Christians] and Ishmael [the land of the Muslims] and the land of Greece as far as Sicily, and they bring back to Genoa spoils from all these places" (1987, p. 62).[16] Privilege-based commerce was, in the words of historian Gerald W. Day, "unusually slow to develop" (1988, p. 6). Caffaro, the contemporary author of Genoa's annals, attributed this slowness to the clans' disincentives to mobilize their resources. According to him, "the city was asleep and was suffering from apathy and was like a ship wandering across the sea without a navigator" (*Annali* 1154, vol. I, p. 48).

Comparing Genoa's history with that of Pisa, Genoa's smaller neighbor to the south, provides more tangible evidence of the claim that the Genoese acquired fewer privileges than were possible and profitable because of their need to sustain a self-enforcing political order.[17] Like Genoa, the Pisan commune was established at the end of the eleventh century, but by 1154 it had already acquired privileges throughout the Mediterranean, from Byzantium to Spain. Genoa at the time had privileges only in the Crusader states, Sardinia, Barcelona, perhaps

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[16] Otto the bishop of Freising noted that the strength of the Genoese was "naval warfare" (1152-8, p. 126). For evidence of piracy, see *Annali* 1133-4, 1137-8, 1147-9, vol. I, pp. 36, 38, 105-19. *CDG,* vol. I, no. 75.

[17] For the history of Pisa, see Heywood (1921); Dufy (1903); and Rossetti et.al.1979).

Valencia, and some principalities in Provence. There is no indication that Genoa had any privileges in the important trading areas of Byzantium, Egypt, Sicily, or North Africa.[18]

This difference cannot be attributed to exogenous factors, such as opportunity, geography, or endowments. Pisa's location was not superior to Genoa's, and throughout the twelfth century Pisa's population was no more than 60 percent of Genoa's (Bairoch et al. 1988). Nor can the difference between Genoa and Pisa be attributed to "first mover advantage," that is, the fact that the Pisans began to acquire privileges earlier than the Genoese. The question is why Pisa moved first, not what transpired as a result.

Whereas Genoa's commercial expansion was curtailed by interclan mutual deterrence, this was not the case in Pisa. Consistent with the argument that mutual deterrence provides disincentives to acquire privileges, Pisa's polity was dominated by a single clan, the Visconti, composed of just three families. Until 1153 this clan held 65 percent of Pisa's known leadership posts (consuls and vicecomes). Almost every year one or more of its members led the commune, and Pisa's consuls had the right to nominate their own successors (Rossetti et al. 1979; Christiani 1962).[19] In Pisa the Visconti could have acquired privileges without worrying about how these additional privileges would have affected the intracommune balance of military power.

Internal peace prevailed in Genoa from 1099 to 1154. But as early as 1143, clans invested heavily in building fortifications to protect themselves from one another (*CDG*, vol. I, no. 128). They bought land and constructed walls and houses to form fortified enclaves with defensive towers.[20] Each clan established networks in which clients provided military and political

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[18] Pisa had privileges in Corsica (since 1091); Sardinia (before 1118); the Crusader states (since the First Crusade); Byzantium (since 1111); Spain (in Catalonia since 1113 and in Almeria since 1133); North Africa (in Bona, Tripoli, Sfax, and Bugia since 1133); Egypt (including a bazaar in Cairo since 1153 and a bazaar in Alexandria, where it had acquired rights much earlier); and probably several principalities in Provence (since 1113) (Heywood 1921, pp. 46-82, 108-15). On Genoa' s privileges, see *CDG*, vol. I, and *Annali,* various years, vol. I. In 1116 some Genoese consuls obtained private privileges in Sicily (*CDG*, vol. I, no. 27).

[19] The record of consular holdings is incomplete. In any case, the Visconti provided one or more consuls or vicecomes each year before 1155 (Heywood 1921, pp. 8, 253-4; Waley 1988, pp. 35-6).

[20] See, for example, Giovanni Scriba (1154-64) 342 and 505; Krueger (1957, pp. 270-1); and D. Hughes (1977, pp. 99-100; 1978, pp. 3-28). A contemporary traveler, Benjamin of Tudela, who visited

assistance in return for economic and political patronage.[21] This seemingly wasteful behavior in a peaceful period was logical if interclan relationships were governed by a mutual-deterrence equilibrium. Clans invested resources to maintain the interclan military balance. As Genoa's wealth increased, each clan had to invest more to maintain this balance.

The well-preserved information on Genoa's consular holdings provides a measure of the extent to which clans mobilized resources to gain privileges. Consuls were elected by members of the Genoese commune, most of whom were not members or clients of the main clans. The large number and military ability of these humbler Genoese made them a politically relevant force, as reflected, for example, in their right to approve taxation (*CDG* vol. I, no. 111). The economic interests of these commoners favored expanding privileged commerce. Yet in the early days of the commune, these Genoese were too weak—organizationally, economically, militarily, and politically—to pursue this objective without the leadership and resources of Genoa's main clans. They did have a say in electing consuls and, given their interests, only clans willing to mobilize their resources to gain privileges could be expected to participate regularly in the consulate.

If this was the case, the conjecture that a mutual-deterrence equilibrium governed interclan relationships suggests that initially Genoa's two main clans would jointly serve on the consulate. Theoretically, as long as the number of privileges is below what each clan finds optimal (T^* in Figure 8.1), both clans will find it advantageous to mobilize their resources to gain more privileges. Once a particular clan reaches the optimal number of privileges, it will cease cooperating in mobilizing its resources. The institution discourages such a clan from pursuing a welfare-enhancing policy. It would therefore not be represented in the consulate.

Asymmetry in the optimal number of privileges for a clan, in turn, is more likely to prevail if gains from existing privileges are also asymmetrically distributed. To see why this is the case, consider, for simplicity, the case in which one clan expropriates all the rent from

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Genoa between 1159 and 1173, described the use of the tower in interclan conflict (1987, p. 62). See Greif (2004a) for the reasons why other clans also built towers.

[21] For example, *Annali* 1164, vol. II, p. 16; 1179, vol. II, p. 192; 1192, vol. II, p. 227.

existing privileges but expropriates nothing from any new ones.[22] This clan's payoff will decline if new privileges are acquired, because it will have to increase its investment in military strength to maintain deterrence.[23]

Does the historical evidence confirm these predictions? Did the Genoese clans cooperate initially? Did the clan that gained more from existing privileges cease mobilizing its resources? The historical evidence indicates that this was indeed the case. Between 1102 and 1105, members of both the Maneciano and the Carmadino clans served on the consulate. Their joint mobilization of resources to acquire privileges is reflected in official documents.[24] About this time, Genoa participated in the First Crusade, thereby gaining privileges in the East.[25]

After the initial acquisition of privileges, interclan cooperation ceased until 1154 (although Pisa's actions suggest that acquiring more privileges was profitable). The Manecianos dominated the consulate until 1122, while the Carmadinos dominated it from 1123 to 1149 (Table 8.1).[26]

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[22] Formally, according to proposition 8.1, λ^k equals one with respect to existing privileges and zero with respect to additional privileges.

[23] Formally, using the notations developed in annex 8.1, the increase in gross income implies a higher investment in military strength (i.e., ICC^k implies that $\partial \psi^{-k}/\partial(I(T) + R(T)) > 0$) and thus clan -k's higher investment induces clan k to increase its number of supporters (i.e., ICC^{-k} implies that $\partial \psi^k/\partial \psi^{-k} > 0$). Not cooperating in the acquisition of privileges is optimal for a clan that prefers the current equilibrium over an equilibrium with more privileges but prefers the equilibrium with more privileges over challenging.

[24] See, for example, *CDG*, vol. I, nos. 24, 30. During this period Genoa sent piracy expeditions as well, but we do not know if the two clans jointly mobilized their resources to do so.

[25] On conquest by the Genoese, see Caffaro, *Libro della Liberazione delle Città d'Oriente*, which is part of the *Annali*, vol. 7, particularly pp. 155-60. The Maneciano held more consular posts during this period than any other clan; Ido de Carmadino, a member of the Carmadino clan, was consul in 1102-5, 1118, and 1119 (Table 8.1). For the Ido clan's affiliation, see Belgrano (1873) and G.Day (1988, p. 71). On privileges, see *CDG*, vol. I, nos. 15, 16, 17. For a discussion of this period, see Heyd (1885, l:149-50); Byrne (1920, 1928); and G.Day (1984).

[26] Before 1122 the Manecianos held more consular posts than any other Genoese clan (18 percent of the total); after 1122 the Carmadinos provided more consuls than any other clan (13 percent of the total). This change from domination by the Manecianos to domination by the Carmadinos was associated with a broader change in the composition of the consulate, suggesting that when either of these main clans dominated the consulate, smaller clans in their patronage networks served on the

That the Manecianos practically abandoned the consulate after 1122 is consistent with the conjecture regarding the importance of mutual-deterrence equilibrium if they also gained disproportionally from existing privileges. Indeed, after the First Crusade, members of the Maneciano clan were left to govern Genoa's ports, quarters, and towns in the East on the commune's behalf. Over time they gained de facto control over these territories. Throughout the twelfth century, they increased their independence, refusing to pay an annual lease to Genoa or to return the holdings to the commune for reinvestiture.[27] The Manecianos had little motivation to acquire additional privileges for Genoa. The Genoese responded by transferring the consulate to the Carmadinos.

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consulate as well.

[27] *Annali* 1099, vol. I (also quoted in *CDG*, vol. I, no. 9); *CDG,* vol. I, no. 47, 170, 246-8. For a discussion, see Heyd (1868, 1885); Rey (1895); Byrne (1920, pp. 202-5;1928); Cardini (1978); and Face (1952).

Table 8.1. Rank order of families or clans that together provided at least 50 percent of consuls		
Family or clan	*1099-22*	*1123-49*
Maneciano (clan)	1	
Rustico (family)	2	
Platealonga (family)	3	
Rufus (family)	4	
Roza (family)	5	
Pedicula (family)	6	
Carmadino (clan)		1
della Volta (clan)		2
Caschifellone (family)		3
Mallonus (family)		4
Gontardus (family)		5
Bellamutus (family)		6
Number of consuls	102	111

Note: The results are not sensitive to the choice of years (see Greif 2004a).

Source: Annali, various years*;* Olivieri (1861).

If the transfer of the consulate to the Carmadinos reflected different incentives to acquire privileges due to the Manecianos' control of privileges in the East, then the Carmadinos would have been likely to attempt to gain privileges in the western Mediterranean. This was indeed the case, although trade with the East was more lucrative. This accounts for an otherwise puzzling shift in policy in Genoa, which participated in the First Crusade (circa 1099) but not in the Second Crusade (1147-9). Instead of sending its navy and army to the East, the Genoese sent

them to the West to gain privileges in Spain. Genoa's policy depended on whether the Carmadinos or the Manecianos controlled the consulate: the Carmadinos concentrated on the West because of the Manecianos' de facto control over Genoa's privileges in the East. Without the Manecianos' support, Genoa failed to acquire significant new privileges throughout this period, a result that is consistent with the argument that acquiring privileges required interclan cooperation.[28]

Genoa's self-enforcing polity under the consulate thus had three main characteristics. First, the beliefs associated with mutual deterrence governed the relationships between the two viscountal clans. Each was deterred from challenging the other militarily by the cost implied by the other's military strength and the lost benefits from future joint piracy. Second, the consulate itself constituted a means to coordinate clan behavior through their representative and mobilized the resources of the common Genoese to support Genoa's policy. Third, this consular system maintained peace and political order at the cost of commercial expansion. Because acquiring privileges decreased the gains from future joint piracy, it implied political costs—either the breakdown of political order or additional military expenses by each clan to maintain the balance between them. Too few privileges were therefore acquired during this period; the city-state of Genoa was no more than a "coordinating state" without power over the clans.

8.4 Exogenous Changes, Undermining, and Institutional Failure, 1154-94

Although trapped in an institutional equilibrium with a low level of privileges, Genoa's main clans nevertheless returned to cooperating in acquiring privileges after 1154. The change transformed Genoa's economy into one based on privileged commerce. Theoretically, this renewal of cooperation could happen even in the absence of an institutional change if the Genoese faced an unexpected parametric change, for example, increases in external military threats, which reduce the value of becoming a controlling clan (by reducing the gains from

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[28] *Annali* 1143, vol. I, p. 41; *CDG,* vol. I, nos. 122, 124, 125. Regarding the failed expedition to Spain, see Caffaro, *Storia della Presa di Almeria e di Tortosa*, which is part of the *Annali*, vol. I, and Krueger (1949).

winning an interclan military confrontation).[29] Such a reduction implies that a new mutual-deterrence equilibrium with a higher number of privileges is now optimal for both clans. Intuitively, a threat shifts the clan's net income line in Figure 8.1 upward (proposition 8.2).

Italians of the late medieval period recognized that an external threat could foster cooperation. An eleventh-century Milanese chronicler remarked that when his fellow citizens "lack external adversaries they turn their hatred against each other" (cited in Waley 1988, p. 117; Riker 1964 makes a similar observation in the modern context). The point here—that an external threat enables cooperation in dimensions other than (joint) confrontation of the external threat—is different.

In 1154 Genoa was subjected to an unexpected external threat from a German emperor. In that year, Frederick I Barbarossa's accession to the throne ended the civil war in Germany. The emperor, who was Genoa's de jure ruler, crossed the Alps with a large army, explicitly declaring his intention to reimpose the empire's control over the northern Italian cities.[30] A contemporary drawing in the *Annali* displaying the devastation imposed by Barbarossa on the city of Tortona in 1155 suggests how the Genoese perceived the emperor's intentions. Quickly they began building walls around their city.[31]

If mutual deterrence hindered interclan cooperation in acquiring privileges, theory suggests that this new external threat would have led to the interclan mobilization of resources to gain privileges. Indeed, in 1154 members of the Carmadino and Maneciano clans served jointly on the consulate for the first time in forth-nine years; between 1154 and 1162 the two clans held nearly the same number of consular posts (*Annali*, various years; Olivieri 1861). Furthermore, both clans were directly and jointly involved in acquiring privileges. Between 1154 and 1162 Genoa gained privileges in all the main trade centers around the Mediterranean. It reaffirmed its privileges in the Crusader states and acquired more in Spain, North Africa, Byzantium, Sicily,

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[29] For simplicity, the basic mutual-deterrence equilibrium analysis ignores this issue.

[30] See Munz (1969, pp. 119-20); Waley (1988, pp. 88-97). Otto of Freising (1152-8, pp. 126-8).

[31] *Annali* 1154, 1155, 1158, 1159, vol. I. Deterring an external threat was not necessarily costless, as assumed in the model, but including such costs would not have altered the model' s main results.

and several cities on the French coast.[32] For the nine years after 1155, Genoa's long-distance trade was higher than in that initial year and its record was fourteen times its initial level.[33]

History confirms the relationships between an external threat, joint mobilization, and commercial expansion that are predicted by the conjecture regarding the centrality and implications of mutual deterrence in the consular system. The greater external threat increased the number of privileges for which political order was self-enforcing and increased each clan's optimal number of privileges. The external threat was a substitute for the value of gains from future joint piracy and lower gains from capturing the city in maintaining mutual deterrence in Genoa. It thereby enabled Genoa's economy to transform itself structurally from one based on piracy to one based on privileged commerce.[34]

Despite its apparent success, the consular system was self-undermining. The system implied endogenous changes in various quasi-parameters that rendered the mutual-deterrence equilibrium self-enforcing for a smaller set of parameters. Additional privileges reduced the parameter set in which mutual deterrence was an equilibrium. Furthermore, the consular system did not render clans politically or socially less important. On the contrary, mutual deterrence fostered Genoa's clan structure by encouraging clan members to strengthen their military might and internal organization. The consular system was built on and reinforced clan structure. An individual's welfare depended on the strength of his clan, particularly because of the expectation that other clans also sought to benefit their own members.[35] "Far from loosening family bonds, urban association strengthened them lineage ties became more clearly defined, more firmly

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[32] See *Annali,* vol. I, pp. 1155-61; *CDG*, vol. I, particularly nos. 266, 268, 269, 270, 271; Krueger (1949, pp. 127-8); Lisciandrelli (1960, pp. 11-12); Byrne (1920); Vitale (1955, vol. 1, pp. 36-8); de Negri (1986, pp. 275-81); and G. Day (1988, pp. 86-99).

[33] Based on Giovanni Scriba, the only surviving Genoese cartulary from this period. No pre-1155 cartulary was preserved, nor is there one for the years immediately after 1164.

[34] Piracy did continue, however (see *CDG*, vol. III, nos.104-7).

[35] The historical records rarely describe friction within clans, although it sometimes occurred. For example, in May 1144 Ugo Embriaco swore not to commit any hostile acts against Willielmus Embriaco and to discipline himself in order to restore good relations between them (*CDG*, vol. I, no. 133).

patrilineal and more frequently invoked" (D. Hughes 1978, p. 107). Individuals may have been socialized as clan members first and citizens of Genoa second. In particular, the consular system motivated clans to instill the norm of protecting their clans by force and the appropriateness of using violence to achieve political and economic ends. A mutual-deterrence equilibrium is by definition based on deterrence—an opponent's expected violent response increases the expected cost of using violence against him. The institution thus strengthened a culture of violence.

This undermining process became prominent when the external threat suddenly seemed to recede permanently. In 1162 Barbarossa appeared strong and Genoa agreed to provide the emperor with a fleet to conquer Sicily in 1164. In that year, however, civil war resumed in Germany and the Veronese League was established in Lombardy to fight the emperor. The fleet the Genoese had prepared for the Sicilian campaign was ready but, to the apparent surprise of the Genoese, the emperor failed to come with his army. (Annali 1162, vol. I, pp. 88-90; 1164, 1165, vol. II, *CDG,* vol. I, no. 308, vol. II, nos. 3-5).

By 1164 Genoa's external threat could no longer constrain its clans by decreasing the benefit of gaining in an interclan conflict. At the same time, Genoa now had more privileges than it had in the past, implying that controlling the consulate was more profitable than it had been in 1155.

Theoretically, a weakened external threat and a larger gain from controlling the consulate implied a higher payoff to becoming a controlling clan. In other words, a change in an exogenous parameter led to a change in the number of privileges, a quasi-parameter. The change in the quasi-parameter meant that once the exogenous parameter returned to its original level, returning to the previous institution could no longer have been feasible. A higher level of privileges implies a smaller set of parameters for which interclan deterrence is an equilibrium (annex 8.2) for a given division of gains from privileges among the clans. This would not have been the case had the consular system altered other quasi-parameters—such as the identity affiliation of clan members or their patronage networks—to reinforce itself. In fact, the consular system had the opposite impact on these quasi-parameters.

If a mutual-deterrence equilibrium no longer exists (for a given allocation of income between the clans), the model predicts that clans would confront each other militarily. This

conclusion does not change qualitatively if the model is extended so that the interclan division of income is determined endogenously. Such a model must include the possibility that if a particular mutual-deterrence equilibrium no longer exists, one clan may find it more profitable to agree to a smaller share of the income, avoiding the cost of a military confrontation. The problem is that an allocation of income for which another mutual-deterrence equilibrium exists is unlikely to be acceptable to both clans.[36] The new allocation has to be both acceptable to both clans ex ante and self-enforcing ex post, despite the link between income and military strength. If, for example, clan 1 finds it profitable to challenge at the existing income allocation, it will not accept a new allocation that gives it a lower income share. Clan 2, however, will not accept any new allocation that gives it a share that is so low that it prefers military confrontation. There may not be a new allocation that is acceptable ex ante and self-enforcing ex post, especially given the relationship between military strength and income. Any allocation that gives clan 1 a higher income share will add to its military strength relative to clan 2. Hence although clan 1 will have less to gain from challenging given the new allocation, it will also be more likely to have the upper hand in a military confrontation. In the context of Genoa, the clans could not restore a mutual-deterrence equilibrium by abandoning privileges and returning to a piracy-based economy. A clan advocating such a strategy would have aligned the Genoese at large with its opposing clan, because the common Genoese benefited from trade.

Theory predicts that Genoa's clans were more likely to challenge each other militarily in 1164, the year that a civil war broke out. The same families that had shared the consulate from 1154 to 1164 and cooperated in acquiring privileges fought one another in these civil wars.[37] Fighting occurred mainly in 1164–9 and 1189–94; between 1171 and 1189 the victorious Manecianos assumed control over the consulate.[38]

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[36] For a theoretical analysis in this spirit, see Fearon (1997).

[37] See, for example, *Annali*, vol. II, pp. 16, 28, 104.

[38] On fighting, see *Annali*, vols. I, II, various years. When the main clans fought, smaller ones (such as the Albericis and Roza) took charge. Genoa neither gained nor lost privileges between 1164 and 1189. Trade does not seem to have expanded (Giovanni Scriba; Obertus Scriba; Guglielmo Cassinese). Genoa' s weakness is reflected in its near defeat by Pisa (see Greif 1998c and 2004a for details).

The annals reflect on the causes and extent of the civil war. "Civil discords and hateful conspiracies and divisions had arisen in the city on account of the mutual envy of the many men who greatly wished to hold office as consuls of the commune" (*Annali* 1190, vol. II, pp. 219-20). The extent of the fighting was such that "in our city the evil increased and the civic contentions flared up more as the flame of the fire [and] rarely is it possible to see a citizen without any kind of armor, walking in the city" (*Annali,* 1160, vol. II, p. 63).

Genoa's civil wars reveal the limited ability of the consular system to maintain a privilege-based economy in the absence of an external threat. Instead of advancing the commune's economy, Genoa's main clans fought over the distribution of the spoils from past successes. Fostering Genoa's economic development and establishing political order required appropriate institutional development.

8.5 Self-enforcing Limited State: The Genoese *Podesteria*, 1194-1339

In 1194 an institutional development occurred that enabled the Genoese to end the civil war, further mobilize their resources, and attain a new level of economic prosperity. At the center of the new institution was a *podestà* (power), a non-Genoese who governed the city as its military leader, judge, and administrator, usually for one year.

Understanding this new self-enforcing political institution requires identifying several key factors: the agents and circumstances that led to the change, the options that were cognitively understood at that point, and the implications of institutional elements inherited from the past on possible new self-enforcing institutions. Indeed, the transition to the new institution reflects local learning that past institutions entailed and the coordination and inclusion effects of past institutional elements.

The transition to the *podesteria* occurred when Genoa faced a severe external threat that increased the cost of the rivalry between the Carmadinos and Manecianos for both. In 1194 Emperor Henry VI, the son of Frederick Barbarossa, demanded that Genoa provide naval assistance to help him attack Sicily. Failure to do so would have alienated the emperor, jeopardizing Genoese claims to the privileges the emperor had promised them in Sicily. It would also have allowed Genoa's rival, Pisa, to grow stronger by gaining these privileges. To stand up

to this external threat without incurring the high costs of refusing the emperor's request, the Genoese clans needed to mobilize their resources jointly.

The threat by the emperor, most likely, made such mobilization possible. As in1154, the external threat implied that joint mobilization was an equilibrium for a larger set of parameters than before. In 1154 the imperial threat shifted the Genoese into an equilibrium whereby the Carmadinos and Manecianos jointly mobilized their resources. In 1194 the Carmadinos refused to mobilize their resources, withdrew from the commune, and threatened to establish a rival one (*Annali* 1194, vol. II). The collapse of the consular system in 1164 seems to have made them leery of relying on external threats to sustain political order. As a result, this time they conditioned their participation on an institutional change. Such change came about in 1194, when the emperor's seneschal (agent) proposed that the consulate accept an imperial *podestà* to rule the city.[39]

The idea of ruling cities through *podestàs* also reflects institutional learning. During the first half of the twelfth century, Italian communes experimented with relying on a single administrator to manage their affairs. After Barbarossa's attempt to control the Italian cities failed, many communes continued to nominate civil officials, called *rectores*, *dominatores*, and *podestà*s, to act as administrators. These administrators, who were bound by the law, had police and judicial authorities.[40] In this respect, they were similar to the dictators of ancient Rome (Spruyt 1994, p. 143). In the 1190s Emperor Henry VI used nonlocal imperial vicars, or *podestàs*, to administer Italian cities on his behalf and secure his control.[41]

In Genoa the consulate, which was dominated by the Manecianos – Genoa's elite – agreed to accept an imperial *podestà,* and the Maneciano and the Carmadino clans participated in the conquest of Sicily. Subsequent events, however, reflect the divergence in interests between the emperor, who aspired to control Genoa through his *podestà*, and the Genoese, who wanted to

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[39] *See Annali* 1194, vol. II, pp. 231-2; Vitale (1955, I:51-5); Abulafia (1977, pp. 204-12); and G. Day (1988, p. 149).

[40] See Hyde (1973, pp. 100-1); Heywood (1921, p. 262); and Waley (1988, p. 42).

[41] See G.Day (1988, p. 147) and Heywood (1921, pp. 214 , 220).

retain their independence. During the Sicilian campaign, the imperial *podestà* died. Without consulting the emperor, the Genoese nominated another *podestà* (*Annali* 1194, vol. II, pp. 239). The emperor refused to recognize this *podestà* and threatened to treat Genoa as a rebellious city (*Annali,* 1194 vol. II, pp. 240-1). Unintimidated, the Genoese successfully confronted the emperor; they continued to nominate their own *podestà* and to use a *podestà* even when the emperor did not require them to do so.

Under the *podesteria* system, Genoa enjoyed a long period of relative political order, in which clans jointly mobilized their resources and the economy expanded rapidly. Political historians have long debated how the *podestà* was able to pacify and unite Genoa. Vito Vitale, Genoa's eminent historian, argues that the *podestà* was merely an administrator, hired to meet the need for professional administration and the desire to limit competition over consular posts (Vitale 1951, p. 9). According to him, internal tranquillity under the *podesteria* was sustained by the gains from cooperation. Other scholars, such as Heers (1977, p. 206), consider the *podestà's* military power, which allowed him to impose peace on Genoa's rival clans, as the key to enabling cooperation.

Both of these positions have weaknesses. If the *podestà* was simply an administrator and political order was sustained by the gains from jointly mobilizing resources, why didn't these gains guarantee cooperation under the consulate? If the *podestà*'s superior military ability fostered cooperation, why didn't he become a dictator or assume political control?

8.5.1 Creating a Balance of Power

Hiring the *podestà* was an organizational change: it altered the relevant intertransactional linkages by introducing an additional strategic player. The change altered the rules of Genoa's political game and hence the set of self-enforcing beliefs in the central transaction among the Genoese clans.

Understanding the nature and the implications of this change requires a contextual refinement (Chapter 7). Given the fundamental asymmetry, it is likely that the *podesteria* incorporated institutional elements inherited from the past, specifically, clans and their shared norms and beliefs. We can therefore develop a conjecture regarding the impact of the *podestà* by

considering a game whose rules and analysis recognize the impact of these institutional elements. We can then ask whether the introduction of the *podestà* can entail interclan cooperation and political order as an equilibrium outcome without subjecting Genoa to dictatorship. (For the formal analysis, see annex 8.3.)

Three conditions needed to be met to ensure interclan cooperation and political order as an equilibrium outcome without subjecting the city to a dictatorship. First, the *podestà* had to be militarily deterred from attempting to become a dictator and gaining political control. Second, the *podestà* had to be deterred from siding with one clan against another.[42] Third, the *podestà* had to deter each clan from challenging another in a larger set of situations than is otherwise possible. In other words, the *podestà* should reinforce interclan cooperation.

To prevent the *podestà* from becoming a dictator, he had to be too weak militarily to be able to fight Genoa's clans (and the Genoese more generally).[43] Making the *podestà* weaker than each clan also deterred him from siding with one clan against another. This type of collusion, in which the *podestà* provides military assistance to one clan in return for a pecuniary reward, is possible only if the clan can commit to reward the *podestà* after it assumes power. The stronger a clan is relative to the *podestà*, the less able it is to commit to do so, since the clan would never pay the *podestà* more than the cost of confronting him militarily. The weaker the *podestà*, the less the clan can commit to reward him for colluding against another clan. If the amount a clan can commit to pay the *podestà* is less than he would receive by not colluding, collusion is not an equilibrium outcome.

But how can a *podestà* who is weaker than each clan deter any single clan from attacking another? Limiting the *podestà*'s military ability relative to that of a clan implies that he can neither become a dictator nor collude with one clan against another. But such a limitation also reduces the *podestà*'s military ability to deter one clan from challenging the other.

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[42] Failed institutional refinement (section 7.2) after 1154 probably made the Genoese aware of this problem. Interclan cooperation after 1154 was facilitated by having the della Volta clan to balance the two viscountal clans. The della Volta clan married into both clans and was active in the consulate. Eventually, it became part of the Carmadino clan faction (see Greif 2004a).

[43] If these other Genoese were strong enough to deter the *podestà* by themselves, however, they would not have needed him to subdue the clans.

To see how each clan can nevertheless be deterred from challenging the other, we need to consider the incentives for a defending clan and the *podestà* to fight alongside one another against an attacking clan. More generally, we need to consider the conditions under which particular beliefs will be self-enforcing. These are the beliefs supporting the behavior that no clan attacks the other and the *podestà* does not collude with a clan that attacks another, fights against the other clan, and is assisted by the clan that was attacked.

The strategy combination associated with these beliefs is a subgame perfect equilibrium if the reward to the *podestà,* his military strength, and the other parameters are such that the following conditions hold. First, the *podestà* is sufficiently weak militarily and his wage sufficiently high that he is better off getting paid than colluding. Second, the *podestà* is sufficiently strong and clans are sufficiently equal in terms of military strength that he is better off fighting against a clan that attacked another than colluding, but only if the clan that was attacked also fights. Third, the *podestà*'s strength and the relative strength of the clans is such that each clan would fight alongside the *podestà* if attacked, and each clan would find it optimal not to challenge.

These conditions and the equilibrium strategy indicate how the *podesteria* system can provide the appropriate incentives—entail the required self-enforcing beliefs—to be effective in mitigating all of these problems. If the *podestà*'s military strength is reduced enough relative to his wage, the maximum reward that any clan can credibly commit to giving him following collusion will not be enough to induce him to collude. The *podestà*, expecting a clan that had been attacked by another to fight with him, prefers to confront the attacking clan rather than collude with it. The attacked clan is motivated to fight alongside the *podestà,* because if it does not, the *podestà*'s strategy implies that he will not confront the other clan. At the same time, the combined forces of the *podestà* and the clan fighting alongside it are such that it is optimal for a clan to fight with the *podestà.*

This analysis illustrates the delicate balance of power that must be maintained for the *podesteria* to promote political order. On the one hand, the *podestà* cannot be strong enough militarily to gain control himself or collude with a clan. On the other hand, he must be strong

enough so that his threat to fight alongside a clan if necessary eliminates any clan's motivation to challenge another.

8.5.2   The *Podesteria* System in Action

Theoretically, introducing the *podestà* could have been a self-enforcing institutional change that weakened the link between political order and the mobilization of clan resources. To address whether this was actually the case, we have to examine the rules and regulations governing the *podesteria* to determine if they match the theoretical conditions required for the *podesteria* to enhance cooperation and order.

To compensate the *podestà* for fighting if the need arose, the commune paid him generously (Vitale 1951, p. 25). Soldiers and judges whom the *podestà* brought with him supported him. His military force (possibly supported by Genoese who were unaffiliated with the main clans) was neither negligible nor considerable (Vitale 1951, p. 27). In the words of the annals, it was sufficient for the *podestà* to perform "the revenges against all those who were in anything rebellious in [the] Genoese republic he made all the guilty succumb. His shade and his boldness made the escort and the walk of everyone sure" *(Annali* 1196, vol. II, p. 253).

At the same time, the Genoese *podestà* was kept sufficiently militarily weak relative to the Genoese as a whole, to prevent him from becoming a dictator. Indeed, no *podestà* ever attempted to gain control over the city. Arguably, the *podestà* was kept sufficiently weak militarily in order to prevent collusion with a clan. Theoretically, a militarily powerful clan can credibly commit to provide only a small reward. Yet a clan and a *podestà* might adopt other commitment devices, such as marriages and joint economic ventures, that do not depend on relative military strength.

To prevent this from happening, various rules sought to prevent the *podestà*s from getting involved in Genoese society and politics. The *podestà* was selected by a council consisting of members chosen on a geographical basis to prevent any clan from gaining control. The outgoing *podestà* supervised the selection process. Neither the *podestà* himself nor his relatives (to the third degree) were allowed to socialize with the Genoese, buy property, marry, or manage any commercial transactions for themselves or others in Genoa. The *podestà*, as well as the soldiers

who came with him, had to leave the city at the end of the term and agree not to return for several years. To avoid developing special relations with any clan, each of which dominated a particular part of the city, the *podestà* rotated his residence among different quarters until special housing was built for him.

The *podesteria* was constantly refined, as local institutional learning revealed its deficiencies. To increase flexibility in administrative and political decisions and to align the *podestà*'s actions and Genoa's interests, after 1196 eight *rettori* or *consiglieri* (one per district) functioned as part of the administration and control. These officials were chosen to isolate the *podestà* from the influence of Genoa's main clans. Very few rectors were identified with one of the major families involved in the interclan wars of the twelfth century.[44] Shortly after this change, it was institutionalized that the *podesteria's* regulations had to be approved by a larger forum (a council). Major policy decisions had to be approved by the *parlamentum* of Genoese with "full rights." In 1229 Genoa's legal rules were codified to further reduce discretion and limit the clans' ability to establish patronage networks through their hold over legal matters (Vitale 1951, pp. 32-40; 1955, 1:56).

A *Podestà* was not given a free hand to mismanage the city. After the end of his term, a *podestà* had to remain in the city for fifteen days, during which auditors assessed his conduct. Deviations from the set of prespecified rules were punished by fines to be paid before his departure (Vitale 1951, pp. 27-8). A *podestà*'s concerns about his reputation probably gave him an additional incentive to prevent interclan confrontation, because many communes hired *podestà*s and a good reputation could help a *podestà* secure another post.[45] Similarly, the Genoese concerns with being able to hire a high-quality *podestà* in the future rendered their

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[44] See Olivieri (1861), years 1196, 1199, 1202, 1203, 1205, and 1206; Vitale (1951, p. 11); and G. Day (1988, p. 150-1).

[45] The *podesterias* of various cities differed in some important respects. In Pisa the *podesteria*, established in 1190, was not aimed at creating a balance of power (Rossetti et al. 1979; Cristiani 1962; Heywood 1921). The first *podestà* (1190-9) was the Count of Gherardesca, who served on behalf of Emperor Henry VI. By 1199 the Visconti clan, which dominated Pisa before 1190, had reestablished its control and subsequently controlled the *podesteria*. Only after a war in 1237 between the Viscontis and the de Gherardescas were non-Pisan *podestà s* nominated.

promise to pay him credible. *Podestà*s were recruited from a handful of Italian cities, and their contracts were read in front of each city's "parliament."[46]

In Genoa the end of the civil war and the increased ability to mobilize resources under the *podesteria* fostered political order and economic ascendance. The *podesteria* led to a period that was "indeed the Golden Age of Genoa" (Vitale 1955, p. 69). The *podesteria* lasted for about 150 years (to 1339), during which time it was challenged by temporary imbalances between clans, the political rise of the *popolo* (nonnobles), and the conflict between the pope and the emperor. Still, the *podesteria* retained the same basic structure throughout its history, functioning as a nonpartisan balance of power and administrative and judicial authority.

In 1195 Genoa was peaceful for the first time in many years, and the Genoese reaffirmed their control over the smaller cities around them. In the next hundred years*,* Genoa freed itself from the rule of the Holy Roman Empire; defeated Pisa, its commercial rival in the western Mediterranean; and was on the verge of defeating Venice, its commercial rival in the eastern Mediterranean (Vitale 1955; Donaver 1990 [1890]). It acquired extensive privileges in the Mediterranean and the Black Sea (Vitale, 1951, chap. 2-3).

During this period, Genoa enjoyed spectacular economic growth. In the years immediately following the introduction of the *podesteria* (1191-1214), the value of long-distance trade grew at an annual rate of at least six percent a year compared to an annual growth of three percent between 1160 and 1191. By 1314 the value of Genoa's trade was more than forty-six times that in 1160.[47] A contemporary source estimated that Genoa was the richest city in northern Italy (Hyde 1973).

Genoa's population also exploded during this period. Between 1050 and 1200 the population doubled in size. Between 1200 and 1300 it increased by 230 percent (Bairoch et al.

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[46] The community responsibility system, discussed in Chapter 10, also strengthened the credibility of the promise.

[47] These calculations are based on all the available cartularies from this period: Giovanni Scriba, Obertus Scriba, Guglielmo Cassinese, Lanfranco Scriba, and Giovanni di Guiberto. See also Sieveking (1898, p. 67); J.Day (1963, p. XVI). See Greif (1994c, 1998c, 2004a).

1988, pp. 43, 49).[48] During the same periods, the population of Venice grew about 50 percent. By 1300 Genoa was second in size only to Venice, whose population was about 10 percent greater than Genoa's.

8.6 The *Podesteria* as a Self-Undermining Institution

The *podesteria* fostered interclan cooperation, political stability, and economic growth. It was a self-enforcing institution: the belief that any attempt by a clan to gain political dominance by using force was futile deterred clans from doing so, and the belief that a clan could gain from cooperation without the risk of losing its rewards through military confrontation motivated cooperation.

Yet like the consular system, the *podesteria* was also self-undermining and, hence, it came under strain at the end of the thirteenth century. It restrained interclan warfare but did not eliminate interclan rivalry. Central to the success of the institution was the fact that clans had roughly similar military strength, so that a relatively weak *podestà* could be pivotal to one clan's victory over another. No clan could afford to become too weak relative to another, while each could have gained from being strong if another clan became temporarily weak. The *podestà* himself was motivated not to allow one clan to become weak either, as his compensation was conditional on no clan dominating Genoa at the end of his term. As we have seen, the system was set to ensure that no clan would be able to commit to pay to *podestà* his promised remuneration if that clan gained control over Genoa. Hence as the city grew more prosperous, the punishment that would be imposed on a rebellious clan was bounded, while the gains from rebelling were increasing.

Under the *podesteria*, clans were still motivated to invest in acquiring the military capability to attack other clans, fortifying their residences, establishing patronage networks, and socializing their members to internalize the norm of revenge.[49] The Genoese continued to retain

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[48] No population estimates for either city are available for 1100.

[49] Mutual deterrence makes a culture of revenge—socializing a norm of revenge—rational ex ante, but the resulting feuds are costly ex post. A vendetta may be rational ex post, however, if a clan's failure to take revenge induces other clans to believe that it is easy "prey," leaving it worse off than if it

their clan identity rather than identifying themselves with the city as a whole. Indeed, the *podesteria* had no mechanism for reversing the legacy of the civil war, which fostered interclan animosity and cycles of feuds or vendettas.

These feuds, which began after the civil wars, curtailed interclan interactions that might have weakened the bonds among clan members or strengthened interclan social and economic ties.[50] They were so violent that clans approached the pope for the right to build family churches, arguing that it was too dangerous for them to frequent public churches. Indeed, vendetta killings took place even in churches (D. Hughes 1978, p. 112). Business transactions, like prayers, were increasingly conducted in private. In the cartulary of Giovanni Scriba (1155-64), 88 percent of overseas contracts were written in public places, such as churches and markets. In contrast, in the cartulary of Obertus Scriba (1186), 90 percent of such contracts were written in private places, mainly merchants' residences.[51]

As Chapter 6 notes, the incentive for each clan to develop a patronage network and the access of all city residents to Genoa's lucrative overseas trade also contributed to undermining the *podesteria*. It entailed more wealth accumulation by nonclan members than otherwise would have been the case. Over time these families organized themselves to form their own armed political factions. Similarly, clans sought to increase their power by creating *alberghi*. *Alberghi* were clanlike social structures whose purpose was to strengthen ties among members of various families through formal contracts and the adoption of common surnames, usually that of the *albergo*'s most powerful clan. By the fifteenth century, the city's politics and economics were dominated by about thirty *alberghi,* each containing five to fifteen lineages.

In the short run, these changes did not render Genoa's *podesteria* ineffective, but over time it became self-enforcing over a smaller range of situations. After 1311 the city attempted to

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had participated in a costly vendetta. Indeed, termination of a feud was a public matter (see, e.g., *Annali* 1169, vol. II, p. 112).

[50] See, for example, *Annali* 1190, II, p. 220; 1193, II, p. 228; 1203, III, pp. 28-9; 1187, II, pp. 204-5; 1203. For a first-rate account of the experiences of other Italian cities in constraining their violent nobles, see Martines (1972).

[51] This distinction does not reflect a composition effect in the sense of capturing the activities of merchants who differ from each other along such attributes as wealth. (Greif 2004a).

restore political stability by having a strong military ruler, either an external one, such as the king of Germany, to whom the city submitted itself in 1311, or an internal one (a doge). After 1339, however, the *podesteria* was no longer self-enforcing. The city was torn by intense interclan strife, or one Genoese clan (with or without the support of Genoa's external foes) waged war against Genoa from abroad. In the next 200 years there were thirty-nine revolts and civil wars (S.A. Epstein 1996, appendix). Genoa declined economically, because it was unable to offer naval and military support to its commercial outposts abroad or prevent the devastation of its own agricultural hinterland.

In 1381 Genoa was defeated by Venice. In a sense this defeat was preordained, although not sealed, during the twelfth century. It was then that particular self-enforcing yet self-undermining institutions established themselves. They had a lasting impact on the city's political, economic, and social history.

Ironically, the defeat led to organizational changes that brought about institutional development that isolated property from the peril of political military conflicts within Genoa. This organizational development reflects an unintended consequence of Genoa's economic progress and interclan competition. Economic prosperity and wealth transfer to nonclan members in return for support implies that various families, which did not belong to Genoa's main clans, were able to acquire substantial economic and military resources. Genoa, before being defeated by Venice in 1381, borrowed heavily from these families, which probably differed from the old feudal clans by being more interested in economic success than political control. Unable to pay its debt after the defeat, Genoa ceded control over various tax-bearing sources to its local creditors. These creditors organized themselves in a self-governed entity, the Bank of San Giorgio, which over time came to administer most of the towns and cities in the Genoese dominion.

Like the merchant guild examined in Chapter 3, the Bank of San Giorgio was an organization that linked transactions among Genoa's many internal creditors. It enabled them to coordinate their responses and impose their decisions on one another. Over time the bank became so powerful that it was able to secure the property rights of its members and secure it in periods of political violence. Niccolò Machiavelli, writing in 1532, noted that whoever gained political

control over Genoa had to respect the rights of the bank, "as it possesses arms, money, and influence" and abusing its rights entailed "the certainty of a dangerous rebellion" (1990, p. 352).

Only in 1528, when Andrea Doria established an aristocratic republic similar to that of Venice, was Genoa able to achieve lasting political stability. At that late date, however, the political and economic situation around the Mediterranean prevented Genoa from restoring its past glory. Ironically, this very inability may have made a Genoese republic feasible again.[52]

8.7 Concluding Comments

This conclusion discusses the two central issues of the chapter: Genoa's historical experience and the processes of state building. It then turns to the general insight the analysis provides regarding distinct trajectories of state development in Europe and the Muslim world. Specifically, it notes that in Europe the large, kin-based social structures that hinder the formation of effective states were already declining by the late medieval period. This was not the case in the Muslim world, however.

8.7.1   The Genoese Experience: Institutions and Building Effective States

Understanding Genoa's political, economic, and social history required considering the institutions that constrained violence within the city and fostered growth-enhancing policies. Genoa's history was shaped by these institutions whose details, and hence effectiveness reflected more than the functions they fulfilled. The details of these institutions also reflected institutional elements inherited from the past. Clans, and the beliefs and norms that shaped their objectives and motivated their behavior, exerted coordination and inclusion effects on Genoa's institutional development, which was based on the need to maintain mutual deterrence among clans and motivate them to mobilize their resources to advance Genoese commerce.

In the early days of the commune, the consulate provided a means for coordinating the behavior of the clans, but it had no power to impose its decisions on them. Peace prevailed but prosperity was curtailed because mutual deterrence implied a wedge between the level of

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[52] See, for example, Donaver (1990 [1890], pp. 86ff.) and S.A. Epstein (1996, chap. 5).

privileges that was economically efficient and the level that was an equilibrium outcome. For a period following 1154, an external threat promoted an interclan mobilization of resources. The threat implied that each clan had less to gain from militarily challenging others so that all clans could better commit to refrain from attack following commercial expansion. Genoa's economic structure was thus transformed into one based on privileged trade.

Economic prosperity and the other implications of the consulate, however, undermined the self-enforceability of Genoa's institutional foundations. Clans were motivated to invest in coercive power and individuals identified more with their clans than with the city of Genoa. Mutual deterrence gradually became an equilibrium in a smaller set of parameters. Once the external threat unexpectedly subsided, peace was no longer an equilibrium outcome and Genoa descended into civil war.

It took thirty years and a particular historical circumstance for a new self-enforcing political institution—the *podesteria*—to be established. The transition to the *podesteria* reflects a recognition of institutional failure, the increased external threat, the process of learning about possible alternatives, and, most likely, appropriate leadership. The relationship between the old and the new institution, however, reflects the fundamental asymmetry and the consequent impact of past institutions on subsequent ones. The *podesteria* was built around institutional elements inherited from the past, incorporating Genoa's clan structures and their beliefs and norms.

Yet, for the first time the Genoese state had independent power over the clans. The *podesterià* was a self-enforcing institutional change that increased the set of parameters in which interclan mutual deterrence was self-enforcing. Because the *podestà* had coercive power and decision making ability, however, he needed to be appropriately motivated to imply the desired outcome. The *podesterià* endogenously motivated him to confront a challenging clan, forgo colluding with any single clan, and refrain from using his coercive power to abuse rights or gain control over the city. The *podesteria* system thus represented a form of limited government.

In the long run, however, the *podesteria* failed to sustain political order. Like the consular system, the *podesteria* was self-undermining. Clans still had an incentive to acquire military power and shape their members' identities as clan members rather than as Genoese citizens. Military power remained the means by which various social groups advanced their causes and the

podestà had no incentive to change Genoa's underlying clan structure. Eventually he failed to keep the balance of power among Genoa's various rival groups and the system collapsed.

To understand Genoa's political, economic, and social history we had to examine its polity as self-enforcing. Arguably, a similar analysis is required for understanding the relative success or failure of other past and present polities. Thus, we have to move beyond the common political economy analysis that takes the state as given and focuses on rules governing elections, collective decision making, and the behavior of the state's agents. We similarly have to move beyond assuming that the state is endowed with coercive power. Instead we have to study the factors influencing the acquisition and use of coercive power in the society. In other words, we have to study polities as self-enforcing.

8.7.2   Violence, Institutions, and Prosperity

Both the predator-ruler and the neo-Hobbesian perspectives assume that the existence of a state implies that it has a monopoly over coercive power. Genoa's historical experience highlights the limits of this premise. Institutions influencing the acquisition and use of coercive power - coercive constraining institutions - are central to the process of building a state and its economic implications. In an effective, welfare enhancing state these institutions render coercive power productive as it is being applied to prevent the use of coercive power for the purpose of welfare reducing redistribution of resources. In Genoa, this was achieved by having a *podestà* with the coercive power to check the Genoese clans whose coercive power, in turn, limited his ability to abuse rights using his power. As we have seen, however, this was insufficient to guarantee long term prosperity as the *podesteria* failed to undermine the clan structure. Studying the processes of state building while explicitly specifying the relationships between violence, institutions and prosperity, will enhance greater understanding of the failures and successes of these processes.

Indeed, the analysis of Genoa highlights the limitation of even the intuitive assertion, implicit in both the predator-ruler and neo-Hobbesian perspectives, that peace always promotes economic prosperity while violence always undermines it. The impact of order or its absence depends on the institutions rendering peace or violence as equilibrium outcomes.

Peace prevailed under the consulate in Genoa. Yet, analyzing the mutual deterrence that underpinned it reveals that it was only partially successful in fostering prosperity. The beliefs associated with mutual deterrence discouraged the clans from taking economically productive actions because to do so would have undermined the self-enforceability of peace. Peace came at the price of limiting prosperity. (For a general analysis of this phenomenon, see Bates, et. al., 2002.)

Conversely, political violence in Genoa was not always detrimental to economic prosperity. The Bank of San Giorgio provided coordination and aligned the interests of Genoa's debt holders who directly controlled much of the city's private and public assets. The bank enhanced the ability of asset holders to credibly commit to use their economic and coercive power to retaliate following abuse of their property rights. The bank seems to have been a component of an institution, possibly similar to the one examined in Chapter 4, that deterred abuse of rights by those who fought for political control over Genoa.

More generally, Genoa's experience supports the claim that a central challenge to state building is the ability to motivate the pre-existing social structures to mobilize their military and economic resources to create an effective state. Providing motivation is challenging because the process of state building can undermine the institutions that maintain political order among these social structures, as well as the social structures themselves. It may not be coincidental that contemporary states with major ethnic and tribal cleavages find it difficult to establish democratic, peaceful, and egalitarian polities (Collins 2004).

An external threat can increase the set of parameters in which cooperation among social structures is self-enforcing, thereby facilitating beneficial cooperation (Greif 1998c). The lack of an external threat in the postcolonial period may well have helped thwart the foundation of effective states in contemporary Africa (Bates 2001). Genoa illustrates, however, that the politically beneficial implications of such threats depend on two factors. First, the inability of one social structure to collude with the external power against the another social structure. Second, the institutions prevailing during the period of threat must undermine, rather than reinforce, these social structures, so that political order will be maintained once the threat recedes.

Genoa's history also underscores that processes of state building involve more than reforming political institutions by implementing the rules that prevail in effective Western states for electing leaders and collective decision making. When and where such rules emerged endogenously, they reflected an equilibrium in the relationships among the political actors. They were followed by the political agents because they were part of a corresponding self-enforcing institution. (Greif 2004b.) Attempts to transplant Western political rules elsewhere for the purpose of building effective, welfare-enhancing states is therefore insufficient. Building effective, welfare-enhancing states requires making a transition to new self-enforcing institutions. Creating institutions associated with such states amounted to replacing one self-enforcing institutional equilibria with another.

One can postulate that the role model provided by the European experience increasingly facilitate meeting this challenge. The relative success of the Western state has influenced beliefs, norms and aspirations elsewhere in the world in a manner that makes it easier for Western political rules to become an equilibrium outcome. Similarly, economic globalization and urbanization have undermined kin-based social structures that often obstruct building an effective state.

In any case, successful transitions to new institutional equilibria are challenging. Those whose support is crucial must be motivated to do so and this requires an assurance that they will be better off, ex post, than if they objected to it. (E.g., Fernandez and Rodrik 1991; Roland 2000; Lau, Qian, and Roland 2000). A state capable to influence payoffs ex post can potentially provide these assurances. Such powerful state, however, can provide them credibly only if its power is limited in the sense that it can credibly commit not to abuse it. In addition, to enhance welfare, such state has to be an equilibrium outcome without resorting to economically inefficient distribution policies. Finally, for an effective, welfare-enhancing state to persist, its institutional foundations must become self-enforcing in a larger set of parameters and able to adapt efficiently to changing circumstance. This is a tall order.

8.7.3 Social Structures and States in Europe and the Muslim World

The ease of and means for beneficial institutional transitions - as the histories of Genoa and Venice illustrate - depend on institutional elements - particularly social structures and the associated beliefs and norms - inherited from the past. In the case of Genoa, kin-based social structures limited the ability to building an effective state. More generally, such structures contributed greatly to the failure of the late medieval European experiment of creating effective states. (Tabacco 1989; Waley 1988.) In the long run, however, the emergence of effective states in Europe may have been facilitated by the relative weakness of kin-based social structures. Tribes or clans were not central to European political and economic institutions after the late medieval period.

Indeed, even by the late medieval period, Europe had already evolved toward a society with weak kin-based organizations. The tribes that had existed in the medieval period, for example, were no longer effective social structures. This is well reflected in the observation that the dominant response to the absence of an effective state in late medieval Italy was not to resort to a societal organization based on tribal or other innate groups. Instead, Italy established city-states, or communes of individuals unrelated by blood.

This relative decline of a kin-based organization of society began in the medieval period and reflected the actions of the church, an interest-based social structure. For ideological or self-serving reasons the church, from as early as the fourth century, weakened European kin-based social structures. This was achieved by such policies as prohibiting marriages among kin (sometimes up to the seventh degree), encouraging the donation of one's inheritance to the church, advocating consensual marriages, and condemning practices that enlarged the family, such as polygamy, divorce, and remarriage. (Goody 1983).[53] Such policies remained in force for centuries. In 1059, for example, an encyclical required that 'if anyone had taken a spouse within the seventh degree, he will be forced canonically by his bishop to send her away; if he refuses, he

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[53] For an extensive analysis of the relative importance of the extended family in the past and the present in various parts of the world, see Goody (1983); Mitterauer and Sieder (1982); Korotayev(2003); Bittles (1994). For the profitability of these prohibitions to the church, see Goody (1983) and Ekelund et. al. (1996). See also Stark (1996) for other means the church employed. In addition, as is well known, the process through which, and policies adopted by the tribes that conquered the Western Roman Empire encouraged social integration.

will be excommunicated" (Goody 1983: 135). Many of these policies, such as monogamy, remained characteristics of the European family.

By the late medieval period, kin-based social structures were no longer at the center of European institutional complexes. The rise of alternative, non-kin-based social structures in such forms as communes, guilds, fraternities, and universities, is a hallmark of this time, reflecting the already substantial relative decline of kin-based social structures. To achieve various goals and fulfill various functions that were traditionally performed by kin-based social structures (or the state), the Europeans increasingly, and perhaps uniquely, relied on self-governed, interest-based social structures. More broadly, as further elaborated in Chapter 12, the relative absence of both kin-based social structures and an effective state in late medieval Europe led the Europeans to progressively rely on corporations: non-kin-based, self-governed, interest-based social structures.

The rise of these social structures, in turn, further undermined those that were kin-based by offering alternatives. For example, there was less need to rely on an extensive family for a social safety net or protection. Moreover, like the church, other interest-based social structures undermined kin-based structures that threatened them. The Italian city-states, for example, sought with greater success than Genoa to limit the strong noble clans still present from the past (Tabacco 1989; Waley 1988). Because the church had an interest in constituting itself as a corporation, it promoted a legal scholarship to define and sanction the legal status of corporations.(Berman 1983.)

Historical development similar to Europe's did not seems to have occurred in the Muslim world. While data are difficult to come by, it seems that large scale, kin-based social structures remained prominent. While Islam, as is well known, created a strong sense of common Muslim identity by advocating the ideal of a community of believers with equal rights, the umma. Indeed, by the eighth century, membership in this religious community no longer depended on particular political, ethnic, or tribal affiliations. Kin-based social structures in the form of tribes, clans, and lineages nevertheless remained central in the Muslim world. (E.g., Watt 1961; Cahen 1990; Rahman 2002; Rippen 1994; Crone 2004.)

Initially the Muslim community - composed mainly of members of Arab tribes - was particularly segregated along tribal lines. Over time, members of other ethnic groups less

segregated than the Arabs along tribal lines, accepted Islam, leading to a relative decline in the importance of tribalism in the Muslim Middle East as a whole. Yet large-scale, kin-based social structures, particularly tribes, ethnic groups, clans, and extended families, have remained important institutional elements.

Indeed, the political and military history of the Muslim Middle East reflects the continuous importance of tribes and ethnic groups. (E.g., Saunders 1965; M. Hodgson 1974, vol. 1; Kennedy 1986; Lapidus 1989; Greif 2002; Crone 2003, 2004.) This outcome reflects this region's historical heritage and the initial weakness of the state. "The tribal tradition [that dominated the Muslim world during its first two centuries] ... owed its character to the absence of a state... kinsmen hung togther so as not to hang separately" (Crone 2004, p. 51).

Ironically, however, tribalism also reflected the strategy that the early Caliphs adopted for the purpose of preserving the umma. It was initiated by the first Caliph, Abu Bakr, who faced revolts known as the 'wars of apostasy' following Muhammad's death in 632. Abu Bakr fought the successionists into submission with the support of the Arab tribes that remained loyal to him. In addition, however, he initiated a policy that strengthened tribal affiliation.

Abu Bakr and his successor, the Caliph 'Umar I (634-644) began a Muslim military expansion outside the Arabian Peninsula and divided the spoils of war among various members of the umma. The perpetual yearly reward for supporting the umma was given to individuals, but within their tribal context, meaning that a man was rewarded according to his tribal affiliation. Moreover, a system was set up to retain separation between the conquered non-Arab population and their Arab rulers and among various Arab tribes. The Arabs established garrison towns where they settled and each neighborhood was inhabited by a particular tribe. (AlSayyad 1991.) Separation from the local population was fostered by prohibiting Arabs from buying land outside Southern Arabia.

The first ruling dynasty of the Muslim empire, the Umayyads, continued this policy but complemented it by treating various ethnic groups within the Muslim world differently. Although conversion to Islam was encouraged by a preferential tax treatment, for example, new converts were institutionally discriminated against. They could not hold positions of power, could not serve in the respectable cavalry, and were treated unequally when the spoils of war were

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distributed. Even the term used to refer to new, non-Arab converts to Islam reveals the extent to which the umma was associated with the Arab ruling elite at this point. A convert was called mawla (freed slave, literally 'reborn'), a term of pre-Islamic origin that was used in Southern Arabia to denote individuals who were late-comers to the tribe, not ascribed members.

This strategy of 'divide along social lines, compensate for support, and rule' took advantage of the existing social differentiations within the emerging Islamic Empire to create a militarily strong coalition. It differentially rewarded members of distinct social structures such as ethnic groups, tribes, and clans. At the same time, the strategy also strengthened existing social divisions and hindered social integration of the umma. Social differences, even among Arab tribes, remained intact and were expressed in constant internal military conflicts during the Umayyad period (that lasted until 751). Non-Arabs retained their separate social identities and in some cases, this social differentiation was expressed and regenerated through religious division. Non-Arab Muslims, such as the Berbers and Persians, adopted particular versions of Islam that expressed their dissatisfaction with the system and allowed them to find religious justification for their objections.

More generally, the later political history of the Muslim world is characterized by conflicts among groups of distinct ethnic origins, such as Arabs, Persians, Berbers, Turks, and Kurds. Rulers found it difficult to gain support outside their ethnic or tribal groups as is reflected in their large reliance on slaves (mamaluks) bought as children and raised to be soldiers and administrators. "The exclusive personal loyalty of the slave or client-soldier," who was not a member of the existing innate social structures, was "vital to the political supremacy of rulers" in the pre-modern Muslim world (Lapidus, 1989, p. 148).

Marriage patterns are perhaps the best indication of the differences in social structures in the two societies. In general, consanguineous marriages - those among individuals of the same blood - constitute a means for preserving the clans, lineages, and the extended family. These marriages were and still are very common in the Muslim Middle East and North Africa. In this region, the number of marriages contracted between persons who are related as second cousins or closer is the highest in the world. In this generation and in each country in the region such marriages number from twenty to fifty percent of the total (Bittles 1994; This rate is currently

less than one percent in the West).[54] The practice may have predated Islam, reflecting tribal heritage and the desire to preserve control over family wealth, but it was encouraged by the Muslim inheritance law (Hodgson, 1974, vol. 2, p. 124). Under it, an individual has relatively little control over the distribution of his assets after his death. In this context, consanguineous marriages enabled keeping the family wealth intact. The Muslim inheritance law also strengthened the extended family in general by mandating that one's assets be divided among many relatives. (Schacht 1982 [1964], pp. 169-74.)

Innate, kin-based social structures - larger than the nuclear family - such as ethnic groups, tribes, and clans - still dominate many countries in the Middle East but the tribal divisions and clan associations that prevailed in Europe in the medieval period disappeared long ago. Given the relationships between social structures and the process of state building, it may not be surprising that political developments in these two societies has been remarkably different.[55]

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[54] English court rolls indicates that in late medieval England cousins were not even likely to interact much with each other. See Razi (1993).

[55] Different sources of political legitimacy also played an important role. See Greif (2002) and chapter 6 above.

Annex 8.1: A Formal Model of Genoa's Political Institution

Consider two clans, C^i and C^j with infinite life-spans and a discount factor of $\delta \in (0, 1)$. Suppose for the moment that the number of privileges is $T \in [0, \bar{T}]$ and that they generate total, per period income of $I(T)$. The stage game of this complete information game has two substages. In the first, both clans simultaneously decide whether to cooperate in piracy. Cooperation by both yields the gain of $R(T)$ and total income of $I(T) + R(T)$.[56] At the end of this substage, each clan k gets the share of $\lambda^k \in (0, 1)$ of total income. In the next substage, each clan (sequentially) has to decide on a sunk investment in military strength, ψ^k. This investment replaces that which was made in the previous period and which becomes obsolete when the new investment is made. This investment is subject to the clan's budget constraint, $\psi^k \leq \lambda^k [I(T) + R(T)]$. Investment in military strength is observable and is henceforth equated, for simplicity, with recruiting supporters.[57] After investing in military strength, and before the other clan's past military investment amortized, a clan can decide whether to "challenge" the other clan or not.

If neither clan challenges, the period ends, clan $k \in \{i, j\}$ gets a payoff of $\lambda^k[I(T)+ R(T)]-\psi^k$, and the stage game is repeated. If either clan challenges, an interclan war transpires. Each clan bears the cost of war, c, and stands to win with probability $s^{k,w}(\psi^k, \psi^{-k})$. The probability of winning is nondecreasing in the clan's own investment and nonincreasing in the opponent's

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[56] The analysis is robust—indeed strengthened—if we extend a clan' s utility functions to include benefits from social prestige and political control.

[57] For recent works on military deterrence, see Powell (1993); Bates, Greif, and Singh (2002), Grossman and Kim (1995); and Skaperdas (1992.

investment.[58] The winning clan becomes a "controlling" clan, gaining all the subsequent per period income from privileges, I(T).[59] The losing clan receives a continuation value of zero.

Following an interclan war, war against an external threat may transpire. To capture the impact of this external threat on interclan equilibrium relationships in a simple manner, I assume that before interclan military conflict the clans' joint military strength and their expectations of cooperation against the external threat are such that the impact of the external threat can be ignored. An external threat affects the net expected gains from being a controlling clan, which depend on its military investment, the likelihood of war, and the outcomes of such a war.[60]

Formally, assume that in every period after an interclan war (if one occurs), the controlling clan can invest in military strength after receiving that period's payoff. Following this investment, war against the threat may occur. The probability of such a war depends on the magnitude of the external threat, $\theta \in [0, \bar{x}]$ and the military strength of the controlling clan. Accordingly, we can define $\omega(\psi^k, \theta)$ as the probability of war when ψ^k is invested in military ability and $s(\psi^k, \theta)$ as the ex ante probability that either a war did not occur or that it occurred and the clan won. The probability $\omega(\psi^k, \theta)$ decreases in ψ^k and increases in θ, whereas $s(\psi^k, \theta)$

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[58] All functions are assumed to be continuous and differential. For a general discussion and examples of contest success functions, see Skaperdas (1996). The possibility of a tie within a given period can easily be incorporated into the model without changing its insights. Specifically, denote clan k's per period probability of winning as $S^{k,w}(\psi^k, \psi^{-k})$, which is the per period probability that clan k will win, allowing for ties. Define $s^{k,w}(\psi^k, \psi^{-k}) = S^{k,w}/(1 - \delta(1 - S^{k,w})(1 - S^{-k,w}))$. This function captures the probability that clan k will ever win and the implied reduction in the value of winning due to delay. An example for $S^{k,w}(\psi^k, \psi^{-k})$, which implies that $s^{k,w}(\psi^k, \psi^{-k})$ increases in the first argument and decreases in the second, is $S^{k,w}(\psi^k, \psi^{-k}) = f(\psi^k)/(f(\psi^k) + f(\psi^{-k})) - \epsilon$, where ϵ is in the interval [0,1], and $f(\psi^t) = \alpha(\psi^t)^m$, where $\alpha > 0$, $m > 0$, $t = k, -k$.

[59] In equilibrium, clans do not cooperate in piracy following a challenge.

[60] Indeed, a joint Carmadino-Maneciano front was a strong deterrent. As reported in the annals, in 1155 the emperor destroyed the Italian city of Tortona, " so that the [Italian] cities ... [will] pay a large homage to [him]. But the Genoese consuls did not want to give or to promise him even the value of one mite and meanwhile fortified all the castles. As soon as [the emperor] learned that the Genoese had prepared to war with such fierce expedience," he did not attack the city (*Annali* 1155, vol. I, pp. 54-5.) This suggests that the emperor could not have employed a divide-and-conquer strategy in Genoa, as the clans were united in opposing his rule.

increases in ψ^k and decreases in θ. At the limit, as $\theta \to 0$, $s() \to 1$ and $\omega() \to 0$. War against the threat costs c. If war does not occur or if the controlling clan wins, the game proceeds as before. Defeat implies a zero continuation payoff.

Consider a controlling clan k's time-discounted average expected payoff (henceforth, average payoff), $V^{k,c}(T, \theta)$,[61] which is the value function of

(OP)
$$\underset{\psi^k}{Max} \ (1 - \delta) \sum_{t=0}^{\infty} \delta^t [s(\psi^k, \theta)]^t \ [I(T) - \psi^k - c\omega(\psi^k, \theta)]$$ [62]

subject to the clan's participation constraint, $(1 - \delta)\Sigma\delta^t s()^t [I(T) - \psi^k - c\omega().] \geq 0$, and the clan's budget constraint, $I(T) - \psi^k - c\omega(). \geq 0$.

Because OP involves maximizing a continuous function over a compact set, a solution exists. I assume that the solution is an interior solution. Establishing that $V^{k,c}(T, \theta)$ is increasing in T and decreasing in θ is straightforward and intuitive. A controlling clan's payoff increases in its gross income, namely, its number of privileges, T, and declines in the magnitude of the external threat, θ. Clearly, a clan prefers to control a city with more profitable privileges and face less risk and investment for maintaining this control. Assume that a controlling clan finds it profitable to confront an external threat, that is, $\delta V^{k,c}(T, \theta; \psi^k) > c$. (Henceforth the endogenous variable ψ^k in $V^{k,c}(\bullet)$ is not explicitly denoted.)

Mutual-Deterrence Equilibrium with a Fixed Number of Privileges
A clan is deterred from challenging its opponent if the other clan's military investment is such that the net expected gain from challenging is less than that from not challenging. In a mutual-deterrence equilibrium, neither clan can gain from reducing its military investment or challenging the other clan.

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[61] For simplicity of presentation, I omit parameters not relevant to this stage of the analysis.

[62] Clans can differ in their military strength and in their investment in it. Hence the function s(). is not necessarily the same for both clans. For ease of presentation, I ignore this issue.

To consider the necessary and sufficient conditions under which a mutual-deterrence equilibrium can exist, suppose that no challenge has ever occurred, neither clan is expected to challenge, and clan $k \in \{i, j\}$ invests ψ^k in each period. In this case, clan k's average payoff, $V^k(\lambda^k, T; \psi^k)$, equals its net per period income, namely, $\lambda^k[I(T) + R(T)] - \psi^k$. If clan k expects to obtain this payoff each period, it would be deterred from challenging if this payoff is higher than the expected payoff from initiating interclan war.

Formally, clan k will not challenge if and only if the following inequality holds:

$$\delta V^{k,d}(\lambda^k, T; \psi^k) \geq \delta s^{k,w}(\psi^k, \psi^{-k}) V^{k,c}(T, \theta; \psi^k) - c(1 - \delta)$$

where $\delta V^{k,d}(\lambda^k, T; \psi^k)$ is the present value of the clan's average payoff under mutual deterrence in the next period and $\delta s^{k,w}(\psi^k, \psi^{-k}) V^{k,c}(T, \theta; \psi^k) - c(1 - \delta)$ is its net present value if it becomes a controlling clan in the next period, discounted by the probability that it would win the interclan war ($s^{k,w}(\psi^k, \psi^{-k})$) minus the (time-discounted average) cost of the war.

We are interested in the situation in which this inequality holds for both clans and neither can gain by reducing its investment in military strength. For this to prevail, condition 8.1 must be satisfied:

Condition 8.1: There exists ($\psi^{i,d}$, $\psi^{j,d}$) such that for $k \in \{i, j\}$,

A.   The investments are feasible: $\psi^{k,d} \leq \lambda^k[I(T) + R(T)]$

         and

B.   they maximize payoffs: $\psi^{k,d} \in \arg \max V^{k,d}(\lambda^k, T; \psi^k)$

subject to

C.   achieving deterrence: $\forall \psi^{-k} \leq \lambda^{-k}[I(T) + R(T)]$, $\psi^{-k} \geq \psi^{-k,d}$,

         $\delta V^{-k,d}(\lambda^{-k}, T; \psi^{-k,d}) \geq \delta s^{-k,w}(\psi^{-k}, \psi^{k,d}) V^{-k,c}(T, \theta) - (c + (\psi^{-k} - \psi^{-k,d}))(1 - \delta)$ [ICC^{-k}]

If condition 8.1 is satisfied, there is a feasible investment for each clan (A) that is the lowest investment (B) that will deter the other clan from challenging for any possible investment the other clan can make (C). If a (subgame perfect) mutual-deterrence equilibrium (λ^k, T) exists, condition 8.1 must hold. If it holds, this directly implies that such an equilibrium exists.[63] Specifically, if condition 8.1 is satisfied, the following strategy combination is a mutual-deterrence equilibrium (λ^k, T): if a challenge has never occurred, clan $k \in \{i, j\}$ cooperates in piracy and invests $\psi^{k,d}$ in military strength. The clan does not challenge if $\psi^{-k} \geq \psi^{-k,d}$ and challenges otherwise. Neither clan cooperates in piracy following a challenge. If clan k has ever won a challenge, it invests $\psi^{k,c}$ in preparation to confront the external threat.[64]

Efficiency Attributes of Mutual-Deterrence Equilibrium When the Number of Privileges Is Endogenous

Assume that income from privileges, I(T), increases and income from piracy, R(T), decreases in the number of privileges, T. (Specifically, $I'(T) \geq 0$ and $R'(T) \leq 0$.) Assume that the function I(T) + R(T) is strictly concave and has a unique maximum, which is the (economically) efficient number of privileges $\tau \in (0, T)$, $I'(\tau) + R'(\tau) = 0$. Hence the (economically) efficient mutual-deterrence equilibrium is τ. Clan k's optimal mutual-deterrence equilibrium maximizes its average payoffs, namely, $V^{k,d}(\lambda^k, T; \psi^k)$.

To evaluate if peace was achieved at the cost of commercial expansion, we need to determine whether the *efficient* mutual-deterrence equilibrium is also the *optimal* mutual-deterrence equilibrium for each individual clan. In other words, is cooperating to acquire the economically efficient number of privileges (that which maximizes total surplus) the best each

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[63] Because the forms of the utility and winning functions as well as the order of other parameters are unknown, I do not provide a general existence theorem.

[64] Neither clan cooperates in piracy with the other following a challenge, because it expects that the other would not do so either. This aspect of the mutual-deterrence equilibrium strategy is not essential to the main results. A more complicated analysis, based on a belief-dependent utility function, suggested by Geanakopolos et. al. (1989), indicates that a fear of revenge that endogenously emerges would have given the clans an additional motivation to avoid joint piracy if joint piracy provided one clan with a better opportunity to assault the other (a realistic assumption). Indeed, feuds characterized interclan relationships in Genoa after a military confrontation between them.

clan can do?[65] If the answer is no, we can conclude that, theoretically, the need to sustain political order in Genoa hindered economic efficiency. We can then use the model to identify the source of this inefficiency.

The interesting case is the one in which the efficient number of privileges entails a positive investment in military strength. Formally, a necessary condition for mutual-deterrence equilibrium (λ^k, T) to be characterized by a positive investment in military ability is the following: there exists a feasible investment for one clan that makes it profitable for that clan to challenge if the other does not invest, that is, for $k = i$ or j,

$$\exists\ \psi^k \leq \lambda^k[I(T) + R(T)] \text{ such that } \delta s^{k,w}(\psi^k, 0)V^{k,c}(T, \theta) - (c + \psi^k)(1 - \delta) > \delta V^{k,d}(\lambda^k, T, 0).$$

This condition is more likely to hold if the value of θ is lower (since $V^{k,c}$ increases in θ), c is lower, or δ is higher.

Proposition 8.1 establishes that when the efficient mutual deterrence equilibrium is characterized by a positive investment in military ability, it maximizes a clan's gross average payoff but not its net average payoff.[66]

Proposition 8.1

a.   Assume that mutual-deterrence equilibrium(λ^k, τ) exists, the clans' equilibrium investment in military strength, $\psi^{k,*}(\tau)$, is strictly positive (without loss of generality),

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[65] The question and analysis assumes that acquiring more privileges entails a transition from one mutual-deterrence equilibrium to another. It ignores possible hindrances to efficiency from the difficulties of such a transition.

[66] The result also holds qualitatively when $\psi^{k,*}(\lambda^k, \tau)$ is strictly positive to only one clan and there is no piracy. When piracy does not take place, the marginal political cost is positive for any mutual-deterrence equilibrium (T) with a positive investment in military strength if and only $(1 - \delta)/(1 - \delta s()) > \lambda^k$. In other words, for any δ and λ^k, if s(). (i.e., the probability of survival as a controlling clan is sufficiently close to one), the result holds. The marginal political cost is positive, since a high s(). implies that the gains from taking control increase by more than the expected loss from a failed challenge.

$\partial^2 s().⁄\partial\psi^{k2} < 0$, and $\partial^2\omega().⁄\partial\psi^{k2} > 0$ for $k = i, j$ (namely, $k = i$ and $k = j$). Then each clan's net average payoff is not maximized at τ.

b.   Assume that mutual-deterrence equilibrium (λ^k, T) exists for every T and the implied investment in military strength, $\psi^{k,d}(T)$, is strictly positive for $k = i, j$ (without loss of generality). Then if a clan's optimal number of privileges is not zero, its net average payoff is maximized in a mutual deterrence equilibrium (λ^k, T^*) such that $T^* < \tau$ and $\lambda^k \, \partial I(T^*)/\partial T = \partial\psi^{-k,d}(T^*)/\partial T - \lambda^k\partial R(T^*)/\partial T$.

Proof: At a mutual deterrence equilibrium (λ^k, T), clan k's optimal investment is such that the incentive constraint in condition 8.1, ICC^{-k}, is binding at the largest feasible investment for clan -k, that is, $\lambda^{-k}[I(T) + R(T)]$. This locally binding constraint implicitly defines ψ^{-k} as a function of T, that is, $\psi^{-k,d}(T)$. The most profitable mutual-deterrence equilibrium(T) for clan k is the one that maximizes its per period income in a mutual deterrence equilibrium, that is, $H(T) = \lambda^k[I(T)) + R(T)] - \psi^{k,d}(T)$. The first-order condition for maximization is

$$\lambda^k[\frac{\partial I(T)}{\partial T} + \frac{\partial R(T)}{\partial T}] - \frac{\partial\psi^{k,d}(T)}{\partial T} \geq 0.$$ Evaluated at $T = \tau$, this first-order condition holds if and

only if $\dfrac{\partial\psi^{k,d}(\tau)}{\partial T} \leq 0.$ The equilibrium investment in military strength, $\psi^{k,*}(\tau)$, increases in T if

$\partial V^{-k,c}/\partial T > \partial V^{-k,d}/\partial T$. By the envelope theorem,

$$\frac{\partial V^{-k,c}}{\partial T} = \frac{(1 - \delta)}{(1 - \delta s(.))}\frac{\partial I(T)}{\partial T}.$$ Similarly, $\dfrac{\partial V^{-k,d}}{\partial T} = \lambda^{-k}[\frac{\partial I(T)}{\partial T} + \frac{\partial R(T)}{\partial T}].$ Hence $\partial V^{-k,c}/\partial T > \partial V^{-}$

$k,d/\partial T$ if and only if $\dfrac{(1 - \delta)}{(1 - \delta s(.))}\dfrac{\partial I(T)}{\partial T} > \lambda^{-k}[\frac{\partial I(T)}{\partial T} + \frac{\partial R(T)}{\partial T}].$ Evaluated at $T = \tau$, the right-

hand side of the inequality equals zero, and the left-hand side is strictly positive. Hence the

equilibrium investment in military strength increases at $T = \tau$, that is, $\partial \psi^{k,d}(\tau)/\partial T > 0$, implying that the clans' expected utility is not maximized with the efficient number of privileges. As for the second claim, clan k's expected utility is maximized in a mutual-deterrence

equilibrium in which $\quad \lambda^k \dfrac{\partial I(T)}{\partial T} = [\dfrac{\partial \psi^{k,d}(T)}{\partial T} - \lambda^k \dfrac{\partial R(T)}{\partial T}],$ which is the required condition. Q.E.D.

This proposition implies that an inefficient mutual-deterrence equilibrium is more likely to exist if the external threat is weaker. Specifically, the expected value of being a controlling clan increases as the external threat weakens, implying a larger parameter set for which the efficient mutual-deterrence equilibrium is characterized by a positive investment in military strength, equivalent to having a positive number of supporters (recall that investing in military strength is equated with recruiting supporters).

Formally, at the limit, when $\theta \to 0$ (and hence $s() \to 1$ and $\omega() \to 0$ for $\psi^k = 0$), $c(1 - \delta) \to 0$, and $R(T) \to 0$ the equilibrium number of supporters must be positive if for $k = i$ or j, $\exists \ \psi^k \leq \lambda^k[I(T) + R(T)]$ such that $s^{k,w}(\psi^k,0) > \lambda^k$, that is, there is a feasible number of supporters that makes clan k's probability of winning, $s^{k,w}()$., larger than its share of the gains, λ^k, when the other clan has no supporters.

Proposition 8.2: Suppose that for $\forall \ T \in [0, \tau]$, a mutual-deterrence equilibrium(λ^k, T) with a positive equilibrium investment in military strength exists. For both clans, the number of optimal privileges, $T^*(\theta)$, is nondecreasing in θ.

Proof: Any reduction in $V^{k,c}()$. relaxes the mutual-deterrence constraints and makes more privileges optimal for both clans. Since θ directly affects only $V^{k,c}()$., to prove the proposition, it is sufficient to show that a controlling clan's expected utility decreases in θ. A controlling clan's expected utility is the value function of problem OP above defined earlier. To see that it is decreasing in θ, define $g(). = I(T) - \psi - c\omega(). \ (> 0)$ and recall that $\partial s()./\partial \theta < 0$ and $\partial \omega()./\partial \theta > 0$. These relations and the envelope theorem imply that

$$\frac{\partial V^{k,c}}{\partial \theta} = \frac{(1-\delta)\delta}{(1-\delta S(\cdot))^2}\frac{\partial s(\cdot)}{\partial \theta}g(\cdot) - \frac{(1-\delta)}{(1-\delta s(\cdot))}\frac{\partial \omega}{\partial \theta}c < 0. \quad \text{Q.E.D.}$$

Annex 8.2: Existence of a Mutual-Deterrence Equilibrium

What are the conditions under which a mutual-deterrence equilibrium does not exist? Condition 8.1 implies that such an equilibrium (λ^k, T) does not exist if one clan finds it profitable to challenge when the other clan invests all its resources in enhancing its military strength. That is, if for k = i or j, $\exists \psi^k \leq \lambda^k[I(T) + R(T)]$ such that for $\psi^{-k} = \lambda^{-k}[I(T) + R(T)]$, $\delta V^{k,d}(\lambda^k, T, \psi^{k,d}) < \delta s^{k,w}(\psi^k, \psi^{-k})V^{k,c}(T, \theta) - (c + (\psi^k - \psi^{k,d}))(1 - \delta)$.

The left-hand side of this inequality equals $\delta\{\lambda^k[I(T) + R(T)] - \psi^{k,d}\}$ and thus decreases with R(T), while the right-hand side increases with θ, since $\partial V^{k,c}/\partial \theta < 0$ (as established in the proof to proposition 8.2). Hence as R(T) and θ decrease, this condition is more likely to be satisfied.

At the limit, as $R(T) \to 0$, $\theta \to 0$ (implying that $s(). \to 1$ and $\omega(). \to 0$) and $\delta \to 1$, a mutual-deterrence equilibrium(λ^k, T) does not exist if and only if for k = i or j, $\lambda^k < s^{k,w}()$. for some feasible ψ^k and all feasible ψ^{-k}. That is, a mutual-deterrence equilibrium (λ^k, T) for the allocation λ^k does not exist if one clan has enough supporters so that its probability of winning a challenge is higher than its share in the income.

Annex 8.3: The Collusion and *Podesteria* Games

The Collusion Game

To what extent can a clan commit ex ante to reward ex post a *podestà* who provides it with military assistance? Denote by $v_i(m_j, m_k; m_i)$ the probability that player i (a clan or the *podestà*) will win a war against j and k, given respective military strengths of m_j, m_k, and m_i. The probability of i winning is declining in m_j and m_k and increasing in m_i.. (For ease of presentation, I omit the parameter m_i in the following equations.) If a player participates in a military confrontation, he has to bear a cost, c. V_i is the net present value to player i of controlling Genoa.

Assume that local clans gain more than a *podestà* does from controlling the city, that is, $V_i > V_p$ if player i is a clan.[67]

Consider what happens after a clan (say clan 1) and a *podestà* collude against the other clan and gain control over the city (Figure 8.2). The controlling clan has to decide what reward, $R_p > 0$, to give the *podestà*. Once this reward is announced, the *podestà* can either accept it or reject it and fight the clan for control of the city. If he accepts, the payoffs are $V_1 - R_p$ to the clan and R_p to the *podestà*. If he rejects it and fights, the expected payoff to each is the probability of winning times the value of gaining control minus the cost of war, namely, $(1-v_p(m_1))V_1 - c$ and $v_p(m_1)V_p - c$.
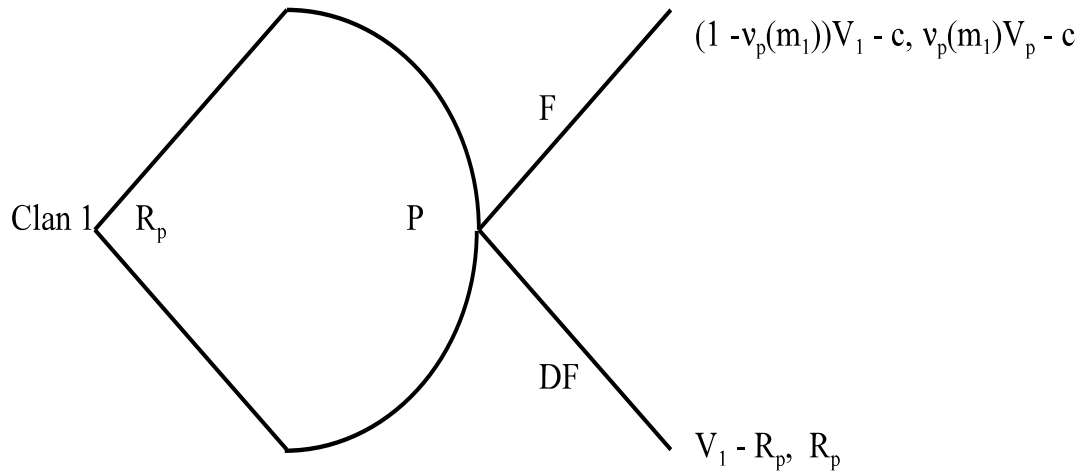

$(1 - v_p(m_1))V_1 - c, \; v_p(m_1)V_p - c$

F

Clan 1 / R_p P

DF

$V_1 - R_p, \; R_p$

Figure 8.2. The Collusion game

The clan will not find it profitable to offer an R_p higher than the one required to make the *podestà* indifferent between fighting or not, that is, $V_1 - R_p \geq (1-v_p(m_1))V_1 - c$. Hence it will offer $R_p \leq v_p(m_1)V_1 + c$. If the *podestà* receives a payment as great as the net expected value of fighting against a clan, namely, $R_p \geq v_p(m_1)V_p - c$, he will find it optimal not to fight. Thus in any

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[67] This assumption, as well as the one that the cost of war is the same for all players, is not essential to the result but simplifies the presentation. For simplicity, I ignore the clans' ability to invest resources in military strength, since this ability does not qualitatively alter the results.

subgame perfect equilibrium, the clan will not offer more than the amount required to make the *podestà* indifferent between fighting or not, namely, $R_p = v_p(m_1)V_p - c$. This implies that the only subgame perfect equilibrium is the one in which the clan offers $R_p = v_p(m_1)V_p - c$, while the *podestà*'s strategy is to fight if paid less than that amount and not to fight if paid at least that amount. The payoffs associated with this equilibrium are $V_1 - V_p^c$ to the clan and V_p^c to the *podestà*, where $V_p^c = \text{Max } \{0, v_p(m_1)V_p - c\}$.

The analysis implies that after collusion occurs, the *podestà*'s reward depends on his military ability.[68] Specifically, in any equilibrium, the *podestà* will not receive more than the net present value of militarily confronting the clan. Thus ex ante—before collusion occurs—a clan cannot credibly commit to ex post reward the *podestà* more than this amount. When $v_p(m_1)V_p - c \leq 0$, for example, the clan cannot make any credible promise to reward the *podestà*. The weaker the *podestà*, the weaker the ability of the clan to make its ex ante promise of a reward credible.[69]

The Podesteria *Game*

Limiting the *podestà*'s military ability (relative to that of a clan) implies that his military might, in and of itself, becomes less effective in deterring one clan from challenging the other. To see how a clan still can be deterred from challenging, consider two other problems: motivating the *podestà* to help a clan that stands to lose in an interclan confrontation and motivating a clan to fight alongside the *podestà*.

Let I_i be the per period income for clan i if no interclan military confrontation takes place, W the *podestà*'s wage, and δ the time discount factor.[70] The *podesteria* game reveals how the
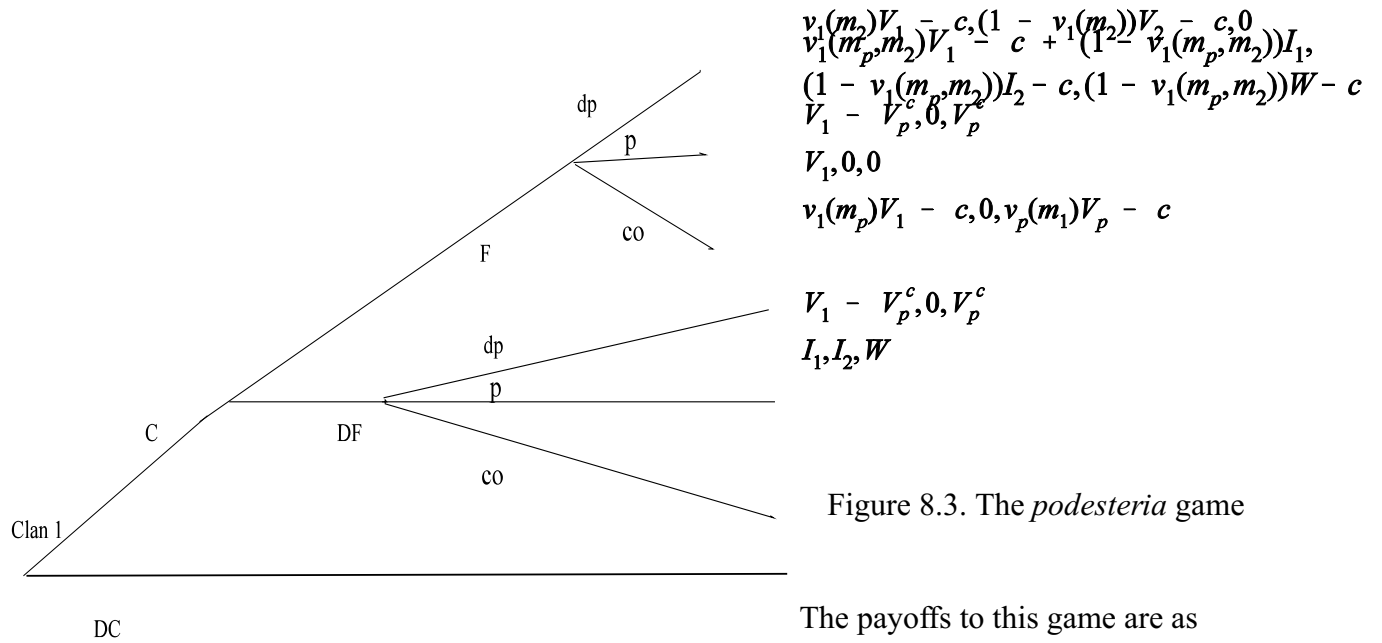
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[68] A similar commitment problem prevails in the relationship between clans and their supporters. In that case, their ongoing relations could help mitigate such a problem, something that is not feasible with an outsider.

[69] Introducing asymmetric information can strengthen this result. Suppose that there is asymmetric information between the *podestà* and the clan regarding the clan's military strength. In this case, a generous offer to the *podestà* will be made by a militarily strong clan, which will not have to compensate the *podestà* ex post. Hence the *podestà* is further deterred from colluding.

[70]It is implicitly assumed that the *podestà*'s reservation utility after assuming office is zero

interclan game can be altered by introducing a *podestà,* despite the need to limit his military strength (Figure 8.3).

This repeated game begins, without loss of generality, with clan 1 having to decide whether to challenge clan 2. If clan 1 challenges, clan 2 must choose between fighting and not fighting. In either case the *podestà* can respond by preventing clan 1 from taking control (an action denoted by p), by not preventing clan 1 (dp), or by colluding with clan 1 (co). If the *podestà* colludes with clan 1, I assume, for ease of exposition, that clan 2 cannot gain control over the city and that the *podestà* and clan 1 are playing the collusion game (Figure 8.3). Because the collusion game has a unique subgame perfect equilibrium, Figure 8.4 presents only the payoffs associated with this equilibrium.

dp

p

co

F

dp

p

C

DF

co

Clan 1

DC

$v_1(m_2)V_1 - c,(1 - v_1(m_2))V_2 - c,0$

$v_1^c(m_p,m_2))V_1 - c + {}^1(1 - v_1^c(m_p,m_2))I_1,$

$(1 - v_1(m_p,m_2))I_2 - c,(1 - v_1(m_p,m_2))W - c$

$V_1 - V_p^c,0,V_p^c$

$V_1,0,0$

$v_1(m_p)V_1 - c,0,v_p(m_1)V_p - c$

$V_1 - V_p^c,0,V_p^c$

I_1,I_2,W

Figure 8.3. The *podesteria* game

The payoffs to this game are as follows:

- If clan 1 does not challenge, the payoffs are (I_1, I_2, W) to clan 1, clan 2, and the *podestà* respectively, and the same game is played in the next period. If clan 1 challenges and clan 2 does not fight, clan 1 becomes the controlling clan. The associated payoffs are as follows: the *podestà* does not prevent the fight, the payoffs are $(V_1, 0, 0)$. If the *podestà* colludes, clan 1 rewards him with V_p^c (namely, the *podestà*`s payoff in the equilibrium of the collusion game). The payoffs are $(V_1 - V_p^c, 0, V_p^c)$. If the *podestà* attempts to prevent clan 1 from taking over, his payoff equals the net expected value of an attempt to gain control. The payoffs are $(v_1(m_p)V_1 - c, 0, v_p(m_1)V_p - c)$.

- If clan 1 challenges and clan 2 fights, the associated payoffs are as follows: the *podestà* does not prevent the fight, each clan's payoff equals the net expected value of being a controlling clan, while the *podestà* gets zero, that is, $(v_1(m_2)V_1 - c, (1 - v_1(m_2))V_2 - c, 0)$.[71] If the *podestà* colludes, as before, clan 1 assumes control. The payoffs are $(V_1 - V_p^c, 0, V_p^c)$.

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[71] The analysis holds if a *podestà* who did not prevent an interclan confrontation could challenge the clan that won it.

- If the *podestà* prevents the fight, clan 1 will either gain control and get V_1, or fail to gain control and get only its share in that period's income, I_1. If clan 1 fails to gain control, clan 2 gets its share of that period's income, I_2, while the *podestà* gets his wage, W. The payoffs are thus $(v_1(m_p, m_2)V_1 - c + (1 - v_1(m_p, m_2))I_1, (1 - v_1(m_p, m_2))I_2 - c, (1 - v_1(m_p, m_2))W - c)$.

Consider the following strategy combination: clan 1 does not challenge, clan 2 fights if it is challenged, and the *podestà* prevents the fight if and only if clan 1 challenges and 2 fights. If clan 1 challenges but clan 2 does not fight, the *podestà* colludes if $V_p^c > 0$, and does not otherwise. This strategy combination is a subgame perfect equilibrium if the following conditions hold:

    a. $(1 - v_1(m_p, m_2))W - c \geq V_p^c$. The *podestà* prevents and does not collude if clan 2 fights.

    b. $(1 - v_1(m_p, m_2))I_2/(1 - \delta) \geq c$. Clan 2 fights if challenged.

    c. $c + \dfrac{\delta I_1}{1 - \delta} \geq v_1(m_p, m_2)(V_1 - I_1)$. Clan 1 does not challenge.

Intuitively, condition (a) implies that the *podestà* is better off preventing if clan 2 fights and that he colludes otherwise. Condition (b) guarantees that clan 2 fights. Because the *podestà* does not prevent unless 2 fights, and because condition (b) implies that 2 prefers to fight rather than not fight if the *podestà* prevents, fighting if challenged represents clan 2's best response. Condition (c) then implies that clan 1, expecting clan 2 and the *podestà* to fight together, finds it optimal not to challenge.

These conditions and the equilibrium strategy indicate how the *podesteria* system can provide the appropriate incentives to overcome the problems that could render it ineffective. Condition (a) and clan 2's strategy prevent collusion between clan 1 and the *podestà* by sufficiently reducing the *podestà*'s military strength relative to his wage, so that the most clan 1 can credibly commit to reward the *podestà* following collusion is not enough to induce him to collude. The *podestà*, expecting clan 2 to fight with him, prefers to prevent clan 1 from

challenging rather than colluding. Clan 2 is motivated to fight alongside the *podestà* because if he does not (the *podestà*`s strategy implies), the *podestà* will not confront clan 1. At the same time, condition (b) implies that the combined forces of clan 2 and the *podestà*, relative to clan 2's share in the gain (I_2), are such that it is optimal for clan 2 to fight with the *podestà*.

A delicate balance of power must thus be maintained for the *podesteria* to promote political order. On the one hand, the *podestà* cannot be strong enough militarily to gain control himself or collude with clan 1. (Both sides of condition (a) decline in m_p, but the right-hand side increases in W.) On the other hand, he must be strong enough so that his threat to fight alongside clan 2 if necessary eliminates clan 1's incentive to challenge. (The left-hand side of condition (b) increases in m_p.) This balance provides the *podestà* with an important incentive that is not explicitly captured in the model. The more equal the clans are in military strength, the more likely the equilibrium is to hold, and the *podestà* is more likely to gain W without being involved in a war. The *podestà* is thus motivated to prevent fighting, but not at the cost of severely weakening either clan. The *podestà* can therefore credibly commit to maintain the relative strength of each clan.