

Economic Foundations of the Territorial State System *

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Abstract

The contemporary world is organized into a system of territorial states in which rulers exercise authority inside clearly defined boundaries and recognize the authority of other rulers outside those boundaries. We develop a model to explain how the major economic and military developments in Europe starting in the 15th century contributed to the development of this system. Our model rationalizes the system as an economic cartel in which self-interested and forward-looking rulers maintain high tax revenues by reducing competition in the “market for governance.”

Key Words: territorial state system, borders, cartels

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The supplemental appendix is available online at:

<http://stanford.edu/~avidit/statesystem-si.pdf>

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1 Introduction

Today’s world is organized into a system of territorial states, with most states recognizing the authority of others outside their boundaries. Outside of Antarctica, nearly every square inch of land in the world belongs to a state, and the fraction of this land that was claimed by more than one state in 2000 was only 1.6% (based on Schultz, 2015).

Such mutual recognition of territorial boundaries is remarkable in human history. As recently as the Middle Ages in Europe, and the Qing era in East Asia, political boundaries were not the markers of absolute changes in political authority.¹ The most powerful polities, like the Qing and the Holy Roman Empire, claimed authority over the whole world, and smaller polities acknowledged the superiority of larger ones. In the last several centuries, however, the world has witnessed the gradual formation of a system where borders have come to possess significantly greater political meaning. In the words of Stephen Krasner, “the clearest storyline of the last thousand years is the extruding out of universal alternatives to the sovereign state” (Krasner, 1993, 261).

In this paper, we offer a new theory of the territorial state system based on its development in Modern Europe.² One key driver of this development was the economic expansion that began in the Late Middle Ages, and which accelerated during the Industrial Revolution as Europe transformed from a predominantly agrarian economy to one in which monetary exchange, long-distance trade, and eventually industrial production also played important roles. At the same time, military technology and the administrative capabilities of states continued to improve as rulers built standing armies and modern bureaucracies. These developments turned states into fierce competitors in what we refer to as the “market for governance,” by which we mean the market for an evolving package of state-provided services that are necessary for supporting increasingly complex decentralized economies. Our central thesis is that the territorial state system emerged as a solution for managing competition in the governance market.

¹Although there are some examples of territorial demarcations in Antiquity and the Dark Ages (e.g. the boundaries delineated by the Partition Treaties of the Carolingian Empire), scholars like Sahlins (1989) and Elden (2013) argue that these boundaries did not mark the sharp changes in political authority that modern borders do. Even linear defensive systems that are sometimes interpreted retrospectively as borders, such as the Great Wall of China and the Roman *limes*, did not mark the limits of rulers’ political claims (Kratochwil, 1986).

²By the “territorial state system” we mean specifically a system of territorial states in which borders constitute stable demarcations of sharp changes in political authority mutually recognized by the rulers on both sides. Because we do not provide a theory for how this narrow definition of the state system gave rise eventually to modern concepts “sovereignty,” we use this latter term sparingly in the paper.

The economic expansion that took place in Europe since the Late Middle Ages increased the value of market-supporting governance for citizens (and their ability to pay for it), while improvements in military technology and bureaucratic organization made it cheaper for rulers to exercise control over longer distances. Together, these developments expanded the territory that rulers could profitably govern. Rulers attempted to expand their influence in response to these shifts and became competitive providers of governance in the areas where their influence overlapped. This competition drove down the revenues that each could collect from the overlapping areas. To avoid these losses, rulers developed a self-enforcing cooperative norm under which they divided the market for governance geographically, enabling them to exercise monopoly power within well-defined territorial boundaries. This cooperation gave rise, eventually, to the modern state system, which developed further with increases in economic and political complexity, and spread across the world with European influence.³

We develop our theory through a formal model. The model shows that when the value of governance is low and the costs of governing rise steeply in geographic distance, the governance markets of rulers do not overlap, providing no impetus for cooperation. As the value of governance rises and the costs of governing decline, however, these governance markets begin to overlap, driving down the revenues that rulers can collect in the overlapping areas as a result of competition. This provides the rulers with an impetus to recover the losses through cooperation, by agreeing to be monopoly providers of governance inside well-defined territorial boundaries. The model shows how cooperation can be made self-enforcing with the help of strategies that punish deviating rulers for violations of the cooperative norm. The model, therefore, explains the transition from a system without cooperation to one with cooperation, in which the key changing variables are the rising value of governance and the declining costs of governing distant territories.

Our model rationalizes the territorial state system as a cooperative equilibrium of a repeated game in which self-interested and forward-looking rulers form a cartel to raise revenue by limiting competition in the market for governance. It therefore builds on Levi's (1989) argument that rulers are revenue-maximizing. It also builds on the work of Konrad and Skaperdas (2012) and an earlier literature in comparative politics in which rulers raise revenue by selling protection and other forms of governance to their subjects. Finally,

³The scope of our theory is limited to the European experience from the Early Modern period to the Industrial period. We can only speculate that the European system was spread to the rest of the world with the enormous influence that European ideas had on international institutions in the last half millennium. See Section 5 for further discussion of what our theory leaves unexplained.

our model also relates to Keohane’s (2005) neoliberal theory of inter-state cooperation in which cooperation is sustained in anarchy by the threat of future punishments for deviating from the cooperative norm (see also Axelrod, 2006).

Our argument is notably distinct from the influential view in international relations that asserts that the development of the modern state system was the product of an ideational shift that took place with the Peace of Westphalia (1648). This view, though popular, has been challenged by several recent accounts. Osiander (1994) writes, for example, that the view “that the Peace of Westphalia was a milestone on the road to a states system built around the concept of sovereignty is a popular view, especially with students of international relations—but it is a myth” (78). While he and a few others (e.g. Krasner, 1993, Teschke, 2003, De Carvalho et al., 2011) have argued against the Westphalia hypothesis, none to our knowledge has fully articulated the precise mechanism behind an alternative account that emphasizes material incentives.

2 A Model of the Territorial State System

At the center of our theory is the concept of *governance*, which refers to the package of centrally provided state services that support a complex decentralized market economy. Charles Tilly (1985) and others have argued that the main service that rulers provided their subjects in the Late Middle Ages was protection, and Konrad and Skaperdas (2012) explain how the threat of expropriation by local bandits or distant robbers gave rise to economic insecurity, creating a *market* for protection. According to Konrad and Skaperdas (2012), early states emerged as participants in this market, providing protection in exchange for revenue.⁴ This package of services is paid for by taxation, which may be in cash, in in-kind services (such as military service) or in valuable policy concessions (such as ceasing socially destructive activities).

⁴The work of Konrad and Skaperdas (2012) differs from that of Lane (1979) and Tilly (1985), who argued that early states were protection *rackets* that extort money without providing a service. While the Lane-Tilly view may be appropriate for very early states, the view that states only provide protection only from themselves (as opposed to also supporting law and order in society, enforcing contracts and providing market supporting public goods and services) is not warranted by the evidence and existing theory (see, e.g., Acemoglu, 2005). Moreover, the Konrad-Skaperdas view is consistent with Levi’s (1989) argument that revenue-maximizing rulers enjoy what she calls “quasi-voluntary compliance” from their citizens. Citizens are voluntarily willing to pay rulers not just because payment takes place in the shadow of coercion, but also because they expect valuable services from the state. For this reason, we follow Konrad and Skaperdas (2012) and view states as competitors in the governance market.

Our concept of governance builds on this literature, recognizing that over time, states provided a wider array of services than simply protection. With the rise of long distance trade in Late Medieval and Early Modern Europe, the demand for governed economic exchange grew, and later rulers started to provide greater market-supporting services such as dispute resolution and economic regulation—services that had previously been provided privately by local institutions (Milgrom et al., 1990, Greif, 1993). Responding to the needs of an industrial economy, today’s states provide an even wider array of public services; they also provide public goods, including public infrastructure, education and research. It is this evolving package of state-provided services that we refer to as “governance,” and like Konrad and Skaperdas (2012), we view states as the sellers of governance in a market where there is a demand for such a package of services.

Building on this concept of governance, we develop a model in which the state system represents an economic cartel created by rulers to keep their revenues high by limiting competition in the governance market.

2.1 The Market for Governance

Two rulers called A and B are located at the endpoints, 0 and 1, of the unit interval. A continuum of individuals of unit mass are distributed uniformly between them. We identify each individual with his location on the interval, $\ell \in [0, 1]$. These individuals may be thought of as citizens or as chieftains, bishops, local lords and the types of small-scale authorities who exercise power within a given area.⁵

Each ruler i offers to sell governance to each individual by setting a location-specific price $p_i(\ell)$. The cost to ruler i from providing governance to an individual at ℓ is $c_i(\ell)$. We assume that $c_A(\ell)$ is a strictly increasing function while $c_B(\ell)$ is a strictly decreasing function, each with at most a finite number of jumps (see Figure 1). The value of governance to each individual is fixed at $v > 0$. Rulers simultaneously offer prices, and after looking at the prices offered, each individual decides whether or not to pay for the service, and if so, from which ruler. We refer to the set of individuals that purchase from a ruler as that ruler’s *subjects*. Since no individual accepts a price larger than v , we interpret all offers

⁵The assumption that the locations of rulers is fixed is not meant to imply that rulers themselves were immobile. It captures the idea that all rulers have a point which can be thought of as the core of their existing polity, where they can govern cheaply, and that their cost of governing increases in distance from this area. The idea that citizens are also stationary is, as well, a simplifying feature. Our model’s conclusions would be largely robust to building in the idea that citizens may be able to escape taxation by moving to “ungoverned territories” (e.g., Scott, 2014) if changing one’s location is costly.

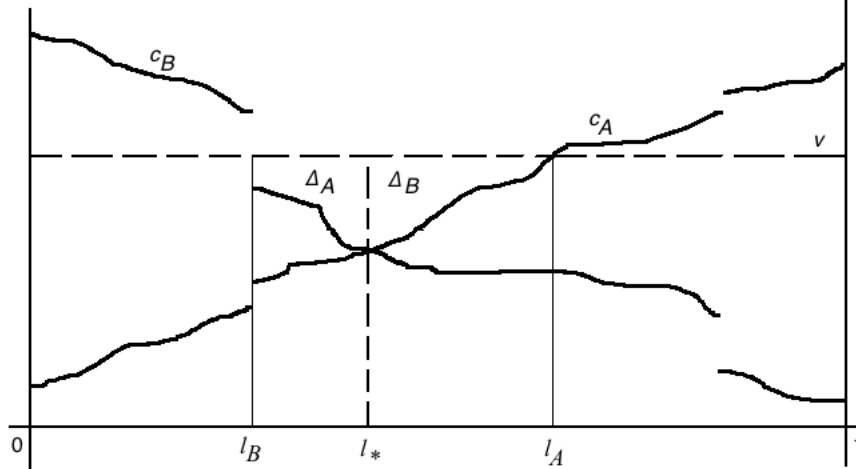


Figure 1. The case of overlapping markets.

$p_i(\ell) > v$ as indicating that ruler i chooses to *stay out* of the market for ℓ . Throughout the paper, we study sequentially rational pricing strategies for the two profit-maximizing rulers, and buying decisions for the individuals.

We interpret the environment geographically, and depict it in Figure 1.⁶ The figure shows how the costs of providing the good may be discontinuous, reflecting the idea that geographic breaks such as mountains or rivers may cause abrupt changes in a ruler’s cost of providing governance. We also maintain the following three assumptions:

- (i) $c_A(0) < v$,
- (ii) $c_B(1) < v$, and
- (iii) $c_B(0) > c_A(0)$ and $c_A(1) > c_B(1)$.

The first assumption implies that the set of individuals for whom ruler A ’s cost of providing governance does not exceed their willingness to pay, v , is $[0, \ell_A]$ where $\ell_A := \sup\{\ell \leq 1 : c_A(\ell) < v\}$. We refer to the interval $[0, \ell_A]$ as ruler A ’s *market*. Similarly, the second assumption implies that the analogous market for ruler B is $[\ell_B, 1]$ where $\ell_B := \inf\{\ell \geq 0 : c_B(\ell) < v\}$. The third assumption implies that there is a unique threshold $\ell_* \in (0, 1)$ such that $c_B(\ell) > c_A(\ell)$ for all $\ell < \ell_*$ and $c_B(\ell) < c_A(\ell)$ for all $\ell > \ell_*$. This means that

⁶Our geographic interpretation of the environment follows Kadercan (2015, 130) in distinguishing between geographic “space” (the raw material of territoriality), “demarcation” (the process of dividing space), and “constitution” (the process of giving these divisions meaning). While we take space as exogenous, both demarcation and constitution are determined endogenously in the model. Like Kadercan, and the large political geography literature he cites (e.g. Agnew, 2009, Larkins, 2009, Elden, 2013), in our model demarcation and constitution are jointly determined.

A is the lower cost seller to the west of ℓ_* and B the lower cost seller to the east of ℓ_* . These thresholds are all depicted in Figure 1.

Non-spatial Interpretations Because it takes spatial delineation as given, our model cannot explain why boundaries were set in geographic space rather than other spaces.⁷

In fact, the model can accommodate non-spatial interpretations as well. For example, distance in the model could be interpreted as social distance based on individual traits. Rulers may consider having sovereignty over people rather than territory, as in Africa, where labor was scarcer than land in comparison to Europe (Herbst, 2014).

However, at least in Europe, a spatial delineation system was the natural outcome, especially as improvements in transportation technology enabled individuals to move across space more easily, and in a way that was difficult to regulate. It would simply be too costly to exert control, provide governance and raise revenue from subjects that inhabited distant lands. Rulers would have an interest in regulating human mobility, as they do today, through border control and visa requirements.

That said, from the perspective of governance and revenue collection, the modern state system represents a hybrid of delineation over spatial and non-spatial boundaries. For example, tax-treaties exist between modern states, suggesting that the division of control in the governance market can delineate control both over territory and over people.

2.2 Overlapping and Non-overlapping Markets

We say the rulers' markets *overlap* when $\ell_B < \ell_A$ so that $[0, \ell_A] \cap [\ell_B, 1] \neq \emptyset$. When this is the case, there is an interval $[\ell_B, \ell_A]$, depicted in Figure 1, where rulers A and B compete to provide governance to individuals that live in the interval. We refer to the interval $[\ell_B, \ell_A]$ as the *overlapping area*. Outside this area, only one ruler can profitably sell governance, making that ruler a monopoly provider. When markets overlap, assumptions (i) and (ii) and the monotonicity assumptions on c_A and c_B imply that $\ell_B \leq \ell_* \leq \ell_A$.

Our first result characterizes the subgame perfect equilibrium (SPE) of the static model in the case of non-overlapping and overlapping markets. It compares equilibrium profits to the joint-profit maximizing levels of profit, which are

$$\Pi_A^* = v \min\{\ell_A, \ell_*\} \quad \text{and} \quad \Pi_B^* = v \max\{\ell_B, \ell_*\}$$

⁷Therefore, we leave unanswered the question raised by Ruggie (1993) on why spatial delineation emerged as opposed to other “heteronomous” forms of organization.

for rulers A and B , respectively. In the case of overlapping markets, we impose the requirement that *no ruler prices below cost*,⁸ that is,

$$p_i(\ell) \geq c_i(\ell) \quad \forall \ell \in [0, 1] \text{ and } i = A, B.$$

Proposition 1. *If markets do not overlap, then in equilibrium ruler A sells to individuals in his market $[0, \ell_A]$ at price $p_A(\ell) = v$, ruler B sells to individuals in her market, $[\ell_B, 1]$ at the monopoly price $p_B(\ell) = v$, and individuals in (ℓ_A, ℓ_B) buy from neither A nor B . Consequently, the rulers maximize joint profit given demand.*

If markets overlap, then in any equilibrium in which no ruler prices below cost, ruler A offers prices $p_A(\ell) = \min\{v, \max\{c_A(\ell), c_B(\ell)\}\}$ to individuals in $[0, \ell_A]$ and sells to individuals in $[0, \ell_]$, while ruler B offers prices $p_B(\ell) = \min\{v, \max\{c_A(\ell), c_B(\ell)\}\}$ to individuals in $[\ell_B, 1]$ and sells to individuals in $[\ell_*, 1]$. Consequently, the profits of rulers A and B fall short of the joint profit maximizing levels of profits by, respectively,*

$$\Delta_A := \int_{\ell_B}^{\ell_*} v - c_B(\ell) d\ell \quad \text{and} \quad \Delta_B := \int_{\ell_*}^{\ell_A} v - c_A(\ell) d\ell. \quad (1)$$

The proof of (a more formal version of) this proposition is presented in the supplemental appendix, along with all other proofs.⁹

When markets do not overlap, i.e. when $\ell_A < \ell_B$, the rulers are monopoly sellers in their respective markets, and maximize joint profit. In this case, each ruler's cost of providing governance in the other ruler's market is higher than any individual's willingness to pay for it, so each ruler stays out of the other's market. No ruler can sell profitably to individuals in the interval (ℓ_A, ℓ_B) , so we refer to the interval as *ungoverned space*.

When markets overlap, each ruler can sell at the monopoly price only on the part of his or her market where the other ruler's cost exceeds each individual's willingness to pay. In the overlapping area $[\ell_B, \ell_A]$ the rulers become Bertrand competitors, driving down each of their prices: ruler A sells at a price equal to ruler B 's cost to the west of the boundary ℓ_* , while B sells east of ℓ_* at a price equal to A 's cost. Consequently, the equilibrium outcome does not maximize the sum of the rulers' profits given demand, and as the proposition reports, the profits of rulers A and B fall short of their joint profit maximizing levels by Δ_A and Δ_B respectively. These are also depicted in Figure 1.

⁸A strategy of pricing below cost on any set of positive measure is weakly dominated by a strategy in which the ruler stays out of the market on that set, but prices the same way outside the set.

⁹More formally, the results of Proposition 1 hold except on sets of measure zero. We will ignore these technical issues and state that a result holds on a set if it holds almost everywhere on the set.

In the discussion of our cases, we will interpret the shortfall in revenue from monopoly profits in our model as being the privileges that peripheral elites and other individuals can win from central governments by playing them off against their neighbors. Elites in an overlapping area will always have fewer taxes and more privileges than those in the core, since they have the option to be governed (e.g. buy protection) from the rival ruler, who is willing and able to provide them with governance.

2.3 The State System as a Cartel Equilibrium

When the rulers' markets overlap, competition in the overlapping area drives down profits in the static game. In a repeated game, however, the rulers can improve their profits by setting up a cooperative agreement in which they divide territory at the partition point ℓ_* . In one such agreement, the rulers divide the overlapping market $[\ell_B, \ell_A]$ at the joint-profit maximizing boundary ℓ_* and stay out of the market for the other's subjects. Territorial sovereignty emerges as a cartel agreement between rulers.

Suppose that the rulers' markets overlap, the static game studied in the previous section is repeated indefinitely, and rulers discount future payoffs with a common discount factor $\delta < 1$. Several possible outcomes may be supported in an SPE. We consider two kinds of paths to be focal. The first is one in which a static game equilibrium of the kind characterized in Proposition 1 is played in every period of the supergame. We refer to this as a *static game equilibrium path*. The second is one that maximizes the joint profits of the two rulers, which is the infinite repetition of the outcome that maximizes joint profits period-by-period. In such a path, ruler A sells at the monopoly price v to individuals in $[0, \ell_*)$ and B sells at the monopoly price v to individuals in $(\ell_*, 1]$. The rulers thus earn profits Π_A^* and Π_B^* each period. We call this the *joint profit maximizing path*.

The proposition below characterizes a necessary and sufficient condition for the joint profit maximizing path to be supported by an equilibrium strategy profile of the repeated game in which the outcome path is played until and unless a deviation by either ruler has taken place, after which a static game equilibrium path is played forever after.¹⁰

Proposition 2. *Suppose that markets overlap. The joint profit maximizing path is supported in equilibrium via the threat of reversion to any static game equilibrium path iff*

$$\delta \geq \max \left\{ \frac{\Delta_A}{\Delta_A + \Delta_B}, \frac{\Delta_B}{\Delta_A + \Delta_B} \right\} \quad (2)$$

¹⁰This is a "trigger strategy" profile. In such strategy profiles, we assume that individuals optimize statically (i.e., myopically) and that deviations by them are ignored by all players.

Proposition 2 shows how the territorial state system can be rationalized as cooperation in a repeated game, and therefore provides a “neoliberal” rationale for this system. The proposition also suggests that for cooperation to emerge, the gains from cooperation must be relatively even. Inequality (2) is more easily satisfied when the right hand side is low. The lowest value that this side can take is $1/2$, which occurs when $\Delta_A = \Delta_B$. This means that regardless of the *magnitudes* of the gains that the rulers can achieve from recognizing the the limits of their authority, this recognition is most likely to emerge when the gains from cooperation are relatively even.

Although our main contribution is to develop a new model of the territorial state system, the fact that Proposition 2 pins down the territorial boundary as being ℓ_* relates (and contrasts) our work existing models of inter-state borders. Alesina and Spolaore (1997), for example, study a model of state-formation in which borders emerge endogenously as the outcome of majoritarian voting—an assumption that runs counter to historical development of states, which preceded democracy. In addition, Friedman (1977) develops a theory of borders based on rulers maximizing tax revenue net of collection costs. As in our model, territory is allocated to maximize joint profit; but, unlike our model, this outcome is not based on cooperation between rulers in a cartel.

Finally, because the cost functions may be discontinuous at geographic breaks such as rivers and mountains, the territorial boundary ℓ_* is likely to occur at such a point of discontinuity. The model, therefore, provides a rationale for why many of the world’s border demarcations correspond to such geographic barriers.

2.4 Explaining the Emergence of the State System

Our explanation for the emergence of the state system relies on the two comparative statics results stated below. These follow directly from the environment. As usual, we say that for two functions, f and g , $f \geq g$ when $f(x) \geq g(x)$ for all x .

Proposition 3. *ℓ_A is weakly increasing in v and weakly decreasing in c_A , while ℓ_B is weakly decreasing in v and weakly decreasing in c_B .*

The main implications of these comparative statics is that the rulers’ markets are likely to overlap—and hence the impetus to develop a state system can only be present—when the value of governance, v , is large and when the costs of providing governance, c_A and c_B , are small. In light of this, we build on well-known stylized facts in the literature on economic growth and armed conflict to argue that both “demand-side” and “supply-side”

changes that took place in post-Medieval Europe resulted in shifts from the situation of non-overlapping markets to that of overlapping markets. On the demand side, increases in economic productivity led to increases in the value of governance, v . On the supply side, improvements in military and administrative technology that improved states' capacity to recruit, control and supply effective armies lowered the costs, c_A and c_B , of governing distant areas. These changes resulted in increasingly overlapping markets, and made rulers competitive providers of governance in these markets, also providing them with the impetus to coordinate on the cartel equilibrium above.

Our model, therefore, provides a new explanation of the territorial state system that is grounded in the political economy of European growth in the post-Medieval period.¹¹ We are not aware of any prior work that has detailed the precise mechanism for how these economic forces shaped international organization, though some have alluded to the centrality of economic forces. Krasner (1993) simply asserts that the state system “can be explained primarily by material, not ideational, factors,” (235) and that “the development of long distance trade ... advantaged larger units” (261). Osiander too is vague, writing that “the most significant transition occurred with the French Revolution and *the onset of industrialization*, not with the Peace of Westphalia...” (281) (emphasis added). Spruyt (1996) discusses economic development in the Middle Ages as a disrupter of feudalism, but states that the emergence of the sovereign state from this disruption was not necessarily inevitable. The literature nevertheless supports the idea that economic developments and material interests shaped the modern state system.

Similarly, on the supply side, we are not the first to link military and administrative innovations (such as the invention of artillery and the creation of more effective means of disciplining and supplying troops at long distances) to the political changes of the Early Modern period. Several authors, of whom Tilly (1992) is perhaps the best known, have traced the institutional development of European states to the military and administrative demands of war.¹² We differ from this work, however, in linking military and administrative innovations to the state *system*—that is, where states *stop* governing, rather than how their internal organization evolved over time with these changes.

¹¹Economic historians often focus their attention on the acceleration in growth that Europe experienced during the period of industrialization, but Early Modern Europe also experienced a major expansion in economic activity that some describe as the “Commercial Revolution.” See Maddison (2007) for quantitative estimates of economic growth in this period.

¹²See also Brewer (1990), Besley and Persson (2010), and Gennaioli and Voth (2015).

2.5 Extensions

In the supplemental appendix we develop several extensions to show how the model can shed light on other aspects of international organization.

Dynamic Extension. Motivated by the comparative statics reported in Proposition 3, we develop a dynamic extension in which cooperation emerges in time as the rulers' losses from competition grow. Because our baseline model studies the static cases of cooperation and no-cooperation separately, one might argue that it only rationalizes the state system without capturing the change in rulers' incentives across the transition from non-cooperation to cooperation. By embedding the two cases of non-overlapping and overlapping markets into a unified model, the dynamic extension captures these changes.¹³

Interdependent Cooperation. We provide an extension that extends the bilateral setting above to a multilateral one with more than two rulers. This enables us to make the distinction between "independent cooperation" and "inter-dependent cooperation." Under independent cooperation, the relationship between two rulers is unaffected by each of their relationships with other rulers. Under inter-dependent cooperation, it is not. If one ruler fails to cooperate with another, then the first ruler's relationship with a third ruler may collapse as well. This extension helps account for the survival of small states in the international system. States recognize less powerful neighbors because they fear that annexing the small weak states may lead their other relationships to unravel as well.¹⁴

Entry Deterrence. In this extension, the stability of the state system may be challenged not just by rulers, but also by opportunist subjects seeking to establish themselves as new rulers by entering the governance market. As in other cartel models, existing providers have an incentive to deter entry because it threatens their profits. The large fixed costs associated with starting a new state enable existing states to suppress entry by new potential rulers.

Border Persistence. In this extension, the joint profit maximizing boundary between two rulers may shift as governance costs change over time. When this happens, either the old (historical) boundary or the new joint-profit maximizing one may be focal. We show that it is ambiguous as to whether the conditions needed to make cooperation

¹³This extension shows that as the losses from not cooperating grow (as the value of governance v grows) then any asymmetries in the costs of governing in a neighborhood of l_* that make the losses relatively unequal for moderate values of v become less important. Then, there is a date in time after which (full-scale) cooperation between the rulers becomes self-enforcing.

¹⁴This extension produces results similar to classic balance of power theories in international relations, though with a somewhat different logic. Small states persist because the conflicts that would eliminate them would destabilize other relationships within the system.

self-enforcing are stronger under the new joint-profit maximizing boundary or the old, since the shift in the costs can make the gains from cooperation more or less even.¹⁵

Conflict. Finally, while our model predicts stable borders and cooperation, history is replete with violent international conflict. Does this conflict not undermine the potential for long-term cooperation? When we embed a standard model of conflict into our framework, we find that in equilibrium, cooperation can be re-established after periods of conflict. Conflict serves as a mechanism by which a ruler credibly reveals any changes in his cost of providing governance when movements in this cost are private information.

3 An Illustrative Case

We now illustrate a key observable implication of our theory—that the creation of a boundary as the result of cooperation between rulers should be followed by greater state control and expanded revenue collection in border areas.¹⁶ We provide evidence for this in the case of England/Scotland, for which we have relatively high quality information on how cooperation took place. We discuss three other cases (Spain, France and Sweden) more briefly in the supplemental appendix.

Administratively, the border area between England and Scotland was a weak area for both states into the 17th century, with powerful local families (e.g., the Percys and Nevilles on the English side, the Douglasses and Homes on the Scottish) building up fiefs that enjoyed considerably more independence from royal interference than vassals elsewhere (see, e.g., Fraser, 2008). On the English side, this autonomy was sometimes formalized by the granting of “liberties,” by which certain areas were exempted from ordinary royal jurisdiction, with courts being answerable to the local lord.¹⁷ Some border families pressed their advantages even further, particularly those based in the “debatable

¹⁵Since it is common for historical boundaries to persist, the extension suggests that historical boundaries may be more focal than the changing joint profit maximizing ones. This view receives some support in recent work by Abramson and Carter (2016), who show that inter-state territorial disputes often have precedents in historical borders. If this is the case, then it could be that many of today’s boundaries were once joint-profit maximizing but are no longer joint-profit maximizing today. Relatedly, the “artificial borders” that European powers used to divide territory in the colonies are perhaps not joint-profit maximizing today (and possibly never were for the non-European rulers of post-colonial states). But they may be focal in the same way historical boundaries in this extension can be focal, and sustained in equilibrium even when they are not joint-profit maximizing.

¹⁶By “greater state-control,” we mean that rulers begin to restrict the authority, autonomy and privileges of lords and towns as described by Dincecco (2015).

¹⁷While these liberties were in principle subject to royal taxation, these taxes were often difficult to enforce. For example, in 1336, royal tax collectors told their rulers that they had been unable to enter Hexhamshire to collect, since “the King’s write does not run there” (Holford and Stringer, 2010, 177).

lands,” a belt of territory on the western border claimed by both England and Scotland. The Armstrongs, the leading family in the area, maintained an armed force of 3,000 men in 1528, and used them to raid cattle on both sides of the border, with the looted cattle being sold on the opposite side (Maxwell, 1896, 161).

During the course of the 16th century, however, the English and Scottish monarchies began to cooperate to assert their authority in the border region. The most prominent casualties of this process were the nobles that previously dominated the area. On the English side, the Percys and the Nevilles put aside their differences to lead a revolt against the court in 1569, but were defeated and their lands seized. On the Scottish side, the Armstrongs were severely weakened by executions and punitive land redistributions. Administrative powers gradually passed from these lords to bureaucratic entities such as the Council of the North (reestablished in 1537). The liberties were gradually abolished; for example, Hexhamshire (see footnote 17) was merged with the crown in 1545 and abolished in 1572. Eventually, the border areas were fully merged into the general administrative structures of the two kingdoms. The area was renamed the “Middle Shires,” separate legal jurisdictions were abolished, hundreds of bandits were executed, and both governments issued a series of restrictions on armament and fortification (Fraser, 2008, 361-9).

In what follows, we provide detailed evidence for this process and a discussion of the rulers’ motivations for carrying it out.

3.1 Evidence for Cooperation

The administrative integration of the border region was the results of a centuries long, gradually intensifying process of cooperation between England and Scotland. This cooperation involved three steps: (i) an agreement in principal to the existence of separate, territorially-defined sovereign states, (ii) an agreement on the exact course of the territorial division, and (iii) the development of joint institutions to adjudicate disputes and frustrate the ability of local lords to play one side off against the other. We provide a brief account of these three steps as follows.

Mutual Recognition. During the early Middle Ages, the English kings had claimed feudal superiority (as “Lord Paramount”) over all of Scotland, and at various times attempted to annex and administer portions of southern Scotland and to serve as the arbitrator of legal disputes there (as in the “Great Cause” 1291, where Edward I choose from among several competing claimants to the Scottish throne). As a result, the demarcation between the two kingdoms (and recognition of Scotland’s sovereignty) was either nonexis-

tent or highly fluid. Many lords held land in both kingdoms, and even the Scottish King held some lordships on the “English side.” (Holford and Stringer, 2010, 250).

The confusion over the status of the two polities was resolved gradually over the next few centuries by a series of cooperative treaties. The Treaty of Edinburgh-Northampton (1328), for example, elevated the status of the Scottish prince, Lord Robert, to that of sovereign ruler of Scotland, a land “separate in all things from the Kingdom of England, whole, free and undisturbed in perpetuity, without any kind of subjection, service claim or demand.” This recognition forced lords to choose masters, leading to a precipitous decline in cross-border landholding (Holford and Stringer, 2010). Despite this, however, the next quarter century saw continued English efforts to annex Scotland (whole or in part) with the help of disaffected Scottish lords. This conflict was ended by the Treaty of Berwick (1357) in which England returned to the Scots their captive king and recognized him once again as sovereign in return for a ransom demand and territorial concessions.

No subsequent English ruler would question Scotland’s status as an independent state, though they would periodically occupy portions of it or attempt to gain control of it through strategic marriages. In fact, even when they occupied Southern Scotland, the English never tried to annex it, and the areas they controlled “remained entirely separate from England, both legally and politically” (King and Eddy, 2015, 161). Remarkably, the two kingdoms remained legally separate for a century even after a single monarch (James VI of Scotland, and I of England) took power in both in 1603.

Cooperative Demarcation. Even after the Scots won full recognition of their independence, the boundary was not precisely demarcated and, instead, the Treaty of Edinburgh-Northampton enigmatically defined Scotland’s boundaries as “its own proper marches as they were held and maintained in the time of King Alexander” (as quoted in Maxwell, 1912, 170). Particular bones of contention were the debatable lands, to which both sides held claim. The lawlessness of this region prompted one of Europe’s first formal processes of border demarcation, a process especially remarkable because it took place between polities with a strong tradition of mutual hostility. In 1552, the two states appointed a five man commission to draw a border, with each party appointing two members and the French ambassador serving as a neutral arbiter. A mutually agreeable line was surveyed through the area, giving the Scots more territory but the English control of the main road. The new border was marked by the “Scot’s dike,” an earthen mound with a ditch on either side (MacKenzie, 1951).

Cooperative Enforcement. Even in places where the borders were clear, their proximity created opportunities for astute locals to play one ruler off against the other. The

leaders of local “surnames” (the landowning clans of the region) robbed and murdered on one side, returning to sell their loot on the other. To control such raids, the two kingdoms developed a remarkable system of international law enforcement, the “March Law,” which attained full institutional development in the 1340s, though its roots were older (King and Eddy, 2015, 162). The law was administered by royal officials, the “Wardens of the Marches,” who worked closely with their opposite numbers on the other side of the border (Neville, 1988).

March Law was both customary and defined in “law books of the border,” which were periodically compared to each other to ensure conformity (King and Eddy, 2015, 166). A variety of crimes were covered, including murder, theft, kidnapping, seizure of castles and illegal cattle grazing. While victims were allowed the (carefully defined) right of hot pursuit, reprisals were strictly forbidden (King and Eddy, 2015, 167). Instead, disputes were judged on specific “March Days” presided over by the two wardens, with juries chosen to be half Scottish and half English. Wardens were responsible for enforcing judgements against criminals on their side of the border, and might pay out of their own pocket if they were unable to raise the fine from the criminal through their own court system.

Inter-state legal cooperation extended much further once the two kingdoms came under the rule of King James in 1603, though the proposals for such cooperation predate his accession. A joint border commission was established, even more independent of local elites than the warden’s courts had been, but still representing both countries equally. The commission was responsible for the final “pacification” of the borders, disarming the surnames and executing hundreds of bandits (Fraser, 2008).

3.2 Motivations for Cooperation

Why did the English and Scottish, bitter enemies in many other contexts, cooperate in their border policy? The surviving documents emphasize the desire to assert control over their territories by eliminating the border elites. This point was raised in the crucial Scottish Privy Council meeting of 1551 which agreed to the partition of the debatable lands with England. Instead of discussing the international situation and the gains to relations with England, the Council focused its attention on their exasperation with the area’s residents, and the *internal* gains of partition. Burton (1877, 118-9) quotes the minutes of this meeting, which reflect exactly this exasperation:

“Having had consideration of the great and heavy crimes committed upon our sovereign lady’s poor lieges by thieves and other malefactors, broken men, and

the diverse murders and slaughters committed in the past, and especially by the inhabitants of the debatable land, who by night and day continually ride and make daily plunder and oppressions upon the poor...and no victim can get remedied, nor any criminal can be put to due punishment...”

Similarly, the main reasons advanced for the division have less to do with the advantages for relations with England, or the international situation, but rather with the advantages that demarcation would bring to the internal political economy of Scotland:

“[We] have thought it good, necessary and expedient that the debatable land be divided with such restrictions and conclusions as shall be concluded by the Queen’s Grace, my lord Governor, and council, for the common good of the realm, the rest and quietness of the lieges thereof, and the keeping of the peace in all times to come.”

Likewise, the correspondences of the English diplomats shows another interesting aspect of the partition exercise: the fact that both governments were well aware that demarcation was in the interests of the central government and not that of border elites, and that many of the powerful locals would not look kindly on any such division. O’Sullivan (2016) quotes one such letter:

“Wherefore if a map were to be truly made by the consent of some men to be appointed on both parts, it is though that there might be a reasonable and equal division made by men which should have indifferent respect to the quiet and concord of both the realms, and not to be led with any private affection to the people dwelling on either parts of the said debatable [lands]. And, indeed the less privy the Borderers be made to the division hereof, the more likely it is that the thing will take place.”

As the passage shows, the diplomats involved perceived themselves, in many respects, as having more in common with their fellow “indifferent” experts on the other side than with the border elites.¹⁸

Such documents, not intended for publication, provide the best available window into the motivations of Early Modern policy makers. They suggest that underneath the often tempestuous relationship between England and Scotland, ran an important thread of common interest: the desire to control their turbulent border subjects.

¹⁸Links were further enhanced by the highly alcoholic banquets that took up much of the commission’s time, the cost of which became the subject of a minor dispute between the two governments.

4 Alternative Theories

4.1 Ideational Theories

Perhaps the most influential ideational theory for the development of the modern state system is the *Westphalia hypothesis*: the idea that the Peace of Westphalia (1648) engendered the norm of territorial sovereignty, and therefore marked a critical juncture in the development of the modern state system. This particular ideational theory has been strongly critiqued in the literature by Osiander (2001), De Carvalho et al. (2011) and Krasner (1993), and many others.¹⁹

However, it remains possible that the territorial state system nevertheless developed as a result of an encounter with new ideas that resulted in a change in norms and ideology. This is a widely held view in international relations theory, supported by numerous authors. Ruggie (1993) writes, for example, that “the mental equipment that people drew upon in imagining and symbolizing forms of political community itself underwent fundamental change” and that “historians of political thought have long noted the impact on the emerging self-image held by European territorial rulers of a new model of social order” (157). Philpott (2001) echoes this view, claiming that “revolutions in sovereignty result from prior revolutions in ideas about justice and political authority” (4).

There are many theories of why and when these ideological changes occurred. Nexon (2009) discusses the role of the Reformation in changing the ideological basis of European politics in this period in a way that made the “composite” polities common in the early 16th century obsolete. Osiander (1994, 281) argues that the French Revolution represented the most important watershed, but only in the context of a gradual long-term evolution of political ideas that led the development of “a shared, rather elaborate code of structural and procedural legitimacy” (279).

A closely related argument is that the ideas about territory and technologies for demarcating space changed in the Early Modern period, making “modern” territoriality ideologically possible. Political geographers have been especially active in examining the ways in which ideas about territory and territoriality evolved over time (Agnew, 2009, Larkins, 2009, Elden, 2013). They argue that territory, and particularly the bounded, less hierarchical idea of sovereignty, was an idea that had to be constructed. However, relative to Philpott (2001), the geography literature is less explicit in stating that these

¹⁹We refer readers to these authors for fuller discussions of the weaknesses of this hypothesis.

ideational changes *caused* the state system to develop, instead focusing on describing the ideological changes that occurred.

At the same time, other authors express skepticism about the primacy of ideas, suggesting that state-building altered political theory rather than the reverse. Krasner (1993) is among the skeptics, arguing that ideas were simply “legitimizing rationales” that rulers could draw on to provide legitimacy to actions that they undertook primarily in their material self-interest. He writes:

“Initially, the ideas [of sovereignty] were just hooks to justify actions that were motivated by considerations of wealth and power, not by visions of justice and truth. European leaders were fortunate in having many hooks because of the diversity and richness of European intellectual traditions.” (257)

Even authors sympathetic to ideational arguments also agree that the self-interested motives also played a role, at least for some actors. Osiander (260), for instance, believes that private correspondence of Cardinal Richelieu and his allies in the Thirty Years War show a desire for self-aggrandizement much more than they do a commitment to any ideal of political order. More subtly, Nexon (2009) argues that the ideological changes of the Reformation were important precisely because of the way in which they interacted with existing patterns of non-religious political contestation.

Evaluating the causal impact of new ideas is difficult. Nevertheless, our model does not exclude the possibility that the ideas that succeeded and spread were both shaped by material interests, and in turn had an influence on the way rulers construed their interests. The interpretation of our model on this issue is that if new principles were the primary drivers of change, rulers should have an *incentive* to adhere to the principles; that is, those principles should be *self-enforcing*. Otherwise it becomes difficult to explain not just why these principles spread but also why the stability of a system built upon these principles would not gradually be undermined by rulers realizing their interests in violating them.

4.2 Evolutionary Theories of the Size of States

The period of state-building was a period of rapid change in the capabilities of states to make war, administer justice, and collect revenue (Gennaioli and Voth, 2015). Spruyt (1996) argues that differences in capabilities across institutional forms were crucial for “the victory of the sovereign state” (154). The main portion of Spruyt’s argument shows that variations in trade created alternative political forms in some parts of Europe during

the Middle Ages. However, in Chapter 8, he addresses our question: why these alternative political structures were eliminated during the early modern period.

Unlike our theory, Spruyt's (1996) focuses on competition and selection among states rather than cooperation. For him, the sovereign, territorial state had "institutionally superior arrangements" (32) relative to city leagues and large empires, particularly in their ability to wage war.²⁰ Moreover, the organization of territorial states was incompatible with other forms of political organization and authority, whose claims they did not respect. Spruyt (1996) holds that changes in the internal structure of states changed the state system as "sovereign states selected out and delegitimized actors who did not fit a system of territorially demarcated and internally hierarchical authorities." (28). Combined with the superior resources of the sovereign state, over time this delegitimization would lead to non-territorial polities being selected out through "mimicry and exit" (171).

One shortcoming of this argument is that improvements in the economics of coercion or taxation, even uneven ones, are not guaranteed to lead to a territorial state system. In fact, improvements in military and administrative capacity are compatible with both claims of universal empire and the practice of mixed sovereignty. This claim receives support from the fact that outside of Europe, the introduction of Early Modern military innovations such as gunpowder was not accompanied by the development of a sovereignty norm. In fact, the so-called "gunpowder empires" of the Ottomans, Safavids, Mughals, and Qing used the new technology to repress local rulers and build large polities that explicitly claimed universal dominion (McNeill, 1989). Some of these states, particularly the Qing, also made moves toward homogenous internal markets and administrative rationalization similar to what Spruyt describes in Europe.²¹

Therefore, while Spruyt's selection argument provides an explanation for why some polities (like France and Spain) succeeded while others (like the Hanseatic League) failed, it does not explain why the successful, institutionally superior states subsequently recognized each other's claims rather than continuing the process of "selecting out" the weaker states. Many states eventually ceased to claim all the territory that they could potentially have administered, or to which they might have laid claims. In particular, even if we accept that territorial polities are ideologically incompatible with city leagues, Spruyt's

²⁰This was in part a product of larger size of states, but even more closely related to their superior ability to prevent free riding and create homogenous internal markets (Spruyt, 1996, 158-67).

²¹Note that Spruyt does not present an argument for the ideological incompatibility with or institutional inferiority of empires relative to sovereign states, though he does discuss the particular problems of Medieval European examples.

theory leaves unexplained why territorial polities would be compatible with each other in the long run. This is precisely where our model complements his.

4.3 Nations and Nationalism

Another explanation for the development of the territorial state system is the development of national identities. According to this theory, as individuals formed strong ethnic, linguistic, and religious attachments to particular states, changes in the costs of governing these individuals dictated the location of borders and bolstered the development of the state system by making it costly to annex territories inhabited by populations who saw themselves as belonging to other states.

While nationalism did coevolve with norms of territorial sovereignty, territorial divisions are likely to have reified national identities rather than the other way around. While the state system is typically thought of as originating in the Early Modern period (if not before), the classic accounts of nationalism describe the rise of the *nation*-state as taking place largely in the 19th century with the growth of conscription and primary schooling (Weber, 1976, Anderson, 2006).

In fact, it is possible to explain the emergence of nationalism in a way that reinforces our argument. States first agree on borders, and then work hard to ensure that citizens on their side of the boundary identify with their institutions and not those of their neighbors (Laitin et al., 1994). Over time, this increases the costs for the neighboring state of governing a disloyal population in the border region. The rise of national attachments could provide an explanation for why long-established borders remain stable over time, even as the military capacities of the two states shift.

5 Conclusion

The modern territorial state system is a remarkable institutional construction that did not always exist. While borders are certainly contested in some regions of the world today, they are stable and meaningful political demarcations in most of the modern world. The Canadian and American governments do not collect taxes from the residents of cities and towns just across their common border. This is a fact that requires explanation.

We have offered a new explanation for this fact built upon the economics of competition between states. States in our model are natural competitors in the market for governance, and their competition drives down the revenues that each can collect from providing

governance to their citizens. Like modern economic cartels, they divide the market to limit competition and keep revenues high. Occasional shocks may lead to conflict over parts of the governance market, but the system of geographically-defined states has, by and large, been stable.

In an alternative world where competition in the governance market is allowed, the residents of Neche, North Dakota, could presumably decide whether to pay taxes to the American government or to the Canadian government (or neither) for public goods and services. They may even decide which services to buy from which government, for example public education from the United States and healthcare from Canada (or invite bidding as to which state would provide these services at the lowest cost). The same could be true for the residents of Gretna, Manitoba, just two miles north of Neche. This, however, is not the reality we live in, and our theory provides an explanation for why states have made sure that it isn't.

Our theory raises new questions about the development of the territorial state system. For example, it leaves open for further examination the exact mechanisms by which cooperation was achieved, the role of technological improvements such as the development of maps, and institutional developments such as the exchange of ambassadors. Further work is also needed on the exact ways in which changes in international norms impacted local-level state behavior, and how the territorial state system spread first to the edges of Europe and later to the rest of the world.²²

Finally, our assertion that the state system is supported by rulers' interests in keeping their revenues high (and consequently the welfare of their citizens low) raises the question of how long such a low citizen-welfare equilibrium could persist, especially after the institutional developments of the 19th and 20th centuries—in particular, the advent of democracy and the rise of globalization. Research on these questions will help us further understand the changes in how political authority was organized over the last millennium, and may even provide clues as to how it may evolve in the future.

Indeed, the territorial state system, now established, appears stable. But it will have to adapt to the modern technological changes, globalization and new international institutions changing the way the world is governed.

²²Not that all modern borders emerged as per the mechanism of our theory; e.g., it is well-known that many African borders were drawn by colonial powers with other considerations. Our argument is that the *system* of territorial states is one that evolved in Europe out of the process that we outline here.

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