

# Building a New Imperial State: Agency Problems and Separation of Powers in English North America

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November 2, 2016

## Abstract

This paper explores the strategic foundations of separation of powers in the English empire of North America. A hierarchical principal-agent model of this setting demonstrates that imperial governors may extract more rents from colonial settlers than the imperial crown prefers. This lowers the crown's own rents, and inhibits economic development by settlers. Separation of powers within colonies allows settlers to restrain the governor at low direct cost to the crown. This restraint shrinks the share of the economy extracted jointly by the governor and the crown, but may thereby induce greater economic development. When efficiency gains of extracting from a larger pie outweigh distributive losses from a smaller crown share, the crown supports separation of powers within colonies. The model highlights the role of agency problems as a distinct factor in New World institutional development.

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Separation of powers is one of the hallmarks of the U.S. federal and all state constitutions. It powerfully channels the political process in the U.S., structuring political coalitions and the content of public policies that can pass multiple veto points. It is a model institution for reformers seeking inclusive institutions that inhibit arbitrary and extractive government. Yet almost no research in political economy or political science explores the origins or rationale of this celebrated political institution in the U.S.<sup>1</sup>

This paper explores the origins of separation of powers in the English empire of North America. While American constitutional thought in the 1780s gave new rationales for this institution, the institution itself was not new: American experience with it stretched back several generations under English imperial rule (Wood (1969)). To understand the origins of this institution in the U.S., then, one must look to the imperial era.<sup>2</sup>

The argument advanced here, in a hierarchical principal-agent model, is that the English Crown had the incentive to develop the institutional forerunners of modern separation of powers in the U.S. in the 17th and early 18th centuries. The Crown's incentive arose from its desire to find a reliable, low-cost approach to a simple but ubiquitous governance problem in New World empires: an agency problem with colonial governors.

This agency problem arose from conflicting goals between the crown and its governors, and limited technologies for control by the crown. In English Crown colonies, the governors sought to extract rents from the colonial economy to their own benefit (Elliott (2007)). A baseline model below shows that this agency problem reduced the amount of rent available to the crown in

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<sup>1</sup>Rare analyses of the revolutionary period in America include Hammond and Miller (1987), Grofman and Wittman (1989), Jillson and Wilson (1994), and Dougherty (2000). These treatments reveal significant insights about the strategic implications of the federal constitution, but none consider pre-revolutionary political development or the strategic foundations of separation of powers. Dragu, Fan and Kuklinski (2014) consider a more abstract problem of designing checks and balances, with a focus on institutional forms that satisfy several strategic desiderata.

<sup>2</sup>Cf. Wright (1933); this point is elaborated more fully below.

both a direct and indirect way—directly because the crown could only take a part of whatever was left after the governor’s bite at the colonial apple; indirectly because the joint depredations of crown and governor might induce colonial settlers to hold back on important but vulnerable investments in the development of the colonial economy.

The crown could have addressed this agency problem by building more state capacity—institutions of selection, oversight, instruction, and discipline of governors, so that they would conform to the wishes of the crown. Indeed, the English Crown did experiment with this approach. An extension of the baseline model below shows that such designs might restrain governor rent extraction, inducing both a transfer of rents from the governor to the crown, and also in some cases more economic development by settlers. State capacity would thus be useful to the crown from both an efficiency and distributive standpoint, but presumably also costly.

Another option for the crown—explored in a third model below—was to make colonial settler assemblies independent of the governor, and empower them to exert some control over colonial policy and finances. This was the essence of separation of powers in English North America. The model shows that it had countervailing effects on the crown. Directly, it reduced the Crown’s wealth by reducing rent extraction by both the Governor and the Crown. But indirectly, it increased the Crown’s wealth: separation of powers provided stronger protections for colonial settlers’ investments in colonial development, so that they are more likely to make those investments.<sup>3</sup> The occurs precisely because only separation of powers, and not close crown oversight of the governor, is able to address the double rent extraction problem

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<sup>3</sup>Cf. North and Weingast (1989), Stasavage (2003), and Cox (2016), though my model emphasizes agency problems faced by the crown—a factor excluded from previous theories—on top of the crown’s interest in committing itself. It also relates to, but is distinct from existing arguments in, the formal literature on nondemocratic politics (see Gehlbach, Sonin and Svobik (2016) for the state of the art). In this paper, in essence, a dictator is worried that its agent steals too much from the people, so it creates liberal institutions to restrain the agent—even if this partly restrains the dictator himself.

faced by settlers. It also harnesses a common interest between the settlers and the crown to restrain the governor, allowing oversight of the governor at low cost to the crown.

It is important to understand the development of separation of powers in the United States for two reasons. First, it is essential to understanding the development and structure of the American state, though the origins and development of separation of powers are largely neglected in the fields of American politics and American political development.<sup>4</sup> Second, as will be explicated more fully below, separation of powers represented a relatively inclusive institution in English North America. Its predecessors concentrated immense political authority in colonial governors. Therefore, the development of separation of powers in English North America can shed light on conditions for the creation of inclusive institutions.

This paper also makes a larger point about the strategic, *political* foundations of institutions in early modern empires of the New World. No widely known theory of these institutions emphasizes strategic choice by imperial crowns. One prevailing theory of New World institutional origins traces them to factor endowments (Sokoloff and Engerman (2000)), and is thus essentially an argument of environmental determinism. Another argument (Acemoglu, Johnson and Robinson (2001)) points to European settler mortality as a determinant of colonial institutions—not as a full theory of their origins, but rather part of an empirical strategy to explain the effect of current institutions on current economic performance. In a third direction, numerous scholars have also contended that culture, either of the imperial colonizers or the pre-contact indigenes, is responsible for determining institutional development.<sup>5</sup>

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<sup>4</sup>Many, many scholars across political science and political economy consider the political and policy implications of separation of powers, but not its strategic foundations or development.

<sup>5</sup>Creative arguments also combine multiple factors (e.g., Mahoney (2010) on the match between culture and environment).

This paper represents a qualitatively different strain of argument: that strategic problems of governance powerfully affected New World political institutions. All early modern empires faced significant agency problems with their governors and administrators in the new world,<sup>6</sup> exacerbated by technological limitations given the need for ocean travel. We should expect European crowns to have designed imperial institutions, to the extent possible, to mitigate those agency problems, because this would increase the value of the empire to the crown. Only the English developed separation of powers in their New World empire, because of the specific agency problem the English Crown faced.<sup>7</sup> But the general thrust of this argument pushes away from American exceptionalism, inasmuch as precursors of American institutions result as a special case of a more general agency problem faced by European crowns.

The rest of this paper is organized as follows. Section 1 briefly reviews background history of the development of separation of powers in North America during English imperial rule. Section 2 presents a baseline, Active Governor model of rent extraction. Institutions of direct oversight (Crown Control model) and separation of powers (Empowered Assembly model) are covered in sections 3 and 4. Section 5 then considers the optimal institution for the crown, showing in particular that in some cases, the empowered assembly is optimal from the crown's perspective. Section 6 discusses how the model illuminates institutional development in English North America, with brief comparison to the Spanish and French empires. Finally, section 7 concludes.

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<sup>6</sup>Cf. Padró i Miquel and Yared (2012) on the general problem of indirect control in governance

<sup>7</sup>This point elucidated by the model below and considered further in section 6.

# 1 Historical Background

Separation of powers in this paper means the regularized participation in policy making by both a governor and an assembly, under conditions such that the governor and assembly have independent power bases. Most naturally in the present context, the power base of the governor is the Crown of England (before 1707) or Britain (after 1707). The power base of the assembly in separation of powers is some distinct faction of the colonial population—e.g., a planter elite, all white male property owners, etc. Separation of powers does not obtain in this definition when the governor has tools to blandish or bludgeon a nominally elective assembly into submission to the governor’s plans, e.g. control over patronage appointments upon which individual assembly members depend. Separation of powers requires independence of the institutions of government from one another.

The concept of separation of powers available to the framers of the U.S. federal and state constitutions was not a novel abstraction from the minds of theoreticians such as Montesquieu, Locke, and Blackstone. In fact, separation of powers already existed in the English imperial constitution long before the 1780s (Greene (1986)). The first English colonies to last in America, Virginia (established 1607) and Massachusetts Bay (1629), came with royally approved corporate charters ensuring conciliar government. Crown and corporate colonies established in later decades all included governments based on a governor and a council. These political structures, and other guarantees of the rights of Englishmen, were important tools in recruiting settlers who emigrated voluntarily (Taylor (2002)). Brief and unsuccessful state-level experiments with unicameral legislative supremacy in the 1770s reminded American constitutional designers of the value of checks and balances. Thus they returned to familiar forms such as separation of powers (among others) in the 1780s (Wood (1969)).

Thus, separation of powers developed gradually and was familiar continuously over time in America from the 17th century, with brief interruptions

such as the Dominion of New England (1685-88) and the first wave of post-Independence constitutions. This implies that to understand the genesis of separation of powers in the U.S., it is not sufficient to examine the framing of the U.S. federal or state constitutions of the Revolutionary era. Instead, it is necessary to examine the design of institutions in the colonial era (Wright (1933)).

Moreover, such examination must focus on politics in colonial (that is, within colonies) and imperial (that is, between colonies and the metropole) spheres. The institutions in place in England's North American colonies developed through strategic interaction within these spheres (Greene (1994)); these institutions were not replicas of those found in the metropole itself (Braddick (2000)). To be sure, there is a clear homology between assemblies in English colonies and the House of Commons in England. But the colonial assemblies, their independence from colonial governors, and the resulting separation of powers developed indigenously in the colonies rather than being imported from England. More importantly, the American version took different forms and instantiated different political conflicts.

Colonial institutions followed complex paths of development with numerous influences and responding to no overarching plan (Greene (1963), Greene (1986)). Nevertheless, the Crown often acted as though colonial and imperial political structure would affect the value of the colonies to the Crown, and attempted to restructure colonial and imperial institutions to suit its interests (Stanwood (2011)). This is apparent in the royal assumption of control over Virginia in 1625; the abrogation of the Massachusetts charter and formation of the Dominion of New England in 1685; and royal requirements for conciliar government in colonial charters (e.g., the original charter of Maryland in 1632). Awareness of the effects of colonial political structure on Crown interests was also strikingly reflected in Crown reorganization of Virginia after Bacon's rebellion in 1676; this episode will be covered in greater detail later in the paper.

Beyond direct royal assertions of control over internal colonial structure, the Crown often lent implicit sanction to the assertions of power by colonial assemblies simply by refusing to allow challenges to them. This tendency reflected the “wise and salutary neglect” of the colonies by the metropole, a policy at its high water mark under the Prime Ministers of the early Hanover kings (ca. 1721-1754). The policy implied more than simple disregard: the king-in-council passively protected colonial assemblies from metropolitan incursions. For example, on three separate occasions between 1734 and 1749, the king’s Privy Council declined to support bills in Parliament asserting the supremacy of Crown instructions over colonial law, effectively vetoing the bills (Greene (1963)).

## 2 A Model

This section lays out a baseline model of a colony’s political-economic process. It is designed to capture the agency problem between the crown and imperial governors, and endogenous economic development of the colony driven by settlers—salient conditions in English North America in the 17th century.<sup>8</sup> It will be extended to consider institutional solutions to the agency problem in subsequent sections.

There are three players in the model: the Crown  $C$ , the Governor  $G$ , and Settlers  $S$ . All players are interested in maximizing their own (and only their own) economic payoffs.<sup>9</sup> The economic structure will be briefly summarized before the full model of the political process is laid out.

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<sup>8</sup>It is therefore not designed to capture economic development by trade with Native Americans, forced extraction of fixed mineral resources, agriculture with estates held only by the extremely wealthy, or empty claims of sovereignty without imperial agents in place. All of these conditions prevailed in New World empires of England, Spain, and France at various other places and times. These differences, which account for some of the institutional variation over New World empires, will be further explored in section 6.

<sup>9</sup>Class and ideological conflicts within the settlers are suppressed, such that the analysis considers their common interests with respect to  $G$  and  $C$ .

The Colony’s value is  $V$ . The minimal value of  $V$  is 1.  $S$  can make an investment  $e \in \{0, 1\}$ , where  $e = 1$  is valued at  $V_H$  and adds to the colony’s value;  $e = 0$  is valued at  $V_L$  and does not add to the colony’s value—it is valuable to settlers only. Assume  $0 < V_L < V_H$ . Thus,<sup>10</sup>

$$V = 1 + eV_H. \tag{1}$$

$G$  extracts a share  $x$  from  $V$ ;  $C$  extracts a share  $y$  from  $(1 - x)V$ ; and  $S$  keeps  $(1 - x)(1 - y)V + (1 - e)V_L$ .

The focus on settler investment decisions reflects the fact that white English settlers came mostly voluntarily,<sup>11</sup> and it had to be worth their while to labor for the development of the colony.<sup>12</sup> This participation constraint was apparent to colonial and imperial elites at the time; for example, a British minister counseled a royal colonial governor, “In the Plantations, the Government should be as Easy and Mild as possible to invite people to Settle under it.”<sup>13</sup>

In this light  $V_L$  represents investments that are beyond the reach of the state. High investment in synergistic activities with other economic agents, traders, shippers, etc., builds more value, but by the same token it is observable by many actors and so more easily within reach of the state. Subsistence

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<sup>10</sup>The economic structure can be understood as a simple version of one where settlers have 1 unit of labor; they allocate  $e \in [0, 1]$  units to a production technology  $V(e)$  whose output is subject to rent extraction by  $G$  and  $C$  such that  $S$  obtains utility  $(1 - x)(1 - y)V(e) + (1 - e)$ , where  $(1 - e) \equiv V_L$ . If  $V$  is  $\mathcal{C}^2$  such that  $V' > 0$ ,  $V'' < 0$ , and  $\lim_{e \rightarrow 0} V'(e) \rightarrow \infty$ , then  $e > 0$  in any equilibrium. If  $V' > 1$  for all  $e$ , then  $e = 1$  is efficient.

<sup>11</sup>English/British authorities did occasionally round up felons and/or impoverished persons in England and ship them to various colonies, especially in the South; see Taylor (2002).

<sup>12</sup>This also squares with the contention of Acemoglu, Johnson and Robinson (2001) that settler habitation powerfully affected institutional structure. Here it is not so much by simply importing “good” institutions from the mother country; it is by forcing crown consideration of incentive constraints to generate the rents the crown wished to extract.

<sup>13</sup>Secretary of Lords Justice Delafaye to Governor Nicholson, Jan. 26, 1722, in Francis Nicholson Papers on South Carolina, 1720-1727, quoted in Greene (1963).

agriculture on the frontier that does not produce surplus attainable by revenue collectors or products for international trade is more secure from state agents, but generates less value.<sup>14</sup>

## 2.1 Political Structure: Active Governor Model

The political process is a moral hazard model of political agency (Barro (1973), Ferejohn (1986)), with successive rent extraction by two agents. The first ( $G$ ) extracts rents from the whole pie, and the second ( $C$ ) extracts rents from whatever is left after  $G$ 's cut. The first can be dismissed by the second if its rents are not high enough, and the both can (in effect) be dismissed by the last mover ( $S$ ) if its total rents are not high enough.

The sequence of moves in the Active Governor Model ( $\Gamma_G$ ) is depicted in figure 1. In particular,

1.  $S$  makes an investment decision  $e \in \{0, 1\}$ .
2.  $G$  observes  $V$  and attempts to extract a share  $x \in [0, 1]$  of  $V$ .
3.  $C$  observes  $V$  and  $x$  and chooses whether to retain or sack  $G$ .
  - If  $C$  chooses to retain ( $r_c = 1$ ), then  $C$  extracts  $y \in [0, 1]$  of  $(1 - x)V$ .
  - If  $C$  chooses to sack  $G$  ( $r_c = 0$ ), then  $G$ 's payoff is  $\alpha V - L$ .  $G$  absconds with an exogenous share  $\alpha \in [0, 1]$ , and incurs a loss  $L \geq 0$ ;<sup>15</sup>  $C$  keeps the rest of the pie  $(1 - \alpha)$ .<sup>16</sup>  $L$  might represent

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<sup>14</sup>This option was readily available to able-bodied free colonists, and many took it in the constant struggle for survival. It was dangerous because it raised the likelihood of Indian conflicts and instability in crop harvest, but it was not necessarily less attractive than subsistence agriculture in the grim malaise of lower-middle class England: environmental and interethnic stresses may have been less intense, but labor-to-land ratios were much less favorable.

<sup>15</sup>Here  $L$  is an exogenous parameter, but it would be natural to endogenize it in a repeated game, such that (in the spirit of canonical moral hazard models of political control)  $L$  is  $G$ 's loss of future rents. Then  $L$  would tend to be smaller when  $G$  expects  $v = V_L$  in the future.

<sup>16</sup>It is not important for the analysis that  $S$  obtains literally no share of  $V$  in case  $r_c = 0$ . It is important that  $S$  expects its high value investments to be unprotected in this case.

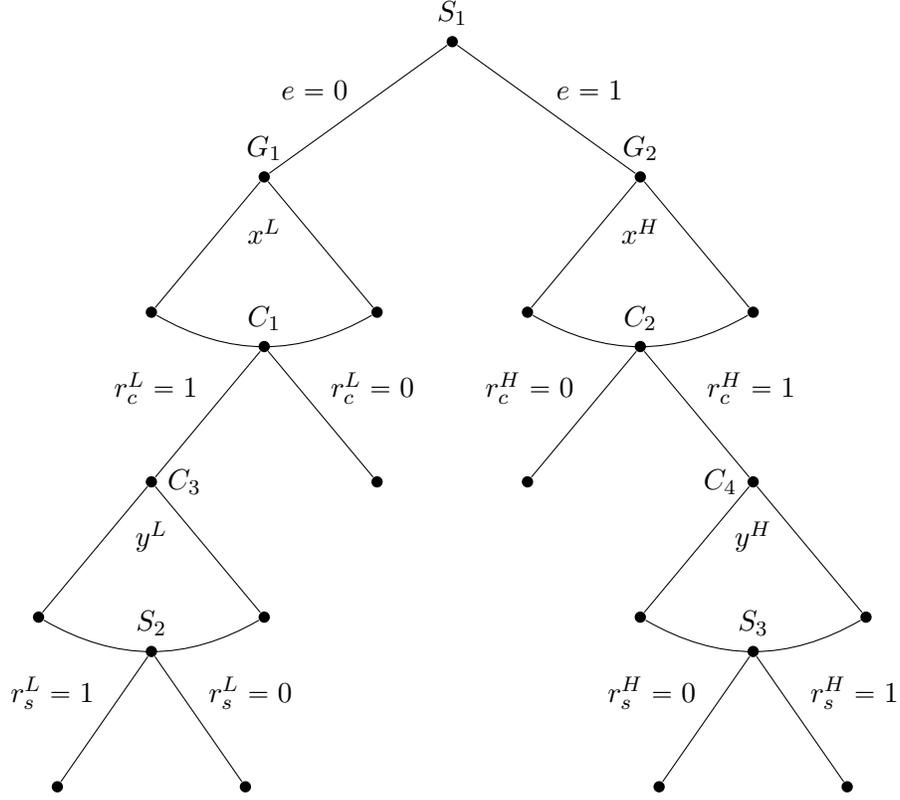


Figure 1: Extensive-form, Active Governor Model ( $\Gamma_G$ )

a cost to  $G$ 's reputation from absconding, or a cost of military defense against settlers angry about expropriated wealth.

4.  $S$  observes  $x$  and  $y$ . While  $S$  does not formally participate in the political process determining rents, it does have the option to remain loyal or rebel.
  - If  $S$  remains loyal ( $r_s = 1$ ), its payoff is  $(1-x)(1-y)V + (1-e)V_L$ .
  - If  $S$  rebels ( $r_s = 0$ ), its payoff is  $\rho V + (1-e)V_L$ .  $S$  takes an exogenous share  $\rho \in [0, 1]$  in case of rebellion. In this event,  $C$  earns the rest of the pie  $(1-\rho)$  less  $M \geq 0$ , a cost of military

intervention to suppress rebellion.<sup>17</sup>

Payoffs to each player under each combination of  $\{e, r_s, r_c\}$  (corresponding to terminal nodes of the game) are displayed in table 1.

$\{e, r_c, r_s\}$	Payoffs	$\{e, r_c, r_s\}$	Payoffs
$\{0, 0, -\}$	$u_S = V_L$ $u_G = \alpha - L$ $u_C = (1 - \alpha)$	$\{1, 0, -\}$	$u_S = 0$ $u_G = \alpha(1 + V_H) - L$ $u_C = (1 - \alpha)(1 + V_H)$
$\{0, 1, 0\}$	$u_S = \rho + V_L$ $u_G = 0$ $u_C = (1 - \rho) - M$	$\{1, 1, 0\}$	$u_S = \rho(1 + V_H)$ $u_G = 0$ $u_C = (1 - \rho)(1 + V_H) - M$
$\{0, 1, 1\}$	$u_S = (1 - x)(1 - y) + V_L$ $u_G = x$ $u_C = y(1 - x)$	$\{1, 1, 1\}$	$u_S = (1 - x)(1 - y)(1 + V_H)$ $u_G = x(1 + V_H)$ $u_C = y(1 - x)(1 + V_H)$

Table 1: Payoffs, Active Governor Model ( $\Gamma_G$ )

The game is played under complete information; the natural equilibrium concept is subgame perfect Nash equilibrium. The point of a complete information model is not that information asymmetries played no role in English imperial governance problems; rather, it is to see how far analysis can get in substantive terms based on complete information commitment problems alone.

A few comments about the substantive motivation for the payoffs and extensive form are pertinent. First, a crucial constraint on rent extraction is the possibility of settler rebellion. This is motivated by several high profile rebellions, revolts, or episodes of civil unrest that occurred in English North America in the 17th century. The most significant was Bacon's rebellion of

<sup>17</sup>As written  $M$  may be larger than  $V$ , putting  $C$  in the strange position of spending more to suppress colonial revolt than the entire colony is worth.  $M$  could of course be reformulated so that  $u_C$  is bounded below by 0. However, the present formulation reflects the idea that failing to suppress rebellion in one colony has reputational costs pursuant to maintaining order in other colonies, as well as defending attacks from other colonizing empires. These are the reasons to assume  $M \geq 0$ .

1675, discussed in further detail in section 6. In brief, Bacon’s rebellion pitted the “middle class” white planters of Virginia against the Governor. To quash the rebellion, the king sent a regiment of 1000 Redcoats and 14 war ships from England. Other episodes included the “Hue and Cry” in Maryland in 1676, Culpepper’s rebellion in Carolina (1677), and the Boston revolt and Leisler’s rebellion against agents of James II after the English Revolution of 1688. These episodes powerfully affected the perceptions of imperial authorities about the possibility of intracolonial conflict (Webb (1987)).

Second,  $G$  moves in advance of  $C$ . This reflects the ability of  $G$  to influence the colonial economy in a deep way—not just by (e.g.) taxing agricultural output, but by claiming the largest and best tracts of land, distributing top offices among cronies and various sons-in-law, and taking the lucrative black market international trade.<sup>18</sup> Governors could pursue these opportunities for rent extraction before the customs agents of the Crown could record the shipments to England, or even before they were produced. Note also that the game entails perfect observability of  $G$ ’s cut by  $C$ . The equilibrium results would actually be the same even without observability of  $t$  by  $C$ , because  $C$  knows the maximal cut  $G$  can get away with, and given sequential rationality requirements in perfect equilibria,  $C$  cannot commit to punish  $G$  for taking any more.

Third, note a similarity in  $S$ ’s terminal node payoffs:

- if  $G$  absconds/is sacked,  $S$  loses all of  $V = 1 + eV_H$  but keeps  $(1 - e)V_L$
- if  $S$  rebels, settlers keep  $\rho(1 + eV_H) + (1 - e)V_L$ .
- if  $G$  is retained and  $S$  remains loyal,  $S$  keeps  $(1 - x)(1 - y)(1 + eV_H) + (1 - e)V_L$ .

In all cases,  $(1 - e)V_L$  enters without any weight. Low value investments on the fringes of the economy are beyond the reach of the state and its agents: they are not taxed, nor captured by an absconding governor, nor forfeited

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<sup>18</sup>As early as 1651, Navigation Acts made it illegal for colonies to trade on ships or at ports other than English, but they were routinely ignored for about a century.

to the crown in rebellion. The settlers can lose only what they put within reach of the government. In the event of rent extraction, corruption, or civil unrest, settlers can retreat to subsistence farms on the hinterland.

The key issue for this paper is the SPNE value of  $S$ 's investment decision,  $e^*$ . This is covered in formal analysis, followed by intuitive discussion.

## 2.2 Analysis

As a preliminary, define  $\bar{M}(\alpha)$  as the cost of military intervention above which  $C$  prefers taking no rents to facing rebellion by  $S$  for any  $V$ . To simplify the parameter combinations to consider, assume throughout that  $M > \bar{M}(\alpha)$ —i.e., the crown prefers to avoid settler rebellion if at all possible. Assume also  $\rho > 0$  and  $\alpha > 0$ , so the crown loses some of the colony's value after either settler rebellion or absconded governor.

Sequentially rational decision rules are characterized by working backward through the game tree. The final stage is  $S$ 's decision to remain loyal ( $r_s = 1$ ) or not ( $r_s = 0$ ). Define  $\bar{y}(x) = 1 - \frac{\rho}{1-x}$  as the largest  $y$  such that  $S$  chooses  $r_s = 1$ . This follows from  $S$ 's indifference condition between  $r_s = 1$  and  $r_s = 0$ :  $(1-x)(1-\bar{y})V + (1-e)V_L = \rho V + (1-e)V_L$ ; the left hand side is decreasing in  $\bar{y}$ . This definition holds for either  $e = 0$  or  $e = 1$ .

At the penultimate stage,  $C$  chooses  $y = \bar{y}(x)$  if this is non-negative, and 0 otherwise.<sup>19</sup>  $C$  does not prefer any larger  $y$  because it would trigger rebellion, and does not prefer any smaller one because it leaves money on the table. In turn,  $C$ 's necessary condition to prefer retaining the governor ( $r_c = 1$ ) instead of sacking ( $r_c = 0$ ) is  $\bar{y}(x)(1-x) \geq (1-\alpha)$ , or

$$x \leq \alpha - \rho \equiv \bar{x}_c. \tag{2}$$

Whenever  $x \leq \bar{x}_c$ ,  $C$  has enough pie both to induce  $r_s = 1$  by  $S$  and to prefer

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<sup>19</sup> $\bar{y}(x) < 0$ , or  $x > (1-\rho)$ , means  $x$  is so large relative to  $S$ 's payoffs in rebellion that there is no way for  $C$  to ensure loyalty by  $S$  given retention of  $G$ . In this event, given  $M > \bar{M}(\alpha)$ ,  $C$  sacks the governor ( $r_c = 0$ ).

$r_c = 1$  itself. Note  $\bar{x}_c$  is feasible, i.e.  $\bar{x}_c \geq 0$ , if and only if  $\alpha \geq \rho$ .

Further up the tree are the decisions of  $G$ . Note particularly that  $r_c = 1$  in SPNE requires assent of both  $C$  and  $G$ , for  $G$  can induce  $r_c = 0$  by proposing  $x > \bar{x}_c$ .  $G$ 's incentive constraint not to abscond is  $xV \geq \alpha V - L$ , or  $x \geq \alpha - \frac{L}{V}$ , i.e.,

$$x \geq \begin{cases} \bar{x}_g \equiv \alpha - \frac{L}{1+V_H} & \text{if } e = 1 \\ \underline{x}_g \equiv \alpha - L & \text{if } e = 0. \end{cases} \quad (3)$$

Note that  $\bar{x}_g \geq \underline{x}_g$ .

Given these decision rules, equilibrium investment by settlers at the first stage of the game is characterized as follows.

**Proposition 1** *Suppose  $0 < \rho < \alpha < 1$  and  $L > \rho(1 + V_H)$ . Then  $e^* = 1$  in SPNE if and only if  $\rho > \frac{V_L}{V_H}$ .*

*Proof:*  $L > \rho(1 + V_H) \Rightarrow \alpha - L < \alpha - \frac{L}{1+V_H} < \alpha - \rho$ , or  $\underline{x}_g < \bar{x}_g < \bar{x}_c$ . Moreover,  $\alpha > \rho \Rightarrow \bar{x}_c > 0$ . Now  $r_c = 1$  after any  $e$  requires  $\bar{x}_g \leq x \leq \bar{x}_c$ . This is accomplished with  $x^* = \alpha - \rho$ .  $G$  proposes this in SPNE; in turn,  $r_c(x^*) = 1$ , and  $y^*(x^*) = 1 - \frac{\rho}{1-\alpha+\rho}$ , which is strictly positive provided  $\alpha < 1$ . Then by construction,  $r_s^*(x^*, y^*) = 1$  for any  $e$ .

Given  $x^*$  and  $y^*$ ,  $S$  obtains  $u_S(V_L) = \rho + V_L$  or  $u_S(V_H) = \rho(1 + V_H)$ . Then  $u_S(V_H) \geq u_S(V_L)$  if and only if  $\rho > \frac{V_L}{V_H}$ . ■

**Proposition 2** *Suppose  $0 < \rho < \alpha < 1$  and  $L < \rho(1 + V_H)$ . Then  $e^* = 0$  in SPNE.*

*Proof:*  $L < \rho(1 + V_H) \Rightarrow \alpha - \rho < \alpha - \frac{L}{1+V_H}$ , or  $\bar{x}_c < \bar{x}_g$ . But  $r_c = 1$  after  $v = V_H$  requires  $x \leq \bar{x}_c$  and  $x \geq \bar{x}_g$ , which is impossible. Therefore,  $r_c = 0$  whenever  $e = 1$ . But since  $u_s(e = 1, r_c = 0) = 0 < V_L$ , the utility  $S$  can guarantee itself by choosing  $e = 0$ , it follows that  $e = 1$  is never a best response, and  $e = 0$  is always a best response, to  $r_c = 0$ . ■

**Proposition 3** *Suppose  $0 < \alpha < \rho < 1$ . Then  $e^* = 0$  in SPNE.*

*Proof:*  $\rho > \alpha$  implies  $\bar{x}_c < 0$ , so it is impossible to satisfy  $C$ 's incentive constraint for  $r_c = 1$  after any  $e$ . Thus  $r_c^* = 0$ . As noted in the proof of proposition 2,  $e = 0$  is the only sequentially rational plan for  $S$  when it expects  $r_c = 0$ . ■

### 2.3 Intuition

Table 2 summarizes the propositions about the Active Governor model. All propositions assume  $M > \bar{M}(\alpha)$ .

Parameters				$e_G^*$
1.	$\alpha > \rho$	$L > \rho(1 + V_H)$	$\rho V_H > V_L$	1
2.	$\alpha > \rho$	$L > \rho(1 + V_H)$	$\rho V_H < V_L$	0
3.	$\alpha > \rho$	$L < \rho(1 + V_H)$		0
4.	$\rho > \alpha$			0

Table 2: Investment, Active Governor game ( $e_G^*$ )

In parameter regime 1,  $C$  and  $G$  prefer to moderate their rent extraction to such an extent that  $S$  does not rebel and  $C$  does not sack—because the alternatives are prohibitively costly—and  $S$  obtains a relatively large payoff for itself after rebellion. In this case, settlers choose the high value investment in SPNE:  $e^* = 1$ . A high payoff after rebellion allows the settlers to restrain rent extraction by the governor and crown; it gives settlers a good exit option in case rent extraction is too high.

In regime 2,  $C$  and  $G$  still prefer to moderate their rent extraction, but  $S$  obtains a relatively small payoff in the event of rebellion. Then  $S$  chooses the low value investment in SPNE:  $e^* = 0$ . When settlers capture a small share of the colony after rebellion, the high value investment exposes settlers to a hold up problem at the hands of the governor and crown. The low

value investment beyond the reach of the crown is a safe haven for settlers, and is the preferred option when the difference in the low and high value investments small.

In regime 3, unlike regimes 1 and 2, the incentive constraints for  $G$ 's retention ( $r_c = 0$ ) cannot all be satisfied in case  $e = 1$  (and possibly not  $e = 0$  either). The key condition is that  $G$ 's reputation loss in case of being sacked,  $L$ , is not large. In this case,  $r_c = 0$  after  $e = 1$ , and  $S$ 's sequentially rational choice is the low value investment  $e^* = 0$ .

Intuitively,  $C$  needs  $G$ 's rents small enough to have enough to give to both itself to justify not sacking the governor, and to settlers to prevent rebellion.  $G$  needs rents large enough to prevent it from sabotaging the colony itself. When  $L$  is small there is not enough common interest between these players in setting  $x$ .

Of course, elites would like to commit to moderate rent extraction to induce settlers make the high value investment, but only their incentive constraints for  $r_c = 1$  and  $r_s = 1$  make this credible. Ideally, the elites could commit to moderate rent extraction after  $e = 1$  but not  $e = 0$  to make  $e = 1$  more attractive for  $S$ . This is not possible due to an asymmetry in  $G$ 's incentive constraint for retention: for any  $L > 0$  it is looser under  $e = 1$  than  $e = 0$ . This asymmetry implies implies that, for moderate  $L$  values, the credibility of moderate rent extraction is undermined precisely for  $e = 1$ , the case where  $G$  and  $C$  need it, but not  $e = 0$ . For small  $L$  values, there is no credibility of moderate rent extraction for any  $e$ . Lacking credibility in the  $e = 1$  case,  $S$  protects itself by building low valued investments beyond the reach of the state.

In regime 4,  $\rho > \alpha$ : the crown loses more of the colony's value under settler rebellion than by sacking the governor. Thus,  $C$  prefers to sack the governor, even when the governor claims no rents. Settler rebellion does not occur on the equilibrium path, but the need to prevent it (given the high cost of military intervention) constrains the crown's rents when it retains

the governor. When  $\alpha > \rho$ , the crown does better by sacking  $G$  than by satisfying  $S$ 's incentive constraint to remain loyal. But settlers lose so much in colonial disruption when the governor absconds that they make the low value investment whenever they expect this. The crown might wish to induce the high value investment by committing not to sack the governor in this case, but the commitment is not credible.

A natural extension to the model is the possibility of settler rebellion when the governor is sacked or absconds with colonial wealth. Of course  $L$  could be thought of as a conflict cost borne by the Governor in case  $G$  absconds. However, in addition, the Crown might face a cost of military intervention  $M$  in this case. This would raise  $\bar{x}_c$  above  $\alpha - \rho$ , i.e., raise the set of  $t$ 's consistent with  $C$  preferring  $r_c = 1$ .

### 3 Tightening Crown Control: A Model with Crown Oversight

This section explores the consequences for efficiency and the distribution of rents of allowing the Crown to exert more control over the rent extraction of the Governor. This captures the idea that the Crown can address the agency problem laid out in the previous section by developing stronger state capacity to control the governor. “State capacity” here simply means the ability to restrain the choices of the governor to coincide with those most preferred by the Crown. Nevertheless, the model black-boxes exactly what the institutional business end of “state capacity” looks like. The Crown simply has a magical spell it can cast to ensure that the Governor’s choice conforms perfectly to the Crown’s wish.<sup>20</sup>

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<sup>20</sup>The exaggerated effectiveness of crown oversight in this game is useful when comparing it to other institutional approaches later in the paper. In particular, if the empowered assembly considered later provides the crown greater utility than perfect control of the governor, it is per force preferred to more realistic, imperfect oversight.

This structure corresponds to the increasing development of institutions to carefully select, instruct, and oversee governors in the late Stuart period (late 17th century). Faced with errant governors and ensuing colonial underdevelopment (and occasionally unrest), Charles II and James II erected procedures and institutions to identify better, more loyal candidates for governorships; to give more detailed and complete instructions at the commencement of the term; to give the instructions the force of law; to take regular reports from and issue directives to the governors; and to ensure full accounting of their actions upon conclusion of their tenure (Webb (1987), Webb (1995), Lustig (2002), Stanwood (2011)).

These developments were supported by an increasingly institutionalized Privy Council in the 1670s and 1680s. Rather than personal oversight by the king or the entire council, the Crown developed specialized subsets of the Privy Council—successively the Lords of Trade, the Lords of Trade and Plantations, the Committee of Trade and Plantations, the Board of Trade—for formulating instructions, securing their legal status, and monitoring adherence (Braddick (1998), Steele (1998), Braddick (2000), Elliott (2007)).<sup>21</sup>

Of course, if  $C$  could direct  $G$ 's choice of  $x$  in this economy, it would choose  $x = 0$ . Formally, define the Crown Control game  $\Gamma_C$  by deleting the choice of tax  $x$  by  $G$ , and the choice of whether to sack  $G$  by  $C$ . The crown control game consists of  $S$  choosing  $e \in \{0, 1\}$ ,  $C$  choosing  $y \in [0, 1]$  conditional on  $e$ , and  $S$  choosing  $r_s \in \{0, 1\}$  conditional on  $e, y$ . Since  $G$  no longer has an independent power base from  $C$ , it cannot finance any military defense should it choose to abscond, and  $C$  cannot force the cost of such a defense onto  $G$ .

The key substantive point is that, in some cases, the equilibrium of the Crown Control game differs (in the crown's favor) from that of the Active

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<sup>21</sup>Presumably there was an opportunity cost for having trusted and capable advisors detailed to focus on the colonies rather than some other enterprise (or a direct cost of recruiting new advisors and enlarging the Privy Council), but this model explores only the benefit to the crown of exerting more (indeed, perfect) control.

Governor game, *in terms of both distribution and efficiency*. Efficiency gains accrue whenever the governor would (if active) expropriate so much rent that settlers are induced to make low investment. Forcing  $x = 0$  in these cases paves the way for high investment.

To see this, assume again that  $M$  is sufficiently large that  $C$  prefers  $y = 0$  and  $r_s = 1$  to  $r_s = 0$  for any  $e$ .

**Proposition 4** *In SPNE of  $\Gamma_C$ ,  $e^* = 1$  if and only if  $\rho V_H \geq V_L$ .*

*Proof:* Given  $M$ ,  $C$  chooses  $y$  to satisfy  $S$ 's loyalty incentive constraint,  $(1 - y) \geq \rho$ , with equality. Thus  $y_C^* = 1 - \rho$  and  $r_s^* = 1$  for  $e = 0$  or  $e = 1$ . The threshold for  $e = 1$  then follows from the proof of proposition 1. ■

**Corollary 1**  *$\Gamma_C$  provides distributive gains to  $C$  over  $\Gamma_G$  if  $\alpha > \rho$ .  $\Gamma_C$  provides efficiency gains over  $\Gamma_G$  if and only if  $\alpha > \rho$ ,  $L < \rho(1 + V_H)$ , and  $\rho > \frac{V_L}{V_H}$ .*

*Proof:* If  $\alpha < \rho$ ,  $C$  prefers to play  $\Gamma_G$  and sack  $G$ . Otherwise, the share of  $V$  obtained by  $C$  in the games is  $y_C^* = 1 - \rho > 1 - \frac{\rho}{1 - \alpha + \rho} = y_G^*$ . If in addition  $L < \rho(1 + V_H)$ , and  $\rho > \frac{V_L}{V_H}$ ,  $V = 1 + V_H$  under  $\Gamma_C$  but  $V = 1$  under  $\Gamma_G$ . ■

The Crown Control game simply assumes away  $C$ 's agency problem with  $G$ . By forcing  $x = 0$ , crown control ensures  $C$  a larger share of the pie for  $C$ . Thus crown control entails a transfer of rents from  $G$  to  $C$ , as expected. Moreover, in cases where  $G$  could not be induced not to abscond in  $\Gamma_G$ , crown control also changes the investment level, thereby enlarging the pie.<sup>22</sup> Completely eliminating the crown's agency problem with the governor is good not only for distribution between imperial elites, but also sometimes for efficiency as well.

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<sup>22</sup>The effects of Crown Control on  $C$ 's utility are separable into a distributive gain from the transfer from  $G$ , and an efficiency gain. This decomposition is expressed formally in the appendix.

## 4 Delegating Control: A Model of Separation of Powers

The state capacity required for direct control of governors would presumably be costly to the crown. Another possibility, explored in this section, is that the crown can in effect delegate control to the settlers. In particular, as this paper's models reveal, the crown and the settlers have a common interest in restraining the governor's rent extraction. The crown actually can leverage this common interest by empowering independent colonial assemblies to check the governor's power and separating them from the governor's immediate control.<sup>23</sup> While this might entail a smaller share of the pie to the crown, it can constrain the governor sufficiently that settlers increase the pie—and thereby the crown's total utility.

There are two essential elements of late 17th and early 18th colonial assemblies to consider in a model. First, though assemblies broadened political decision making beyond the governor and his immediate coterie, they were in no sense democratic bodies. The imperial and colonial constitutions unapologetically empowered the colonial planter elite through nontrivial property requirements for political participation, and official or unofficial status requirements for holding elective office (Taylor (2002)). This “better sort” tended overwhelmingly to make high-value investments and generate relatively notable wealth.

Second, the focus of elected colonial assemblies was overwhelmingly on fiscal matters (Greene (1963), Elliott (2007)). The assemblies took control of both raising and appropriating public revenue for internal colonial business. They vigilantly watched for corrupt diversions of the revenue by governor and his allies (and essentially all diversions were corrupt diversions in the eyes of the assemblies). They also consistently resisted crown instructions

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<sup>23</sup>This logic has a family resemblance to the “police patrols/fire alarms” model of bureaucratic oversight (McCubbins and Schwartz (1984)), though the mechanism is quite different: there is no “fire alarm” sent by the settlers to the crown.

for the assemblies to provide perpetual revenues for governors. The governor continued to administer colonial government and funds appropriated by the legislature, and interface with the imperial government. Thus assembly independence from the governor and separation of powers in colonial constitutions developed hand in hand.

Bringing these elements together, the model of assembly control allows settler determination of funds available to the government, but only conditional on making the high value investment  $e = 1$ . In particular, the Empowered Assembly game  $\Gamma_A$  makes one change to the sequence of  $\Gamma_G$ : if  $e = 1$ ,  $S$  chooses a pie  $0 \leq P \leq V$  for  $G$  and  $C$  to split. If  $e = 0$ ,  $G$  and  $C$  extract rents from  $V$ . Whatever pie is available,  $\Gamma_A$  then proceeds exactly as  $\Gamma_G$ .<sup>24</sup> Empowering the assembly shifts agenda setting powers from the governor to the settlers.

Payoffs in  $\Gamma_A$  are as follows (only item 3 is different from  $\Gamma_G$ ):

1. For  $r_c = 0$  following any  $e$ ,  $G$  and  $C$  take shares  $\alpha, (1 - \alpha)$  respectively of the entire pie  $V$ , and  $G$  incurs an additive cost  $L > 0$
2. For  $r_s = 0$  following any  $e$ ,  $S$  and  $C$  take shares  $\rho, (1 - \rho)$  respectively of the entire pie  $V$ , and  $C$  incurs an additive cost  $M > 0$
3. If  $e = 1$  and  $r_c = r_s = 1$ ,  $S$  earns  $(V - P) + (1 - x)(1 - y)P$

Thus, in  $\Gamma_A$  after  $e = 1$ , settlers are empowered (nominally at least) to appropriate a pie  $P$  for “public use.” However, a corrupt governor is not limited to absconding only with a share of  $P$ ; it has access to all of  $V$ . And the stakes of a settler rebellion are not merely its appropriation of public money; it is all of  $V$ . If there is no absconding, sacking, or rebelling,  $S$  keeps the entire portion of the pie it did not appropriate,  $V - P$ , plus whatever is left of  $P$  after  $x$  and  $y$  are extracted.

Since sacking and absconding give exactly the same utilities in  $\Gamma_A$  as in

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<sup>24</sup>The seminal agency model of separation of powers is Persson, Roland and Tabellini (1997). In their paper, citizens empower one agent to set the budget and another to spend it, then can retain or fire either agent. The present model is a slightly different case where citizens themselves set the budget, and two agents jointly determine spending.

$\Gamma_G$ , the incentive constraints for  $r_c = 1$  are the same (to wit, they are not magically relaxed). However, if  $e = 1$ ,  $S$  now has proposal power to implicitly determine precisely which incentive compatible share of the pie is taken by  $G$ . In  $\Gamma_G$ ,  $G$  has proposal power to choose its most preferred share that satisfies all  $r_c = 1$  incentive constraints. That is the crucial difference between the games.

Assume again  $M > \bar{M}(\alpha)$  so that  $C$  would rather take no rents than face settler rebellion. Assume also that  $\alpha > \rho$  simply to reduce the set of cases to consider.

In the subgame with  $e = 0$ ,  $\Gamma_G$  and  $\Gamma_A$  are identical, and thus so is sequentially rational play. Consider the subgame with  $e = 1$ . Then  $r_c = 1$  requires

$$xP \geq \alpha V - L \tag{4}$$

$$y(1-x)P \geq (1-\alpha)V. \tag{5}$$

Provided  $S$  chooses  $P$  small enough,  $y = 1$  and  $S$  still remains loyal. Then together these constraints imply  $P \geq V - L \geq 0$ .<sup>25</sup>  $S$  does not leave extra rents in  $P$  beyond what is necessary to satisfy both incentive constraints with equality. Any additional rent can be extracted by  $G$  or  $C$ . On the other hand,  $S$  always wishes to satisfy both constraints, since  $u_S = 0$  when  $r_c = 0$ .

Therefore sequentially rational play in the  $e = 1$  subgame entails  $P = V - L$ ,  $r_c = 1$ ,  $x = \frac{\alpha V - L}{V - L}$ , and  $y = \frac{(1-\alpha)V}{V - L}$ . Equations 4 and 5 are satisfied with equality. After  $S$  appropriates enough  $P$  to satisfy the incentive constraints for not absconding or sacking,  $V - P = L$ . The cost  $G$  faces from absconding is the wedge between the economy and the sum of necessary rents to prevent

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<sup>25</sup> $V - L \geq 0$  is necessary as a limited liability constraint. If  $L$  is very large,  $u_G = \alpha V - L$  would allow  $S$  implicitly to use  $G$  as a money pump. Since  $G$  goes first in rent division,  $P \geq 0 \Rightarrow u_G \geq 0$ . The crown also has a limited liability constraint too, which is satisfied by sacking the governor first whenever  $S$ 's loyalty constraint cannot be met. In any case, since the crown cannot be made into a money pump for  $S$ , the potential of  $u_C < 0$  is less crucial.

imperial officials from sabotaging the colony. This is the source of surplus rents for  $S$ .

$S$ 's incentive constraint for  $r_s = 1$  is  $L \geq \rho(1 + V_H)$ . If it is met, then  $u_s = L$  after  $e = 1$ . If  $L < \rho(1 + V_H)$ , then  $u_s = \rho(1 + V_H)$ .  $C$  will choose  $r_c = 0$  to avoid the high cost  $M$  whenever  $S$ 's loyalty incentive constraint is not met. In anticipation of this,  $S$  will choose  $e = 0$ . Also necessary for  $e = 1$  and (surprisingly) not implied by other parameter restrictions,  $L \geq \rho + V_L$ ; this simply says the utility under  $e = 1$  after  $r_s = 1$  must be weakly greater than the utility of  $e = 0$ .

**Proposition 5** *Given  $\alpha > \rho$ ,  $e^* = 1$  in SPNE of  $\Gamma_A$  if and only if  $L \geq \rho(1 + V_H)$  and  $L > \rho + V_L$ .*

The key substantive point is that, in some cases, *empowering the assembly provides efficiency gains*.

**Corollary 2**  *$\Gamma_A$  provides efficiency gains over  $\Gamma_G$  if and only if  $L > \rho(1 + V_H)$ ,  $\rho V_H < V_L$ , and  $L > \rho + V_L$ .  $\Gamma_A$  does not provide distributive gains to  $C$  over  $\Gamma_G$ .*

The efficiency gain flows from two channels: the empowered assembly limits expropriation by both the crown's agent (the governor), and by the crown itself. The first channel is the new point original to this paper; the second is the celebrated insight of North and Weingast (1989) on the incentive effects of credible commitments in constitutions (see also Stasavage (2003); Cox (2016)).

To see the first, note from previous results that  $G$  takes a share  $x^G = \alpha - \rho$  in the Active Governor game ( $\Gamma_G$ ) when  $e = 1$ , and takes  $x^A = \frac{\alpha V - L}{V - L} < x^G$  in the Empowered Assembly game ( $\Gamma_A$ ) when  $e = 1$ . Moreover,  $x$  is applied to the whole economy  $V$  in  $\Gamma_G$ , but to  $V - L$  in  $\Gamma_A$ . The governor thus takes a smaller share of a smaller pie in  $\Gamma_A$ , provided  $e = 1$ . Clearly, empowering the assembly restrains the governor's rent extraction from settlers.

Second, when  $e = 1$  in  $\Gamma_A$ ,  $C$  earns utility  $(1 - \alpha)V$ . The share of the pie ( $y$ ) taken by  $C$  can actually rise in  $\Gamma_A$  relative to  $\Gamma_G$ , but that share is taken from  $P = V - L$  in  $\Gamma_A$  rather than all of  $V$  as in  $\Gamma_G$ . This can lower  $C$ 's utility in  $\Gamma_A$ , provided  $e = 1$ , which in turn induces  $S$  to choose  $e = 1$  more often in  $\Gamma_A$ . In other words, empowering the assembly commits the crown to take lower total rents in some cases, but only if  $e = 1$ . Again, this is simply a constitutional commitment by the sovereign to let investors keep more of their returns, thereby inducing more investment.

## 5 Institutional Choice by the Crown: Delegated or Centralized Control

The fundamental issue in this paper is the incentive of the crown to choose institutions of imperial governance in light of agency problems with colonial governors. This section provides a comparison of the investment levels by settlers, and the utility levels to the crown, under the three models analyzed above.

	<b>Parameter</b>	<b>Regime</b>	$e_G^*$	$e_C^*$	$e_A^*$
1.	$L > \rho(1 + V_H)$	$\rho V_H > V_L$	1	1	1
2.	$L > \rho(1 + V_H)$	$\rho V_H < V_L$ $L > \rho + V_L$	0	0	1
3.	$L > \rho(1 + V_H)$	$\rho V_H < V_L$ $L < \rho + V_L$	0	0	0
4.	$\rho < L < \rho(1 + V_H)$	$\rho V_H > V_L$	0	1	0
5.	$\rho < L < \rho(1 + V_H)$	$\rho V_H < V_L$	0	0	0
6.	$L < \rho$	$\rho V_H > V_L$	0	1	0

Table 3: Optimal institution and SPNE investment

The comparison is summarized in table 3. Notice that there are cases where the empowered assembly game  $\Gamma_A$  gives the highest investment level  $e$ , and cases where the crown control game  $\Gamma_C$  gives the highest investment level.

$\Gamma_C$  is better for the crown when (i) expropriation by the governor is the only limiting factor on high investment by settlers (regimes 4 and 6), or (ii) settler investment is unaffected by the institution, but the crown prefers a larger share of the rents (regimes 1, 3, 5). No check on the governor can be more effective than eliminating the agency problem entirely, which  $\Gamma_C$  does. The governor's rent extraction is the biggest problem when  $\rho V_H > V_L$  and  $L$  is small, so that  $G$  does well after absconding.

$\Gamma_A$  is better for the crown when expropriation by both the governor and the crown inhibits high investment by settlers (regime 2). As noted in section 4, the empowered assembly restrains the ability of *both* the crown *and* the governor to expropriate rents from settlers, whereas crown control restrains only the governor.

Of course, if the cost to  $C$  of playing  $\Gamma_C$  were endogenized, then the relative merits of  $\Gamma_C$  might change. Unlike a bolstered privy council, which required substantial expertise to monitor the acts of governors and colonies (Greene (1986)), empowering assemblies requires no human resource commitments directly from the crown's limited talent pool (Dewan and Myatt (2010)). Moreover, the empowered assembly could be easier for the crown to operationalize because it has a self-enforcing character once assembly rights are codified in law, in the spirit of De Lara, Greif and Jha (2008); Fearon (2011); and Dragu and Polborn (2013).

Thus, without asserting that the crown actually and decisively chose the imperial and colonial constitutions, the crown had incentives in some cases to choose delegated control over centralized control by the crown's inner circle, even when there was sufficient state capacity to take the latter course. It is then reasonable that the crown sometimes actively supported and even more often tolerated the development of independent colonial assemblies—a fundamental component of separation of powers. This is interesting in part because the crown, as understood in this paper, was purely interested in its own economic rents. In some cases its purely pecuniary interests were har-

nessed to collective economic efficiency, and independent colonial assemblies were the result.

## 6 Institutional Development in New World Empires

An instance of direct crown involvement in the empowerment of colonial assemblies occurred in Virginia in 1676.<sup>26</sup> The colony had been governed by William Berkeley, nominally an agent of the crown, since the 1650s. Berkeley had amassed a sizable fortune and immense estate based on prime land. While Virginia's crown-designed constitution called for the governor to operate with the consent of a small elective assembly, who would nominally restrain the governor, Governor Berkeley had effectively domesticated the council with bribes and sinecures over the decades.

By controlling assignment of valuable public offices and sharing the best land with favored council members, the governor obtained council complicity in governing the colony as a large rent extraction scheme. Officials enacted oppressive and highly regressive taxes under which middle and lower class households paid well over half their annual harvest in taxes, while the high planter elite, earning hundreds or thousands of times what the middle class did, paid nothing.<sup>27</sup> The governor poured the money into such public goods as salaries for council members, bills for their arduously long meetings at Richmond taverns, and a system of earthen fortifications that, while largely useless from a martial point of view, were conveniently located on the estates of political elites, which thus required large public subsidies for property improvement.

Middle class freeholders responded to sharply limited quantities of suitable land to cultivate crops to meet the high tax burden by building small

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<sup>26</sup>Details here are taken from Webb (1995), Taylor (2002), and Elliott (2007).

<sup>27</sup>Resemblance to contemporary America is purely coincidental.

farms on the fringes of Indian country. This was an attempt to bring new land into cultivation, thereby raising output and productivity to meet the extraordinary demands of the state, and also of course to put more production beyond the immediate view of colonial authorities. The Indians, harassed by the settlers, complained to colony officials for redress. The governor and his allies maintained and captured rents from lucrative trade with the Indians and did not want it disturbed. So they attempted to tamp down on frontier settlements.

The settlers, led by one Nathaniel Bacon, a well-born Englishman lately in America to make his fortune, rebelled against the colonial government in 1675-76. Bacon's rebellion took up apparently most of the young, disaffected men of the colony. It culminated in the destruction by the rebels of the capital in Richmond and many surrounding estates of elites, including that of the governor. The rebellion disrupted all economic activity in the colony for months and spread to unrest in neighboring Maryland, but lost steam when Bacon precipitously died of illness in 1676.

Deeply alarmed by the loss of official control, King Charles II dispatched 1000 Redcoats, 14 war ships, and a retinue of advisors to suppress the rebellion, investigate its causes, and institute reforms. This was easily the most extensive and costly English or British military police action in the North American colonies before the Revolutionary War. The investigators found that the rent extraction by the governor was so extreme that it undermined colonial economic activity. Aside from the obvious costs of military instability, this undermined the interests of the crown in a large economy to provide abundant revenue.<sup>28</sup> The crown instituted reforms to empower the assembly and break its complicity with the governor. This included royal control of franchise in assembly elections, so the governor could not limit election to his favorites, and removal of the governor's power to appoint assembly mem-

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<sup>28</sup>Colonial revenue was particularly important to the Stuart kings, who struggled to find sources of revenue independent of Parliament before the Revolution of 1688.

bers to offices. These reforms put the assembly on an independent power base from the governor, making it a realistic check on the governor for first time since the Crown assumed control of Virginia in 1625. The subsequent governors, for their part, agreed to recognize assembly control over internal revenues, in exchange for grants of revenue for specific purposes.

In short, extreme governor rent extraction threatened the economic development of the colony. This inhibited the flow of revenues from the colony to the Crown. The Crown therefore instituted reforms to empower the Virginia assembly and set it as an independent check of the governor, so that costly oversight of the governor by another crown agent (inevitably creating another agency problem), or worse, even more costly military intervention, would not be required.

The English Crown was not unique in facing agency problems with governors in its New World empires. Yet the English Crown developed separation of powers in North America, while the French and Spanish Crowns did not. Nor did the English Crown deploy this institution in its imperial domain outside of the crown colonies in North America. A full analysis of these cases is beyond the scope of this paper, but, for the models above to successfully explain separation of powers in English North America, we must also explain why this institution was not adopted in these other cases.

The answer, in brief, is that none of these cases depended on European settler investment in the colonial economy in the same way that England's North American crown colonies did. All of these New World empires were founded on resource extraction, and all engendered agency problems with colonial governors—which we should expect to have structured the crown's institutional choices in each case. But none required widespread settler cultivation of the land as did English North America.

Silver extraction by the Spanish empire lent itself to institutions of forced indigenous labor. The silver was fixed in quantity and location, unlike the crops (mainly tobacco and timber) extracted by the English in North Amer-

ica. The Spanish took advantage of pre-existing forced labor institutions in relatively densely populated indigenous empires to mine this silver. Their primary agency problem was to induce governors to report truthfully the quantity of silver available, and to maximize the amount sent to the mother country. To do this, they explicitly limited emigration by Spaniards to the New World, whereas the English encouraged emigration by potential planters to North America.<sup>29</sup>

The principal resource extracted by the French was beaver pelts. Native Americans had significant advantages over the French in their procurement, but they were spatially dispersed and required months of work to amass marketable quantities. As a result, the French relied on trade with Native Americans instead of forced labor. Since Frenchmen were not as adept at procuring pelts, and their profusion in the New World would only encourage a black market that undermined the value of the beaver trade monopoly with France, the French Crown, like the Spanish, discouraged French emigration to the New World.<sup>30</sup>

English colonies in the Caribbean, like the crown colonies in North America, were based primarily on crops. However, in the Caribbean colonies the primary crop was sugar (with rum as a byproduct). The scale economies of sugar production were quite different from those for tobacco. Sugar required heavier, and more centralized, processing of cane. There was also a more dense indigenous labor supply than in North America, and production turned more quickly to African slaves. Correspondingly, the English planters involved were fewer and much wealthier than in North America.<sup>31</sup>

In all these cases, the value of the colonies to the crown depended on resource extraction, and all presented the crowns with significant agency problems with respect to colonial governors. This they have in common with the English crown colonies in North America. But none of these other

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<sup>29</sup>This summary is drawn from Elliott (2007).

<sup>30</sup>This summary is drawn from Eccles (2010).

<sup>31</sup>This summary is drawn from Taylor (2002).

cases depended on investment and cultivation by European settlers in the New World in the same way that English North American crown colonies did. This investment is one of the crucial components of the models in this paper. So it is not surprising, in light of these models, that the English Crown's response to these agency problems in North America differed from the respective crown responses in the other cases.

## 7 Conclusion

This paper considers three models of rent extraction from settlers by imperial officials. The baseline model is a political agency game with moral hazard and sequential rent extraction by two incumbents. In the Active Governor game,  $S$  could protect its investment from the depredations and extractions of imperial officials only by moving it beyond the reach of the state. While safe, this investment is less valuable than alternatives in the mainstream economy.

The Empowered Assembly game provides another option to protect investments: participation in the political process by the settlers. This lowers official expropriation and provides, in some cases, sufficient return to induce high investment. While the crown takes a small share of the pie in this game, the pie is larger, which allows the crown to capture some of the efficiency gains as rents for itself. The Crown Control game allowed the crown to eliminate rent extraction by the governor, thereby both taking a larger share of a fixed pie and, in some cases, increasing the size of the pie.

Even if Crown Control entails no direct cost to the crown, the Empowered Assembly game is still sometimes better at generating rents for the crown. Direct control allows the crown to solve the governor's problem of committing not to take too much rent, but not its own. If this hold up problem is strong enough, investment is low under the crown control game. Under the Empowered Assembly game, the crown's threat to extract rents is not

eliminated but is alleviated significantly. This induces high investment, and if this generates enough returns, these efficiency gains also benefit the crown.

The models are developed in the context of English imperial governance in the 17th and early 18th centuries. It was in this era that the colonies in the future United States indigenously developed a home-grown version of separation of powers. This separation of powers lasted to the Revolutionary era, and was part of the institutional inheritance of the U.S. from strategic interaction within the British imperial system.

The English and British crown did not exert unilateral control over the imperial or colonial constitutions—and at times tried hard not to exert much control at all. But it did at times support, and more often tolerated, the development of independent colonial assemblies acting as a check on imperial officials—an incipient separation of powers system. The models in this paper help to explain why the crown might act in this way.

Overall, this paper contends that agency problems between European crowns and their governors powerfully affected the institutional structure of early modern empires. Given institutional stickiness, understanding institutional origins in this way helps to understand the strategic foundations of political-economic development of contemporary New World polities.

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## Appendix

This appendix decomposes the utility gains to  $C$  in the Crown Control model (relative to the Active Governor model) into distributive and efficiency gains.

Suppose in particular that  $r_c^* = 1$  in SPNE of  $\Gamma_G$ . Then  $y_G^* = 1 - \frac{\rho}{1-\alpha+\rho}$  if  $C$ 's share of the pie  $V$ . But in  $\Gamma_C$ ,  $C$  takes  $y_C^* = 1 - \rho$ .  $C$  would pay any  $K < \frac{\rho}{1-\alpha+\rho} - \rho = \frac{(\rho)(\alpha-\rho)}{1-(\alpha-\rho)} \equiv \bar{K}$  to obtain this enlarged share of the pie. Thus  $\bar{K}$  is the purely distributive benefit of playing  $\Gamma_C$ . Note  $\bar{K} > 0$  provided  $0 < \alpha - \rho < 1$ . Any benefit to  $C$  above  $\bar{K}$  must be because of an additional efficiency effect of  $\Gamma_C$ .

Table 4 summarizes the changes in investment  $e^*$  between  $\Gamma_C$  and  $\Gamma_G$ . The rightmost column indicates whether the utility gain to  $C$  in  $\Gamma_C$  over  $\Gamma_G$  is from purely distributive (Dist.) or also efficiency (Eff.) effects.

		Parameters		$e_G^*$	$e_C^*$	
1.	$\alpha > \rho$	$L > \rho(1 + V_H)$	$\rho V_H > V_L$	1	1	<i>Dist.</i>
2.	$\alpha > \rho$	$L > \rho(1 + V_H)$	$\rho V_H < V_L$	0	0	<i>Dist.</i>
3.	$\alpha > \rho$	$\rho < L < \rho(1 + V_H)$	$\rho V_H > V_L$	0	1	<i>Eff.</i>
4.	$\alpha > \rho$	$\rho < L < \rho(1 + V_H)$	$\rho V_H < V_L$	0	0	<i>Dist.</i>
5.	$\alpha > \rho$	$L < \rho$	$\rho V_H > V_L$	0	1	<i>Eff.</i>
6.	$\rho > \alpha$			0	0	–

Table 4: Investment, Active Governor ( $e_G^*$ ) and Crown Control ( $e_C^*$ ) games

The distributive benefit defined above obtains in regimes 1, 2, and 4. The separate distributive and efficiency benefits in regimes 3 and 5 can be decomposed formally. In regime 3,  $e = 0$  and  $r_c = 1$  in  $\Gamma_G$ .  $C$  obtains  $1 - \frac{\rho}{1-\alpha+\rho}$ . In  $\Gamma_C$ ,  $C$  obtains  $(1 - \rho)(1 + V_H)$ . Thus  $K = (1 - \rho)V_H + \frac{(\rho)(\alpha-\rho)}{1-(\alpha-\rho)}$ , or  $K = (1 - \rho)V_H + \bar{K}$ . Note  $\bar{K}$  is again a purely distributive benefit;  $(1 - \rho)V_H$  is an efficiency gain.

In regime 5,  $e = 0$  but  $r_c = 0$  in  $\Gamma_G$ .  $C$  obtains  $(1 - \alpha)$ . In  $\Gamma_C$ ,  $C$  obtains  $(1 - \rho)(1 + V_H)$ . Thus  $K = (1 - \rho)(1 + V_H) - (1 - \alpha)$ , or  $K = (1 - \rho)V_H + \alpha$ .

Here  $\alpha$  is the purely distributive benefit for the case when the no-abscond incentive constraints all fail in  $\Gamma_G$ .