

Protecting Your Protection in a Violent World: the Link between a State's Organisation of Violence and its Constitutional Design

by
Shawn Humphrey*

Abstract: This paper analyses one of the most critical problems in all of political economy, i.e. the dilemma of credible commitment. Economic prosperity requires the presence of a state powerful enough to establish and enforce property rights, yet not so powerful that its presence destabilises these rights. Humphrey demonstrates that solutions to this dilemma, advocated by the literature, are incomplete because they fail to acknowledge a state's source of power - namely, its ability to organise violence. By modelling the state as a *protection* contract and using formal lines of reasoning, Humphrey concludes that a state can strike the efficiency-enhancing balance between power and restraint by a) organising a monopoly on violence and b) organising the decision to employ violence as a team decision.

1. Introduction

Economic prosperity requires the presence of a state powerful enough to structure and enforce a constitution that secures private property rights for its citizens, yet not so powerful that its presence is a threat to its constitution and consequently destabilises these rights. Given economic prosperity's rare appearance throughout history, structuring and enforcing a constitution that strikes the efficiency-enhancing balance between power and constraint is obviously a dilemma rarely resolved. North and Weingast (1989), in their seminal case study of conflict-ridden seventeenth century England, offer a solution to this dilemma. Given the vicissitudes of monarchical rule, they argue that widely recognised bulwarks against the tyrannical exercise of discretionary power (e.g., competition from rival kings and the prospect of future gains from co-operation) are routinely dis-

* California State University San Marcos, Department of Economics, 333 South Twin Oaks Valley Rd., San Marcos, CA 92096-001, USA, e-mail: shumphre@csusm.edu. A thank you goes to Douglass C. North, Dino Falaschetti, The North Group, Sukkoo Kim and John Nye. All mistakes are mine.

regarded. Stable property rights and hence economic prosperity, they conclude, require constitutionally-stipulated power-sharing rules that give rise to political “veto players” who can check the king’s incentive to unilaterally restructure property rights.

This conclusion launched a literature whose slogans, such as “tying the king’s hands” Root (1989) and “dissipate the king’s authority” Falaschetti and Miller (2000), echo their policy prescription; however, these solutions, although they proficiently blunt the king’s incentive to confiscate the gains from co-operation, are incomplete and hence incapable of resolving the aforesaid dilemma. Why? Because, they fail to acknowledge a state’s source of power - namely, its “comparative advantage in violence” (North 1979, p. 16). In other words, North and Weingast (1989) - the backbone of the credible commitment literature - ignores North’s own theory of the State, in which he defines the state as an “organisation with a comparative advantage in violence” (North, 1979, p. 16). In this paper, I advance a more complete solution. What distinguishes my attempt to resolve this dilemma is my focus on violence; I ask the following question: Why is the king the king? The king is the king because he can efficiently co-ordinate and motivate violence of a particular quality to a particular place at a particular time. In other words, the king is the king because he can *organise* a “comparative advantage in violence”, for example a standing army. With a standing army, the king can exclude weaker agents from exploiting common resources. Moreover, given that the “essence of property rights is the ability to exclude”, the king can establish a state by supplying property rights in exchange for tax revenue (North, 1981, p. 25). This paper models the state as a *protection* contract between the king and a prospective citizen. A prospective citizen, assumed to be a representative member of a team struggling to co-operate in the “state of nature”, has a choice: (1) accept the king’s offer of protection and assume the rights and obligations of citizenship, or (2) reject the offer and remain unprotected in the “state of nature” (Hobbes, 1651/1968).¹ The purpose here is to ascertain the conditions under which a prospective citizen will accept the king’s offer and the team will capture the gains from co-operation.

According to the offer, a citizen, in return for a bundle of stable property rights, agrees to pay taxes to the king and forsake violence as a margin of competitive adjustment, that is, he agrees to check his autonomy at the castle’s gate. The king’s men punish unco-operative behaviour within the castle’s walls and secure the kingdom from external attack. To agents struggling to co-operate in the “state of nature”, order, which arises from the king specialising in the per-

¹Although my analysis beings in the “state of nature”, my work does not offer insight into the initial formation of property rights. I am primarily concerned with ascertaining the foundations of stable property rights within an existing state; the “state of nature” is simply an alternative to citizenship.

formance of these tasks, is the benefit of citizenship. However, there is a trade-off. Since citizens are prohibited from exercising the skills necessary to survive in the “state of nature”, the king, with a standing army at his disposal, can honour or violate their rights at his pleasure. This fact compels a citizen to reconsider the offer.

The king’s power, or his ability to efficiently co-ordinate and motivate agents engaged in violence, is ultimately a function of how he chooses to organise violence. Consequently, citizens can dissipate the king’s power and safeguard their property rights against arbitrary encroachment by demanding: (1) that the king disband his standing army and (2) that the state’s constitution stipulate a citizen’s right to participate in state-sponsored violence. Under such an arrangement, citizen-soldiers as opposed to professional soldiers, in times of rebellion and/or invasion, agree to drop their plowshares, shoulder instruments of violence, and take their positions along the castle’s walls. In such a state, organised violence begins and ends with the citizen’s choice to co-operate with the king. A citizen’s ability to choose whether or not to co-operate in organised violence is the ultimate check against the king’s abuse of discretionary power. However, there is a trade-off. The state, by purposively choosing an organisation of violence that introduces the “hold-up” problem (i.e. a citizen’s prerogative to co-operate or not co-operate in the allocation of violence), disrupts the king’s ability to efficiently co-ordinate and motivate violence, thus encouraging rival kings and insurrectionists to challenge the established order (Williamson, 1975). This fact compels a citizen to reconsider the offer.

Accordingly, a state’s organisation of violence is a valuable signal. On the one hand, it signals to potential rivals, within and outside the state, the costs they will be subjected to if they attempt to violently restructure the state’s property rights. On the other hand, it signals to the king’s citizens the costs he will endure if he attempts to employ violence as an opportunistic strategy and restructure property rights. A prospective citizen will accept the king’s offer if and only if the king, rival kings, and fellow citizens, given the costs of using violence to restructure property rights, have an incentive to honour the state’s constitution. A state under monarchical rule, however, is incapable of guaranteeing such a state of affairs. A king with a standing army signals to competitors the high price they will have to pay to establish an alternative property rights structure. Yet, the king’s ability to efficiently co-ordinate and motivate violence in the name of exclusion, while it signals to citizens the king’s ability to enforce property rights, also translates into efficient appropriation, by the king, of the gains from co-operation. A king with a citizens’ militia signals to citizens the high price he will have to pay to violently restructure property rights. Yet, the king’s diminished ability to efficiently co-ordinate and motivate violence in the name of exclusion, while it signals to citizens the king’s ability to credibly commit, in fact, invites challenges from rivals within and outside the state. In other words, a king with a

standing army makes the state too powerful, while a king with a citizens' militia makes the state too weak. Consequently, the king and his citizens find themselves in a dilemma: while dissuading rivals from challenging its system of property rights, how does a state persuade its citizens that it will not restructure their rights once they invest their costly effort into the state?

Using formal lines of reasoning to delineate the relationship between prosperity, a state's organisation of violence, and its constitutional design, this paper advances a solution to this dilemma. The state can ameliorate the opportunity cost of organising a standing army (i.e. state-sponsored predation of private property rights) by transforming the state's decision to employ violence from an individual decision (i.e. the king's decision) into a team decision (i.e. a representative body's decision). In other words, since the costs of producing a team decision increase with the number of team-members, if the state adopts formal institutions that disperse decision-making authority among numerous agents, then it can credibly commit to not using violence for the oppression of its own citizens. Thus, in a violent world, a state can concurrently signal power and restraint, to its citizens, if it (a) has a monopoly on violence (i.e. a standing army) and (b) organises the decision to employ violence as a team decision (i.e. the king and Parliament decide when, where, and upon whom to commit an act of violence).

2. The fundamental exchange underlying the state

In the "state of nature", the gains from co-operation are often squandered because violence, an income-maximising strategy available to all, destabilises property rights. A solution to this inefficient outcome is to organise the state (Hobbes, 1651/1968). The fundamental exchange underlying the state is between a Ruler (e.g., a king) and a citizen. The citizen, in exchange for an exclusive share of the gains from co-operation, forsakes violence as an income-maximising strategy and tolerates the Ruler's regularised taxation, that is, the state is a *protection* contract. Its value, to the citizen, is determined not only by its structure, which spells out the terms of the exchange, but also, by its stability, which is a function of the Ruler's ability to enforce *and* credibly commit to its structure.

3. Enforcement in a violent world: the origins of co-operation

The Ruler's ability to enforce the contract (i.e. supply *protection*) depends upon his ability to exclude parties outside of the exchange (i.e. other citizens and rival

Rulers). Since exclusion requires violence, a contract's stability is positively related to the Ruler's "comparative advantage in violence".² For example, let us suppose that player i and his team-mates are struggling to co-operate and produce a team good, $X(a)$, in the "state of nature".³ Moreover, let us suppose that a Ruler, with a monopoly on violence (e.g., a king with a standing army), knows the Pareto-efficient level of output that the team can produce, $X(a^*)$. Empowered by information and a monopoly on violence, the Ruler can offer player i the following "take-it-or-leave-it" contract:⁴

$$(1) \quad s_i(X) = \begin{cases} b_i & \text{if } X \geq X(a^*) \\ 0 & \text{if } X < X(a^*) \end{cases}$$

If player i accepts the offer and $X \geq X(a^*)$, then his exclusive share of the gains from cooperation is b_i , the team's share is $\sum_{i=1}^n s_i(X) = \sum_{i=1}^n b_i$, and the residual or tax revenue ($T^* = X(a^*) - \sum_{i=1}^n b_i$) is granted to the Ruler. Yet, if a team member shirks and $X < X(a^*)$, then the entire team is punished ($\sum_{i=1}^n b_i = 0$) and the Ruler claims whatever output is produced ($T = X$).

As structured, the contract concentrates all the benefits and all the costs of player i 's choices on player i . Therefore, with his income tied directly to his performance, he has an incentive to specialise and supply the individually Pareto-efficient level of effort towards team production (a_i^*). As a citizen, player i has no incentive, contrary to the incentives he confronts in the "state of nature", to allocate his scarce effort away from production and towards enforcing his contribution to team production. The Ruler specialises in the performance of this task. Moreover, since player i is a representative team member, the team's Nash Equilibrium supply of effort (a^*) is Pareto-efficient (a^*). Essentially, the Ruler, endowed with a monopoly on violence, removes each team member's incentive to employ violence as an income-maximising strategy; he overawes the team into co-operation.

²For a discussion of violence and property rights see: Barzel (1999), Cheung (1970) and Umbeck (1981).

³Falaschetti and Miller (2000) argue that Hobbes' social order problem is "isomorphic" to the team production problem.

⁴My model of team production is from Holmstrom (1982), where $a = (a_1, \dots, a_n)$ represents the team's effort. Player i is a representative team player who can allocate effort (a_i) to working or shirking and $v_i(a_i)$ is his effort cost function, $s_i(X)$ is player i 's share of the output, and $b_i > v_i(a_i^*) > 0$.

4. Credible commitment in a violent world

Player *i* can escape the “state of nature” if he accepts the offer; however, by volunteering to be coerced, the team transfers the incentive to employ violence as an income-maximising strategy from themselves onto the Ruler. Once they invest in the state, the Ruler has the motive (ownership of the residual) and the means (a monopoly on violence) to renege and restructure the contract. For example, the Ruler can bribe player *j* to shirk by offering him the following “side-contract”:⁵

$$(2) \quad s_j(X) = \begin{cases} b_j & \text{if } X \geq X(a^*) \\ b_j + \varepsilon & \text{if } X' \leq X < X(a^*) \\ 0 & \text{if } X < X' \end{cases}$$

In this case, if players *i* and *j*, the rest of the team, and the Ruler enter into a contract and player *j* shirks, then the Ruler walks away with at least $T' \equiv (X' - b_j - \varepsilon) > T^*$, player *j* walks away with $(b_j + \varepsilon) > b_j$, and player *i* and his team-mates walk away empty handed.

Aware of this outcome, player *i*'s response to the Ruler's offer of citizenship is nicely demonstrated by the following game-tree.

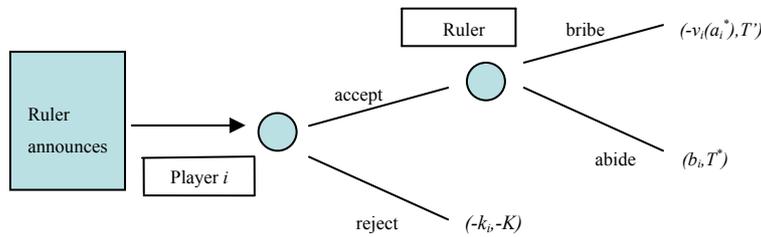


Figure 1

In the first move of the game, the Ruler announces the structure of the contract and offers player *i* citizenship. The second move goes to player *i*. He can either *accept* the Ruler's offer and continue the game, or he can *reject* the Ruler's offer and conclude the game. If he accepts the offer, then he exits the “state of nature”, forfeits his autonomy, and specialises in production. If he rejects the

⁵Eswaran and Kotwal (1984) offer this exchange as a critique of Holmstrom.

offer, then he returns to the “state of nature” and if need be actively resists the Ruler’s attempts to establish sovereignty over his person. Assuming, for the moment, that player i accepts the offer, the game is concluded by the Ruler. He can either *abide* by the contract, or he can *bribe* player j . There are three possible outcomes.

Table 1. Outcomes

Outcome	Title	Description	Pay-offs
#1	Pareto efficient	The Ruler announces the contract, player i accepts, and the Ruler abides by the contract.	(b, T)
#2	Slavery	The Ruler announces the contract, player i accepts, and the Ruler bribes player j .	$(-v_i(a_i^*), T')$
#3	State of Nature	The Ruler announces the contract, player i “looks forward and reasons back” and decides not to enter.	$(-k_i, -K)$ ⁶

The pay-offs for player i and the Ruler are ranked below from best (top) to worst (bottom).

Table 2. Pay-off ranking

Ruler’s ranking	Player i ’s ranking
T'	b_i
T^*	$-k_i$
$-K$	$-v_i(a_i^*)$

Will player i accept the Ruler’s offer? No. Player i will “look forward” to the pay-offs at the end of the game tree and conclude that the Ruler will act opportunistically and bribe player j . Player i , aware that the Ruler’s offer to *protect* his exclusive claim to b_i is not *protected*, will “reason back” and choose to return to the “state of nature”; co-operation collapses and Outcome #3 is the sub-game perfect Nash equilibrium of the game (i.e. $a^\bullet \neq a^*$). This line of reasoning is adopted from Miller (1992).

⁶The negative payoffs in the “state of nature”, which include the forgone benefits of co-operation and the direct costs of resistance and subjugation for player i and the Ruler respectively, are structured so that player i has an incentive to resist and not accept slavery.

5. *Exchanging violence for co-operation*

Outcome #3 can be precluded if the Ruler's costs of employing violence as an opportunistic strategy (C) are greater than $(T' - T^*)$. The team can magnify (C) by dissipating the Ruler's "comparative advantage in violence". How can the team dissipate the Ruler's "comparative advantage in violence"? To answer this question, let us return to the "state of nature". In a state-less world, the "distribution of violence" sorts economic agents into Rulers and citizens (North, 1979). Economic agents with a "comparative advantage in violence" become Rulers and relatively weaker agents become citizens. Heretofore, we have simply assumed a "distribution of violence", one that clearly established a single Ruler. However, absent the Ruler's monopoly on violence, every economic agent is a potential Ruler. Therefore, one must ask, if violence potential is not embodied within a single income-maximising agent, can and if so how do aspiring Rulers acquire violence and establish a "comparative advantage in violence"? Nye (1997), in a paper extending North's model of the state, addresses this question. Nye (1997, p. 124) argues that if "[violence] can be traded and properly priced on the open market", then "[violence] should not be viewed differently from any other commodity". Therefore, "whoever has the most to gain from [violence] is likely to end up with [violence] if transaction costs are low and [violence] is easily observable and well defined" (Nye, 1997, p. 125). Accordingly, in a zero transaction costs world, Rulers and citizens are not arbitrarily determined by nature. So, if income-maximising agents can contract for violence, what fundamental constraint(s) determines the "distribution of violence" and necessarily a Ruler's "comparative advantage in violence"?

There are two answers to this question. First, North (1979) uses the neo-classical theory of the firm to explain the "distribution of violence". North (1979, p. 253) argues that the hard and fast constraint confronting potential Rulers is the "state of military technology" and its associated economies of scale. As the minimum efficient scale of military effectiveness increases so does the cost of violence. North believes that it is the attendant costs of military technology that fundamentally determines who is and who is not endowed with violence potential. Second, although North's economy of scale argument is important, he does not acknowledge the potential importance of transaction costs in the market for violence. Transaction costs include the costs of measuring the valuable attributes of violence, the cost of enforcing the stipulations of the violence contract, and the cost of post-contractual opportunism (Williamson, 1975). I argue that transaction costs, which potential Rulers confront in the market for violence, are a *fundamental* constraint on the "distribution of violence".

To understand these transaction costs, we need to understand what violence is. Violence is the imposition of physical costs by one agent on another; that is, fire in all its forms (Marshall, 1947, p. 26). It can be the blow of a fist, the thrust

of a pike, the strike of a bayonet, or the piercing of a bullet. In the market for violence, a Ruler remunerates an economic agent for violence. Rulers demand fire of certain intensities at particular points and at certain times. This requires co-ordination (i.e. logistics). Moreover, fire is a service. An economic agent must pull the trigger. This requires motivation (i.e. command and control). Rulers need information to co-ordinate and motivate agents engaged in organised violence. Since agents organise to acquire information, this begs the question, how does a Ruler organise organised violence?

In North's theory, violence is organised as a spot market exchange. Transaction costs are assumed to be zero, and the price mechanism co-ordinates and motivates agents engaged in violence. In other words, potential Rulers can contract for violence potential at zero cost. This assumption allows North to concentrate on military technology. However, this assumption is unrealistic. The transaction costs associated with the market for violence, the "frictions of war", are prohibitive and necessarily make it un-worthwhile to organise violence as a spot market exchange (Clausewitz, 1976, p. 119-21). Accordingly, without an organisational innovation, transaction costs can foreclose the exchange of violence. Therefore, it is my argument that while all agents can acquire the instruments of war and become violent, what distinguishes a Ruler from a citizen is a Ruler's capacity to organise violence.⁷ Rulers can transform an armed rabble into a co-ordinated and motivated source of fire. It is a Ruler's ability to economise on the transaction costs associated with the exchange for violence that determines in large part his "comparative advantage in violence". Thus, in general, the "distribution of violence" is effected not only by the state of military technology but also by a Ruler's ability to organise violence. Together, in a state-less world, they sort economic agents into Rulers and citizens.

Now, let us return to the question that initiated this discussion: How can the team dissipate the Ruler's "comparative advantage in violence"? There are two options. First, if the team demands, in exchange for co-operation, decision-making authority over the allocation of the Ruler's tax revenue (T), then, having secured the "power of the purse", the team can dissipate the Ruler's "comparative advantage in violence" by refusing to finance the minimum efficient scale of military effectiveness (Brewer, 1988). This first option is widely recognised by economists; however, there is an alternative heretofore overlooked by economists. Namely, if the Ruler's "comparative advantage in violence" is a function of how he and his citizens choose to organise violence, then player *i* and his team-mates can effectively diminish the Ruler's productivity in violence if they

⁷See the following for a discussions about the relationship between violence potential and organisation: Andrzejewski (1954), duPicq (1921), Marshall (1947) and Turney-High 1972 (1949).

demand, in exchange for co-operation, to share the Ruler's capacity for violence. From this conclusion we recommend:

Contract #1 (Organise violence as a team good): In this contract, a single Ruler chooses when, where, and upon whom to commit an act of violence. However, he shares his capacity for violence with player i and his team-mates. Now, violence is a team good. The Ruler and his citizens must co-operate to commit an act of violence.

Example: A King with a Citizens' Militia.

Whereas, before sharing his capacity for violence, the Ruler could just commit an act of violence when, where, and upon whom he decided. Now, the Ruler and his citizens must co-operate to commit an act of violence. Fundamentally, the team has demanded that the Ruler choose an organisation of violence that, in addition to increasing co-ordination and motivation costs, introduces the principal-agent and hold-up problems. This alternative raises the Ruler's cost (C), specifically transaction costs (C_{TC}), of employing violence as an income-maximising strategy. Theoretically, each team member is a check against the Ruler's arbitrary employment of violence.

If Contract #1 makes $C = C_{TC} > (T^i - T^*)$, then the Ruler and the team, by sharing the Ruler's capacity for violence, effectively prune the twig of opportunism off the game tree.

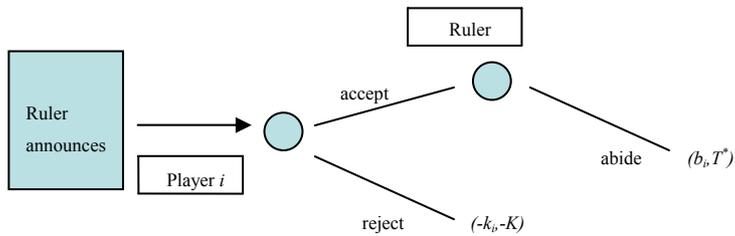


Figure 2

Now, there are only two possible outcomes.

Table 3. Outcomes

Outcome	Title	Description	Pay-offs
#1	Pareto efficient	The Ruler announces the contract, player i accepts, and the Ruler abides by the contract.	(b_i, T^*)
#3	State of Nature	The Ruler announces the contract, player i “looks forward and reasons back” and decides not to enter.	$(-k_i, -K)$

The pay-offs for player i and the Ruler are ranked below from best (top) to worst (bottom).

Table 4. Pay-off ranking

Ruler's ranking	Player i 's ranking
T^*	b_i
$-K$	$-k_i$

Given these pay-offs, the Ruler's dominant strategy is to abide by the contract; it is worthwhile for the Ruler to commit (i.e. *protect* player i 's *protection*). Counter intuitively, a contract's stability is also negatively related to the Ruler's “comparative advantage in violence”.

6. One contract two signals

If the Ruler's “comparative advantage in violence” is a function of how he and his citizens choose to organise violence, then the state's organisation of violence is a valuable signal. On the one hand, the state can signal its ability to enforce the contract by choosing to maximise the Ruler's ability to exclude. With a monopoly on violence, the Ruler can assure player i that he can *protect* his exclusive claim to b_i . On the other hand, the state can signal its ability to credibly commit to the contract by choosing to diminish the Ruler's ability to exclude. By sharing his capacity for violence, the Ruler can assure player i that his offer of *protection* is *protected*. Capturing the gains from co-operation requires one contract to send both signals simultaneously. However, a state with a single Ruler is incapable of performing this task. Why? A Ruler with a monopoly on violence, although able to supply *protection*, is unable to credibly commit. Moreover, while a Ruler that shares violence with his citizens can credibly *protect* his citizens' *protection*, he in fact invites challenges from rival Rulers within and/or outside the state. Accordingly, striking the efficiency-enhancing balance between power and impotence is a dilemma. I advance the following contract as a solution to this dilemma.

Contract #2 (Organise the decision to commit an act of violence as a team decision): In this contract, a team of Rulers has a monopoly on violence and citizens remain unarmed. However, a team of Rulers must agree to commit an act of violence. In this contract, the decision to employ violence as an opportunistic strategy and restructure the contract is a team decision.

Example: A King in Parliament with a Standing Army.

How does Contract #2 concurrently signal enforcement and credible commitment? In Contract #2, a team of Rulers must solve a team production problem to perform the tasks of a single Ruler (Falaschetti and Miller, 2000).⁸ Moreover, as the number of participating Rulers increases, supplying each team good becomes more difficult and costly. For example, let us assume that a team of Rulers agree and structure the contract by simple majority. Moreover, let us assume that one of the contract’s stipulations, agreed upon by a simple majority, requires a 2/3 majority to amend the contract. In this state, although it is costly to set up the contract, once established, restructuring it is even more costly. In other words, resorting to violence and bribing player j is a more costly team-good to produce. Therefore, if $C = C_{CA} > [T' - T^*]$, then player i would not expect a side-contact between a team of Rulers and player j to successfully be concluded.⁹ The 2/3-majority amendment rule prunes the twig of opportunism off the game tree.

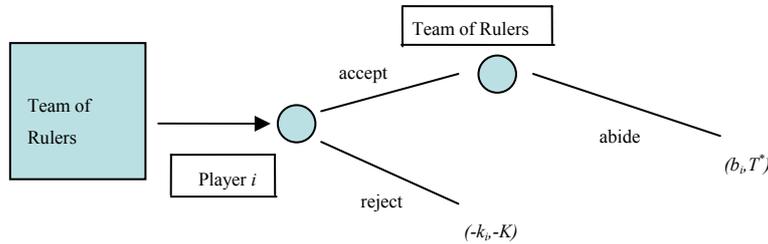


Figure 3

Once again, there are only two possible outcomes.

Table 5. Outcomes

⁸Please note the important distinction between Contract #2 and the “power of the purse”. Contract #2, as will be demonstrated below, can be an effective credible commitment mechanism because it gives a team of Rulers, as opposed to a single Ruler, sovereignty over the state’s violence potential. The “power of the purse” only gives player i and his team-mates influence over the state’s violence potential; influence that can easily be softened if the Ruler can secure alternative sources of revenue.

⁹ C_{CA} : the team’s cost of organizing a collective action and agreeing upon a rule to distribute $[T' - T^*]$.

Outcome	Title	Description	Pay-offs
#1	Pareto efficient	The Ruler announces the contract, player i accepts, and the Ruler abides by the contract.	(b_i, T^*)
#3	State of Nature	The Ruler announces the contract, player i “looks forward and reasons back” and decides not to enter.	$(-k_i, -K)$

The pay-offs for the team of Rulers and player i are ranked below from best (top) to worst (bottom).

Table 6. Pay-off ranking

Ruler's ranking	Player i 's ranking
T^*	b_i
$-K$	$-k_i$

Given the pay-offs, the team of Rulers have a dominant strategy to abide by the contract.

The 2/3-majority amendment rule signals credible commitment, yet a contract's stability is also a function of the state's ability to enforce the contract. So, in addition to the 2/3-majority amendment rule, let us assume that the team of Rulers is capable of committing an act of violence when b_i is encroached upon by others. In other words, I am distinguishing between two team goods: employing violence to act opportunistically and employing violence to exclude agents outside of the exchange. Therefore, if I assume that C_{CA}^e (the cost of agreeing to exclude) $<$ C_{CA}^0 (the cost of agreeing to act opportunistically), then Contract #2, by giving the state a monopoly on violence (i.e. minimising C_{TC}) and distributing the decision-making authority over violence amongst a team of Rulers (i.e. maximising C_{CA}), can simultaneously signal enforcement and credible commitment. Thus, Outcome #1 is the sub-game perfect Nash equilibrium and the gains from co-operation are captured (i.e. $a^\bullet \neq a^*$).

7. Conclusion

In the spirit of our common goal as economists, to ascertain the conditions under which the gains from co-operation can be captured, this paper asks the following question: as an instrument of exclusion, who should have recourse to violence? In a world where violence is a recognised margin of competitive adjustment available to any and all economic agents, a world characterised by *unorganised* violence, an agent's exclusive right to the rewards that flow from his productive

endeavours is determined in large part by his ability to use naked violence to defend, secure, and *protect* these rewards. This fact, let alone reducing the returns to productive endeavours, creates an incentive for agents to expropriate the rewards of others. Consequently, under these conditions, co-operation and complex exchange across space and time are all but impossible. A potential solution to this inefficient outcome is to structure a world of *organised* violence; a world where violence is managed and access to it is limited to a 3rd party; that is, the state. Here is where the economic analysis of violence and its implications for economic prosperity has customarily ended; however, this paper demonstrates that the monopolisation of violence by the state does not guarantee economic prosperity. In fact, theoretically, it can be an efficiency-retarding exercise. In other words, “the state” is an insufficient answer to the aforementioned question. If we are ever going to ascertain the conditions that underlie economic prosperity, then we must ask additional questions; for example, how do states organise organised violence and what are the constitutional consequences of their choices?

My work takes the initial step towards answering these questions. We discussed a cost threshold at which the state has a dominant strategy to honour its constitution, and two credible commitment mechanisms with which the state can structure these costs into its constitution. Either organising collective action costs into the decision to commit an act of violence or organising transaction costs into the actual act of violence were claimed to prune the twig of opportunism off the game-tree; that is, make it worthwhile for the Ruler to honour the state’s constitution. A Ruler with the authority to unilaterally decide when, where, and upon whom to commit an act of violence was argued to have an incentive to implement the latter (i.e. structure Contract #1 or organise state-sponsored violence as a citizens’ militia). Yet, in a violent world, it was found that these credible commitment mechanisms are not perfect substitutes; a state, as a member of a system of alternative property rights regimes (i.e. other states and domestic rivals), will be at a competitive disadvantage if it shares its capacity for violence with its citizens. Consequently, the Ruler confronts a dilemma - if he chooses to credibly commit by sharing violence with his citizens, then the state may not survive; however, if he chooses survival and maintains his monopoly on violence, then the state cannot credibly commit - either way co-operation collapses. The state can reconcile its incentive to monopolise violence with its incentive to credibly commit by implementing a constitutional innovation; that is, a state can simultaneously maintain or consolidate a monopoly on violence and credibly commit if the Ruler distributes his absolute decision-making authority over state-sponsored violence among constitutionally-stipulated “veto” players (i.e. structure Contract #2).

This result can be stated another way: a constitutional innovation, one that distributes decision-making authority over state-sponsored violence among

numerous political actors, may be necessary before a military establishment, monopolised by the state, can coexist with stable property rights and economic prosperity; without this constitutional innovation, a Ruler and his citizens have an incentive to decentralise violence potential - a choice that may come at the expense of economic prosperity. Thus, by exploring the link between a state's organisation of violence and its constitutional design, this paper gives us a sense of the constitutional-military framework that is conducive to economic prosperity; however, it does not tell us exactly how a political-economy gets there. This area of research has yet to be explored by New Institutional Economists and is the concern of my future work.

References

- Andrzejewski, S. (1954), *Military Organization and Society*, London: Routledge and Paul.
- Barzel, Y. (1999), *A Theory of the State: Economic Property Rights, Legal Rights and the Scope of the State*, unpublished manuscript, University of Washington, Seattle.
- Cheung, S.N.S. (1970), "The structure of a contract and the theory of a non-exclusive resource", *The Journal of Law and Economics*, 49-70.
- duPicq, A. (1921), *Battle Studies: Ancient and Modern Battle*, New York: The MacMillan Company.
- Eswaran, M. and A. Kotwal (1984), "The moral hazard of budget breaking", *Rand Journal of Economics*, 15, 578-81.
- Falaschetti, D. and G. Miller (2000), *Constraining Leviathan: Moral Hazard and Credible Commitment in Constitutional Design*, presented at the Midwest Political Science Association Meetings, Chicago, IL.
- Hobbes, T. (1651/1968), *Leviathan*, London: Penguin Books.
- Holmstrom, B. (1982), "Moral hazard in teams", *Bell Journal of Economics*, 13, 324-340.
- Marshall, S.L.A. (1947), *Men Against Fire: The Problem of Battle Command in Future War*, New York: William Morrow and Company.
- Miller, G. (1992), *Managerial Dilemmas: The Political Economy of Hierarchy*, Cambridge: Cambridge University Press.
- North, D.C. (1979), "A framework for analyzing the state in economic history", *Explorations in Economic History*, 16, 249-259.
- North, D.C. (1981), *Structure and Change in Economic History*, New York: W.W. Norton and Company.
- North, D.C. and B. Weingast (1989), "Constitutions and commitments: the evolution of institutions governing public choice in 17th century England", *Journal of Economic History*, XLIX, 803-832.
- Nye, J.V.C. (1997), "Thinking about the State: property rights, trade, and changing contractual arrangements in a world with coercion", in: J.N. Drobak and J.V.C. Nye (eds.), *The Frontiers of the New Institutional Economics*, New York: Academic Press.
- Root, H.L. (1989), "Tying the king's hands: royal fiscal policy during the old regime", *Rationality and Society*, 1, 240-259.
- Turney-High, H.H. 1971 (1949), *Primitive War: Its Practice and Concepts*, Columbia, SC: University of South Carolina Press.

Umbeck, J. (1981), "Might makes rights: a theory of the formation and initial distribution of property rights", *Economic Inquiry*, XIX, 38-59.

Williamson, O.E. (1975), *Markets and Hierarchies*, New York: Free Press.