



Rational conflict and pre-commitment to peace[☆]

D.V. Pahan Prasada^{a,*}, Gautam Bose^b

^a Department of Agricultural Economics and Business Management, University of Peradeniya, Sri Lanka

^b School of Economics, University of New South Wales, Sydney, Australia



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ABSTRACT

There is an abundance of historical and contemporary examples of consensual institutions that reduce the probability of adversarial conflicts between contesting parties. For instance, feudal lords in the medieval period supported monarchies which kept in check their mutual predatory tendencies. Contemporary nation states invest in the United Nations and NATO to contain conflicts between themselves. This paper experimentally investigates the feasibility and effectiveness of such an institution. We modify the two-agent ratio-form rent-seeking model to incorporate a pre-conflict stage in which participants voluntarily choose a level of public investment towards the establishment of the peacekeeping mechanism. A modified Tullock contest is played in the second stage, where the aggregate investment made in the first stage assists the victim in the case of a unilateral aggression. We find that the peacekeeping mechanism is effective in reducing conflict expenditures, and is least effective when the contestants initially have close but unequal endowments, as opposed to equal or widely unequal endowments.

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1. Introduction

It has been recognised since [Hobbes \(1651\)](#) that, when individuals pursue selfish interests, it is difficult to achieve a socially desirable equilibrium starting from an anarchic state of nature. This fundamental incompatibility between individual and collective rationality engaged theorists of the social contract ([Locke, 1988](#); [Rousseau, 1762](#)), who viewed government as a public legislator and law-enforcer to whom individuals submitted some of their rights in exchange for a promise to protect the remainder of those rights.

History is replete with examples of rulers as peacekeepers, of which the most tangible contemporary example is the state. Citizens, even individually powerful citizens, pay taxes to the state to curb their natural tendencies to encroach on each other. At a supra-national level, the United Nations, supported by revenues from its member states, provides some measure of peacekeeping between those very states, mediating and dissuading conflict between them, and sometimes intervening militarily when conflict does occur.

Somewhat earlier in history during the feudal period in Europe, potential conflict between great lords was often held in check by the king, funded by tribute from those very lords. Even earlier, the prosperity of the Roman Empire in the early centuries of the first millennium CE was founded upon a lasting peace between its subject states, which allowed trade and

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* Corresponding author.

E-mail address: pp16252@gmail.com (D.V.P. Prasada).

commerce to flourish. The Ottoman Empire to a large extent saw itself as the heir to this legacy, indeed, both empires and kingdoms declined with a decline in the capacity to maintain peace between their powerful subjects, and often the decline began not as a direct attack on the centre of power but as increasing conflicts and lawlessness between remote subjects.

It is important to note that, in all these examples, the legitimacy of the central authority derives in large part from its ability and undertaking to maintain peace between potential adversaries, and authority declines as this capability erodes. The decay of empires and the demise of monarchs seldom begins with a direct attack on the centre by an “overpowerful subject”, more often it is heralded by the erosion of authority at the edges of the domain. To that extent, the stability of the central authority is conditional on its capacity to contain conflict.

A theory of peacekeeping therefore must satisfy two logically distinct requirements. First, the peacekeeping mechanism must be demonstrated to be adequate for containing—indeed, dissuading—conflict. Secondly, since the peacekeeper is independently endowed with conflict-relevant resources, it must be in the peacekeeper’s interest to use these resources in consonance with the goal of containment, rather than for self-aggrandisement at the expense of the potential contestants. In the examples above, it is clear that the second requirement is satisfied because the long-term benefit of maintaining peace is greater for the peacekeeper (United Nations, imperial power, king) than the short-term profit of pillaging one of its subjects. In the present paper, we focus on the viability of the first requirement and investigate whether the voluntary contributions of potential contestants are sufficient to maintain peace, or at least enhance the likelihood that peace may obtain. In other words, we explore whether a central peacekeeping mechanism can, in equilibrium, be financed entirely by such voluntary contributions.

In the recent economics literature, the rational model of conflict, more popularly known as the “contest model” (Tullock, 1980; Hirschleifer, 1991; Grossman and Kim, 1995) is a point of departure for the analysis of this problem. A contest is a setting in which two or more agents compete to win an indivisible prize using costly investments. It is often referred to as a rent-seeking game. Costly investments influence the probability of winning. A rent-seeking game in which the contest success technology takes a ratio form is called a Tullock (1980) contest. This framework is formally closely related to all-pay auctions, and has also been used to study phenomena such as patent races. Surprisingly, barring a very few contributions (see McBride and Skaperdas, 2007 and McBride et al., 2011), the contest literature has largely ignored the possibility of public peacekeeping as a solution to anarchy.

This paper explores the role of a central peacekeeper in containing conflict. It extends the contest model to include a mechanism that enables agents to protect their resources from plunder by investing in a public defender. The task of the defender is to defend the victim in case of a unilateral aggression. In equilibrium, for a wide range of parameter values, the mechanism reduces conflict efforts compared to the pure rent-seeking model. We do not examine the incentives of the public defender to carry out its assigned duties. This would considerably complicate the game since, as discussed earlier, the defender’s incentives arise from long-term considerations and reputation effects. While this does less than justice to the rich fabric of intrigue and ambition that is the history of empire and international organisations, our analysis provides a modest first step to the examination of its effectiveness.

In laboratory investigations of the contest model, investigators have observed significant overinvestment in contest effort compared to predictions made by theory (Dechenaux et al., 2015). We test the predictions of our model in a laboratory experiment, and find that overinvestment is substantially lower relative to those in a pure contest, though still higher than those predicted in equilibrium by our model.

The analytical motivation for the model and the experiment is founded in political economic conflicts such as civil wars and resource conflicts. Buchanan and Brennan (1985) argue that, starting from a Hobbesian state of anarchy, a property rights regime will emerge based on agents’ preferences for and abilities to use violence. This natural allocation of effective rights will remain inefficient because of the continued use of resources for defence and offense in the absence of a viable property rights enforcement mechanism. Facing the alternative of reverting to anarchy, agents would agree on a social contract against plunder.

Powell and Wilson (2008) investigate Buchanan and Brennan’s conjecture using an experimental setting which tests the natural emergence of a social contract in an anarchic setting with measurement of the efficiency of resource allocation. They conclude that an anarchic setting may be more efficient than assumed by Buchanan and find very low natural emergence of social contracts as unanimous outcomes. They suggest that the specific form of government/social contract that is effective in curtailing aggression in equilibrium is unclear, and external enforcement mechanisms, trade, and differentiated comparative advantage in production and plunder may be potential factors that coordinate resources in the anarchy.

Most experimental research on conflict focuses on equilibrium conflict efforts and hence takes a positive approach compared to the normative focus of Buchanan (1975). However, the research question of this paper has a certain appeal to the fundamental question posed by Buchanan in that it captures the willingness of agents to voluntarily commit to a public security mechanism that is designed to mitigate the conflict outcome. The institution introduced here is closer to a binding social contract in the sense that, once the investment in the public security mechanism is made, both agents internalise the public defence mechanism via the conflict technology and a payoff distribution.

The rest of the paper is ordered as follows. In Section 2, we review relevant literature related to conflicts as well as the more specific literature on avoiding conflicts in rent-seeking games. Section 3 outlines the analytical basis of the experiment and potential hypotheses. Experiment design (and implementation) is discussed in Section 4, followed by the statistical analysis in Section 5. The descriptive results appear in Section 5.1. Regression results are listed next in Section 5.2, and

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