



# Local rulemaking, enforcement and compliance in state-owned forest commons



Graham Epstein

The Vincent and Elinor Ostrom Workshop in Political Theory and Policy Analysis, 513 North Park Ave., Bloomington, IN 47408, USA

Environmental Change and Governance Group, School of Environment, Resources and Sustainability, University of Waterloo, 200 University Avenue West, Waterloo, ON N2L 3G1, Canada

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## ABSTRACT

The literature on rule compliance is divided between those urging greater autonomy for stakeholders in rulemaking processes; and those arguing for increased enforcement. However recent experimental evidence highlights the potential for synergies between participatory rulemaking and enforcement. This paper therefore seeks to build upon these findings to explore the relationship between local rulemaking, local monitoring and compliance in field settings. The results which draw upon data about the behavior of 93 fuelwood user groups in state-owned forest commons in Asia, Africa and Latin America suggest that the average group is more likely to comply with rules when local rulemaking is combined with local monitoring. However, in some contexts it appears that local rulemaking in particular and other institutional arrangements in general may yield similar results.

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## 1. Introduction

Rule compliance is an important, if not essential, condition for the sustainable governance of social-ecological systems (SESs) (Young, 1979; Zaelke et al., 2005). Indeed illegal harvesting of natural resources is often identified as a leading cause of environmental degradation (Contreras-Hermosilla, 2002; World Bank, 2004; Fromentin and Powers, 2005; Agnew et al., 2009); and thus a better understanding of the ways in which policies might be designed to encourage compliance is needed to confront the mounting environmental problems that human societies face. Fortunately by synthesizing empirical studies of rule compliance (Kuperan and Sutinen, 1999; Nielsen, 2003; Ramcilovic-Suominen and Epstein, 2012) and common-pool resource (CPR) management (Ostrom, 1990; Cox et al., 2010) scholars have identified a number of institutional conditions that appear to contribute to compliance and cooperation. Most notably a number of studies suggest that prospects for compliance and cooperation tend to increase when stakeholders are (i) able to participate in rulemaking processes to influence the content of rules that affect them; and (ii) organize monitoring and sanctioning in order to enforce those rules. However, important debates remain with regards to the relative priority of these factors and the ways in which they might interact to influence behavior. While some have argued for the primacy, if not sufficiency of enforcement as a strategy to generate incentives for actors to follow rules (Becker, 1968; Hardin, 1968); others have suggested that participatory processes can lead to the expression of intrinsic motivation to follow rules only to be negated by external

interventions such as enforcement (Frey, 1997; Ryan and Deci, 2000; Bowles, 2008).

A recent experimental study however contradicted predictions regarding the superiority of either participatory rulemaking or enforcement by using a factorial design to highlight the synergistic effects of the two approaches (DeCaro et al., 2015). Indeed, groups subject to a combined voting and enforcement treatment exhibited lower rates of resource depletion, higher average individual returns and higher levels of compliance than groups who were subject to voting or enforcement alone. Therefore this study seeks to build upon these findings by considering the relationship between local rulemaking, local monitoring and compliance in the context of fuelwood appropriation in state-owned forest commons using data collected as part of the International Forestry Resources and Institutions (IFRI) program (Wertime et al., 2007). The results suggest that user groups are most likely to exhibit high levels of compliance with rules for fuelwood appropriation when local rulemaking is combined with local monitoring, while controlling for a number of potentially intervening factors; providing support for the findings presented in DeCaro et al. (2015).

The remainder of this chapter is structured in the following way. Section 1.1 briefly outlines the concept of compliance and the development of compliance theory from its origins in economics, to the more socialized and political models of the present day. It then continues by emphasizing the potential role of local rulemaking and local monitoring; before turning to the question of when local rulemaking might contribute to compliance. Section 2 presents the approach taken in this paper, and the results are reported in Section 3. Finally, Sections 4 and 5 conclude this paper by discussing the limitations of this research and implications for compliance theory.

E-mail address: [graham.epstein@uwaterloo.ca](mailto:graham.epstein@uwaterloo.ca).

### 1.1. Rule Compliance and Human Motivation

Rule compliance refers to the behavior of actors relative to behavioral prescriptions (Young, 1979). The concept of compliance is similar, but not identical to the concept of cooperation used in CPR experiments. They are similar in that the short-term economic incentives tend to favor overharvesting (or rule violations); but they differ in that compliance, as opposed to cooperation does not necessarily lead to better outcomes for the participants.<sup>1</sup> For instance, if governments ignore scientific recommendations when determining quotas (MacKenzie et al., 2009) or policymakers lack sufficient knowledge to develop effective rules (Romme and Don, 1989; Acheson, 2006); then even high levels of compliance may lead to highly suboptimal outcomes. Nonetheless, in field settings where it is difficult, if not impossible, to estimate social optima the decision to comply with or violate rules is perhaps the most important and certainly the most proximate behavioral link to the sustainability of resources.

Contemporary compliance theory is informed by behavioral models from across the social sciences with contributions from economics, social psychology, political science and sociology. While these approaches vary with respect to the terminology they use to describe human motivation and the assumptions they make about how information is processed to make decisions; perhaps their most significant differences rests in the extent to which priority is given to extrinsic versus intrinsic sources of motivation. Classically trained economists such as Becker (1968) give clear priority to extrinsic motivation in arguing that crime is simply the result of a situation in which the expected net economic benefits of illegal activity exceed the expected sanctions. Motivation in this context is considered extrinsic because of the emphasis on using externally imposed punishments in order to compel individuals to obey commands (Deci and Ryan, 2000).

Most social scientists concede that extrinsic factors can have an influence on behavior and compliance. However, there is also a growing consensus that human beings exhibit higher levels of cooperation and compliance than would be expected based upon extrinsic factors alone (Andreoni et al., 1998; King and Sutinen, 2010). As a result a number of social science disciplines now argue that the problem of securing cooperation and compliance rests, at least in part, on the ability of governance systems to promote acceptance of institutions and intrinsic motivation (Frey, 1997; Bowles, 2008; DeCaro and Stokes, 2013). Institutional acceptance refers to the extent to which actors accept rules as legitimate often because they are aligned with their interests and values (DeCaro and Stokes, 2013). Intrinsic motivation, meanwhile, refers to the extent to which individuals personally endorse or internalize a behavior (i.e. compliance with a rule) such that they behave in a particular way even in the absence of observation (Kerr et al., 1997). In general it has been argued that institutional acceptance and intrinsic motivation can be promoted by developing governance systems that satisfy innate needs for self-determination (Ryan and Deci, 2000; Frey and Jegen, 2001), procedural justice (Kuperan and Sutinen, 1999; Nielsen, 2003; Tyler, 2003, 2006), and by providing a sense of security and predictability for the actors involved (Shinada and Yamagishi, 2007; Ostrom, 2009; DeCaro et al., 2015).

Contemporary compliance theory has therefore developed to recognize the potential for promoting compliance using both extrinsic and intrinsic sources of motivation. Scholars emphasizing extrinsic motivation tend to promote investments in monitoring and sanctioning systems in order to increase the perceived costs of rule violation (Becker, 1968).

Although there are some exceptions, most field studies provide at least partial support for the hypothesis that rule violations decline with increased monitoring and enforcement<sup>2</sup> (Kuperan and Sutinen, 1998; Scholz and Lubell, 1998; Hatcher et al., 2000; Viteri and Chávez, 2007; Ramcilovic-Suominen and Epstein, 2015). In contrast, scholars focusing on intrinsic motivation tend to encourage the development of participatory models of decision-making that appeal to the moral sentiments and social-psychological needs of human beings (Bowles, 2008; DeCaro and Stokes, 2013). Much like enforcement, field studies of rule compliance offer fairly broad, but not complete support for the hypothesis that stakeholder participation<sup>3</sup> in decision-making contributes to increased compliance (Frey, 1997; Scholz and Lubell, 1998; Hatcher et al., 2000; Viteri and Chávez, 2007; Madrigal-Ballesteros et al., 2013).

There is now fairly widespread agreement among compliance scholars that participatory rulemaking processes and/or monitoring and sanctioning can be used as strategies to address compliance problems (Kuperan and Sutinen, 1999; Nielsen, 2003). Important debates have, however, emerged concerning the relationship between participatory rulemaking and enforcement and how they interact to influence behavior. First, there is a large and growing body of research demonstrating that the introduction of external monetary rewards or punishments can in some cases crowd-out intrinsic motivation, often undermining the very goals they are meant to achieve<sup>4</sup> (Gneezy and Rustichini, 2000a,b; Ryan and Deci, 2000; Bowles, 2008). Experimental studies of CPR dilemmas have, for instance, found that the introduction of sanctioning mechanisms often leads to worse or at least similar outcomes as treatments that simply allow participants to communicate (Ostrom et al., 1992; Cardenas et al., 2000; Cardenas, 2004; Janssen et al., 2010); indicating the potential for tradeoffs between motivation generated by participatory decision-making and enforcement (DeCaro et al., 2015). However, others have argued that some types of external interventions such as monitoring and sanctioning might actually enhance intrinsic motivation provided that it is perceived as supporting the self-determination of actors (Ostrom, 2000; Frey and Jegen, 2001; DeCaro et al., 2015); and providing a measure of security against exploitation by free-riders (Shinada and Yamagishi, 2007; Ostrom, 2009).

Communities and other groups of individuals rarely correspond to a single narrow model of human motivation (Ostrom, 1998, 2000). Instead human beings exhibit considerable heterogeneity in terms of their propensity to cooperate with others. However, a large fraction of most groups can be described as conditional cooperators<sup>5</sup> who have a general tendency to respond in-kind to the behavior of other group members (Fischbacher et al., 2001; Frey and Meier, 2004; Kocher et al., 2008). As a consequence although conditional cooperators might be intrinsically motivated to comply as a result of participatory rulemaking; their compliance behavior is likely to depend crucially on

<sup>2</sup> Specific measures used to operationalize this concept include self-reported subjective probabilities of detection (Kuperan and Sutinen, 1998; Hatcher et al., 2000; Eggert and Lokina, 2010; Ramcilovic-Suominen and Epstein, 2015), observation of enforcement officers (Viteri and Chávez, 2007), and opportunity to cheat (Scholz and Lubell, 1998) which is an estimate of the ability of individuals to avoid detection for certain line items on tax returns.

<sup>3</sup> Specific measures used to operationalize this concept vary across studies. Frey (1997) consider the constitutional design of Swiss cantons (i.e. referenda, citizen initiatives, citizen meetings) to develop a measure of opportunities for political participation. Viteri and Chávez (2007) and Jenny et al. (2007) use a direct measure of participation in fisheries cooperatives and rulemaking for a shared energy system. The remaining studies focus on subjective measures of political efficacy by asking whether actors feel that their views are represented or considered in the design of policies.

<sup>4</sup> As an example The paper by Gneezy and Rustichini, 2000b is entitled "Pay enough or don't pay at all" which effectively summarizes the main findings of their research. They found that groups offered small monetary rewards for performance on IQ tests and collection of donations performed worse than students offered no compensation at all, and that groups offered larger rewards tended to outperform those offered smaller rewards.

<sup>5</sup> Conditional cooperators are typically defined as individuals who monotonically increase their contributions in response to the contributions of others. Although contributions increase it is worth noting that most studies have found that the contributions of conditional cooperators fall short of matching the contributions of others (Kocher et al., 2008).

<sup>1</sup> Although cooperation will tend to lead to "better outcomes" for actors that hold rights to harvest a common-pool resource, communities and societies might be "worse off" in aggregate if some actors are excluded from using a common-pool resource.

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