

Does Group Size Matter in Collective Action? The Role of Interaction Density

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Mancur Olson's (1965) book, *The Logic of Collective Action*, launched an avalanche of theoretical and empirical work that continues to this day. Olson argued that rational individuals would rather free-ride than invest resources in collective action with the result that goods and services that require collective action will be under-supplied. Collective action has been modeled in a variety of ways, such as the Collective Action Space Model, where collective action is viewed as communicative (Flanagin, Stohl, & Bimber, 2006), and in Gavious and Mizrahi's (1999) model for mobilizing mass collective action, which recommends creation of small groups with a strong group identity.

Sport is riddled with collective action challenges. A great deal of sport is provided or enabled by collective action (Chalip, 2000; Palm, 1991) - which, if Olson is right, suggests that sport that requires collective action is often under-supplied. Similarly, failure of collective action within sport can generate difficulties. For example, there has been increasing alarm over the environmental problems associated with sport - problems that require collective action, but for which the necessary collective action has not been forthcoming (Schmidt, 2006).

Given the significance of collective action, there has been substantial effort to identify and analyze the factors that facilitate or hinder collective action. One of the most salient but vexing has been group size (Agrawal, 2003; Oliver & Marwell, 1988; Ostrom, 1992). Conventional wisdom holds that small groups have a better chance than large groups of achieving collective action because the contribution of each member in a small group is more evident. Thus, the likelihood that an individual's contribution will be recognized and appreciated is higher in a small group. The effect of recognition is to reduce free-riding through social reinforcement. However, as appealing as this view has been, it has been challenged on both conceptual and empirical grounds (Blomquist, 1992; Libecap, 1995).

The problem of group size is particularly relevant to sport because many sport policy matters, such as environmental management and sport development, rely on collective action by large groups that may be diffuse and/or dispersed. We examine the group size problem using plasma physics as our analogue. The analogue is apt because plasma physics recognizes the role of groups in interaction processes, and the role of interaction simultaneity. Thus, rather than treating interactions as individual (and perhaps random), as has been the predominant approach in past work, interactions can be modeled with reference to groups of persons interacting, as is typically the case in sport. This approach shows that in the collective action problem it is interaction density, rather than unscaled group size, that determines the behavior of a collection of individuals. Equations that describe the model are derived and presented. The model identifies the boundary conditions that determine whether collective action will (or will not) emerge. It shows that the critical determinant is interaction density. Since interaction density can be manipulated through social and managerial interventions, the model has direct application to management and marketing problems that entail collective action. Implications for the theory of collective action, applications to sport management, and further research are discussed.