

## **Fight Alone or Together? The Need to Belong**

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### **Abstract :**

Alliances often face both free-riding and hold-up problems, which undermine the effectiveness of alliances in mobilizing joint fighting effort. Despite of these disadvantages, alliances are still ubiquitous in all types of contests. This paper asks if there are non-monetary incentives to form alliances, e.g., intimidating/discouraging the single player who is left alone. For this purpose, symmetric and asymmetric group contests are compared to their equivalent 4-player and 3-player individual Tullock contests, respectively, in laboratory experiments. I find that alliance players in symmetric (2 vs. 2) group contests behave the same as those in the equivalent 4-player individual contests. However, in asymmetric (2 vs. 1) contests, stand-alone players were strongly discouraged to exert effort (especially the females), compared to its equivalent 3-player individual contests. Behavioural factors such as the need to belong may help reconcile the "paradox of alliance formation".

Keywords: Alliance Formation, Contests and Conflict, Experiment.

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