

Project Summary

Most interstate wars (80%) end without ever expanding to include countries beyond the original belligerents. But those wars that do expand (20%) account for an exorbitant 88% of the fatalities across all interstate wars between 1816 and 1997. War, the country interaction that produces it, and the behavior of other countries during it, are all complex phenomena. Scholars have developed theories to explain the onset, escalation, duration, and outcome of interstate war but have paid relatively little attention to war expansion, even though war expansion is directly related to each of these other processes. We know comparatively little about why some third parties (i.e., countries) decide to join ongoing interstate wars and why others do not; how third party participation affects the dynamics of these wars; and how participation by each third party influences the participation decisions of other third parties. In order to overcome this deficit of attention in the literature, in my dissertation I develop a theory of war expansion to explain three interrelated puzzles: 1) Why do some wars expand while others do not? 2) How does war expansion affect the dynamics of war (i.e., battlefield events and outcomes)? 3) How does participation by a third party influence the likelihood of participation by other third parties?

I investigate these puzzles using a combination of formal and empirical techniques. I begin by employing agent-based modeling, consisting of computer-based simulation experiments performed in an artificial international country system. This artificial world is analogous to a laboratory in which I “grow” war expansion to examine how the behaviors of many interacting agents (i.e., countries) generate the emergent behavioral patterns of war expansion (i.e., the decision of third parties to join an ongoing war and the effects of third party intervention on the dynamics of war). These emergent patterns serve as theoretical predictions of the real-life behavioral patterns that should emerge in the world under parallel conditions. After conducting experiments in this artificial world (in the form of computer simulations) under varying initial conditions, I then subject the theoretical predictions derived from these computer experiments to empirical evaluation using statistical analysis to evaluate how well the predictions withstand empirical scrutiny of real world data.

The **intellectual merit** of the proposed study is the development of a theory of war expansion that advances our understanding of an important and under-researched question in political science. Importantly, a theory of war expansion is a general theory of joining behavior and can be applied to research questions within political science and other social and behavioral sciences including the expansion of: civil wars to include other countries or opposition groups, U.S. presidential elections to include third party candidates, class action law suits to include additional plaintiffs, and publicly traded companies to include additional owners.

The **broader impacts** of the study are embodied in the development and use of statistical techniques that can be employed to test the empirical implications of other agent-based models. Additionally, the data collected on third party participation will be made publicly available and will be of use to other scholars investigating research questions concerning international conflict. Finally, this project offers two aspiring political scientists training and experience in different aspects of the research process; theory development, data collection, and empirical evaluation.