

## ABSTRACT

### AN AGENT BASED MODEL OF COMMUNITY AUTHORITY STRUCTURE RESILIENCE

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This dissertation presents a theoretical model based on social exchange theory that explains the resilience and adaptation of authority structures in urban communities. Communities where non-state actors undermine or replace government institutions are a persistent public policy concern in many cities. The structure of instrumental relationships between authorities and residents in these communities is a key variable associated with a wide range of human security and governance challenges. Altering these structures is often necessary to enable other public policy goals. However, there is a lack of theoretical frameworks that address the dynamic characteristics of these structures. This hinders policy development by limiting insights into the effects of efforts to support or undermine particular groups or to alter social conditions on authority structures. The theory developed here describes authority structures as an emergent feature of a community-level complex adaptive social system. In this system, individual actors select relationship partners based on past experiences, preferences, environmental

conditions, and information from other actors. Changes to structure are the result of changes to the set of actors in the system and how these actors value particular relationships. A comparative case study of three sub-Saharan African communities located in Nairobi, Cape Town, and Lagos and several additional experiments are performed using an agent-based model implementing this theory. The results demonstrate the practical application of the theory to public policy analysis and support the choice of social exchange theory as the basis for actor decision-making. More broadly, this effort extends existing theoretical and agent-based models of contentious politics and authority structures. It also demonstrates the utility of computational modeling in advancing the research programs in social exchange theory, political authority, and comparative urban politics.