CIFREM SEMINARS

AGENT-BASED MODELING OF PREDICTION MARKETS

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In this talk, we present a simple agent-based model of the political election prediction market which reflects the intrinsic feature of the prediction market as an information aggregation mechanism (Hayek, 1945). We follow the recent research trend in agent-based prediction markets to construct a spatial agent-based political futures market based on a two-dimensional cellular automaton. We consider this as a first attempt to hybridize the spatial agent-based political election models and the agent-based political futures markets. We begin this study with the device of zero-intelligence agents which have been introduced into agent-based prediction markets by Abraham Othman (Othman, 2008). However, instead of general-purpose prediction markets, we focus on political futures markets, which, needless to say, is one of the most active application areas of prediction markets. This focus motivates us a spatial extension of the Othman's model. This extension enables us to address a number of issues which cannot be easily approached by either neoclassical models of prediction markets (Manski2006, Snowberg2010) or by agent-based prediction markets without spatial configurations. Specifically, the question is how exactly the information dissemination affect the information aggregation given that agents can only form their beliefs based on their local information from their surroundings. Second, to take into account the geographical segregation phenomena, as analyzed by Thomas Schelling, we also study how cluster may affect the operation efficiency of the political future markets. Using this Schelling model, we can study the effect of cluster size to the prediction accuracy of the political future markets. In this brief summary, we present some of our initial results with regards to the two aforementioned issues.