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A continuous time model for election timing. (English) Zbl 1183.91044
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Summary: We consider a continuous time model for election timing in a majoritarian parliamentary system where the government maintains a constitutional right to call an early election. Our model is based on the two-party-preferred data that measure the popularity of the government and the opposition over time. We describe the poll process by a stochastic differential equation (SDE) and use a martingale approach to derive a partial differential equation (PDE) for the government's expected remaining life in office. A comparison is made between a three-year and a four-year maximum term and we also provide the exercise boundary for calling an election. Impacts on changes in parameters in the SDE, the probability of winning the election and maximum terms on the call exercise boundaries are discussed and analyzed. An application of our model to the Australian federal election for house of representatives is also given.

MSC:

91B12 Voting theory
91F10 History, political science
60H30 Applications of stochastic analysis (to PDEs, etc.)

Cited in 1 Document

Keywords:

early election; stochastic differential equation (SDE); martingale approach