

Mathematical Modelling of the Impact of Abstainers and Registration on Electoral Behavior

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Abstract

In this study, I developed a nonlinear mathematical model to explore the dynamics of citizens on electoral lists, as well as the impact of abstainers and voter registration on political electors. The models are analyzed for positive and boundedness, asymptotically stability of abstention-free and abstaining equilibrium points both locally and globally, and sensitivity analysis of model parameters based on the fundamental reproduction number R_0 . Finally, numerical simulations were carried out using the ODE45 subroutine of MATLAB to interpret using graphs. The findings demonstrate that abstainers have a detrimental impact on voter turnout. Now, is the time to raise voter awareness to educate them about the value of electoral and political involvement, protect them from the harmful effects of abstainers, and reduce the number of those who have registered but have not voted.

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