



Volume 192, Issue 2, 16 January 2009

ISSN 0377-2217

EUROPEAN JOURNAL OF OPERATIONAL RESEARCH

Available online at

 **ScienceDirect**
www.sciencedirect.com

www.elsevier.com/locate/ejor



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Interfaces with Other Disciplines

Opportunistic timing and manipulation in Australian Federal Elections

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Received 21 June 2006; accepted 25 September 2007

Available online 24 October 2007

Abstract

In many parliamentary systems, election timing is an important decision made by governments in order to maximize their expected remaining life in power. Governments can also introduce policy or economic actions to enhance their popular standing and thus their chance of being re-elected. On the other hand, an oppositions' natural objective is to gain power, and they will also apply controls through their own policies to reduce the governments' chance of being re-elected. In this paper we employ a dynamic programming approach to determine the optimal timing for governments and oppositions to best utilize their limited resources. At each decision branch, the optimal control is interpreted as a Nash–Cournot equilibrium of a zero-sum political game which, in certain states, admits mixed strategy solutions. We perform a case study on the Australian Federal Election for House of Representatives.

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Keywords: OR in government; Dynamic programming; Game theory

1. Introduction

In many parliamentary systems, election timing is an important control wielded by the prevailing government to maximize its expected remaining life in power. Governments also make timely policy announcements to manipulate their popularity, and in conjunction with election timing can further extend their life in power. Oppositions, on the other hand have no influence over election timing, but maintain a set of their own policy announcements which are expected to sway voters' intentions away from governments and in favor of themselves.

This paper explores the problem of optimal allocation of poll-manipulating resources for the government and the opposition in conjunction with the optimal election timing problem. The formulation of the problem incorporates the stochastic behaviour of popular opinion polls, as well as

the nexus between opinion polls and the likelihood of re-election. The solution method employs dynamic programming which is a well understood modeling tool in similar problems (Balke, 1990; Kayser, 2005; Lesmono et al., 2003). Our significant extension is that the controls are possessed by two competing parties and thus the optimal strategy becomes a policy for each party to achieve a Nash–Cournot equilibrium at each decision branch.

We perform a case study on the Australian House of Representatives and use Morgan Polls two-party-preferred data. Voting in Australian Federal Elections follows a majoritarian alternative vote system where preferences are iteratively distributed until one party achieves the majority of (referred) preferences.

Several authors (Brown and Chappell, 1999; Eisinga et al., 1999; Holbrook and DeSart, 1999) have used forecasting techniques to predict election outcomes using various predictor variables including opinion polls. Election timing as an endogenous policy variable in relation with other factors such as growth rate, electoral support and other subsequent economic performance has also been investigated, mathematically modeled and applied in

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