

# 1 Introduction

There is a large literature on refinements of the Bayesian equilibrium notion. [Cho and Kreps 1987, Kreps and Sobel 1994, Fudenberg and Tirole 1992, Umbhauer 1994 and Mailath, Okuno-Fujiwara and Postlewaite 1993]. We consider a further refinement of the equilibrium notion that seems to be especially well-suited for political races where candidates can use money to advertise at any point in time. The refinement is based on burning money to influence beliefs and works as follows. Suppose that an informed player assumes that a particular type of the pooling equilibria is being played. Then an agent can incur costs to test out-of-equilibrium beliefs. Such costs could simply be burning money or utility through uninformative advertising or the costs could involve costly polls to review the beliefs of the public.

We apply the refinement in a simple model. We look at a single decision maker, such as a government, that cares about both the returns from any investment he makes as well as about the public's perceptions of his ability. The crucial features of our model are the following: First, we allow different levels of the government's ability to judge the impact of long-term investments. Moreover, governments that are very uncertain about the consequences of investment projects have the possibility to wait for better information in the future. Second, we assume that the public can not observe the ability of governments to foresee the consequences of long-term decisions.

We shall determine the signalling equilibria under which excessive or insufficient waiting occurs. The rash and waiting pooling equilibria in our model satisfy the intuitive criteria and, at least for certain parameter values, the Consistent Forward Induction Equilibrium Path concept of Umbhauer and the similar undefeated equilibrium concept of Mailath, Okuno-Fujiwara and Postlewaite.

By introducing the equilibrium refinement based on costly belief tests, pooling equilibria can be eliminated and we identify cases of governments burning money for belief tests. However, the opportunity of costly polls decreases overall welfare if discount factors are large. We also identify the conditions under which the public should allow the agent to burn the public's money.

Our model can explain why governments invest in excessive and costly tests of the beliefs of the public about their competence. Governments frequently test how the public would react to certain decisions and "fly a kite or a trial balloon".

The money burning refinement introduced in this paper may be useful for other signalling games, since the opportunity to burn money or utility is a natural way for players to broaden their strategy space. We expect that the burning money opportunity will generally lead to separating equilibria in signalling games. As shown in the application in this paper, however, welfare may be negatively affected.