

**"It's the Challenger, Stupid!":
Elections and the Theory of
Rank-Order Tournaments**

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"It's the Challenger, Stupid!": Elections and the Theory of Rank-Order Tournaments*

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Abstract

Democratic elections look very much like a contest where voters have to compare the candidates according to an ordinal ranking. Nevertheless, the theory of tournaments has not yet been applied to Political Economics. Therefore, we deploy tournament models to analyse elections. The main difference between tournaments in a firm and election tournaments is a systematic asymmetry between the contestants: whereas the voters have plenty of information about the incumbent, they hardly know anything about the challenger. Unlike most models of political accountability that model the challenger as a standard, we focus on the specific role of the challenger and model him as a random draw with a given expected ability. Consequently the ordinal ranking of the candidates contains plenty of noise, which weakens the incumbent's incentives to exert effort. After the presentation of the basic model, several extensions of the tournament theme in politics are explored. The model gives a fresh insight into very important aspects of politics, such as sabotage and selection, and it identifies effective policy reforms, e.g. the deregulation of politics.

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1 Introduction

Elections of executive as well as legislative politicians look very much like a tournament: two or more candidates compete for an office, which provides the winner with a wage and other benefits. Through such contests the electorate, the principal, provides its politicians, the agents, with incentives for good performance. Indeed the agency problem in politics and in a firm when promoting employees has many common features: the output of an individual agent is difficult to measure and common shocks, such as economic cycles or the legislation of a higher jurisdiction, affect all candidates. Therefore, it is puzzling how little Political Economics refers to the literature on tournaments: neither in the standard textbooks by Persson & Tabellini (2000) and Mueller (2003) nor in the newly published volume by Besley (2006) nor in any paper of which we are aware of, is the concept of tournaments explicitly applied to political processes.¹

The crux, of course, lies with information about the agents' performance. In politics candidates are rarely directly comparable because the challenger does not have the opportunity to perform at the same time and in the same environment as the incumbent: translated to the traditional application of tournament theory, they never perform in the same "firm" and therefore horizontal competition - as suggested in tournaments - rarely takes place in elections. The incumbent's performance can only be evaluated against a challenger's expected output. Therefore, in most models of political accountability, the challenger is treated as a black box without an opportunity to send any credible signals. The election rule then breaks down to a cut-off rule or a standard, which only depends on a realized state of the world and the expectations about the average candidate. In such models elections have the singular purpose to punish moral hazard [Ferejohn 1986].²

Yet, this approach does not tell the whole story because it neglects the possibility that the opponent's talent and expected actions influence the equilibrium outcome. Even if there is only little information about the challenger, this information will enter the

¹To our knowledge Comparative Performance Evaluation enters the field of Political Economics only through Yardstick Competition and rent-seeking games. Snyder (1989) e.g. models a two-party competition as a contest of campaign spending, though the typical information asymmetries, which are at the core of the principal-agent problem, are not considered. Several articles, such as O'Keefe, Viscusi & Zeckhauser (1984) or Rosen (1988) mention the application to politics but do not pursue this track.

²For an overview on this modeling approach see Persson & Tabellini 2000 and Fearon 1999.

electorate's decision-making process and hence influence the politician's actions. By analyzing elections as tournaments we release the challenger from the black box and acknowledge that the principals are able to compare the challenger's noisy signal to the performance of the incumbent. The rationale for this approach is very intuitive: on election day the voters do not vote according to a standard but by comparing the information and expectation they hold about different candidates. We therefore suggest Comparative Performance Evaluation (CPE) or tournament models to be the proper tool to analyze incentives in politics.

In firms, as Lazear & Rosen (1981) have shown, tournaments can have the same incentive effects as piece-rate payment, especially when output is difficult to measure and agents are risk neutral. Most importantly common shocks can be filtered out. This feature makes tournament models even more relevant in politics: Because piece-rate payment of politicians is hardly an option, Comparative Performance Evaluation (CPE) is the only possible evaluation scheme. Thus, we have to ask how the quality of politics can benefit from stiffer political competition and the incentive mechanism of tournaments.

The aim of this paper is to use tournament models to gain insight into politics. We begin by converting the original tournament model by Rosen & Lazear (1981) into a model of retrospective voting. Then, we use the model to explain some aspects of politics, which are central to tournaments and politics but have been neglected in Political Economics, such as sabotage, uneven contests, and the significance of the loser's prize. These aspects have a prominent role in elimination tournaments, which we deployed in order to gain new insight into federalism. From a normative point of view, ways to improve politics are explored, that is, how political institutions can benefit from the incentives of tournaments. We suggest that an open market for politicians induces horizontal competition, which substantially reduces moral hazard.

2 The Central Role of the Challenger

The following reasoning introduces tournaments into politics: Democratic elections are series of tournaments; each term the electorate as the principal organizes a tournament, whose winner is promoted to hold the respective office during the following term, earning a wage and other benefits. The prospect of winning the next tournament provides the incumbent with incentives to exert effort. On election day the voters choose among two or more candidates according to an ordinal ranking. Typically there is less information on the challenger than on the incumbent, however, even if it is very vague, there is some information about the challenger. The decisive point of our analysis is that the incumbent is not confronted with a black box, but with a real opponent. Thus we assume that the challenger is a random draw from a specific distribution with a given expectation of talent. Consequently the ordinal ranking of the candidates contains plenty of noise. This in turn affects the incentives of the incumbent during the whole term because of the uncertainty about the future challenger.

In the original tournament model of Lazear & Rosen (1981), two risk neutral agents $i = 1, 2$ provide a single output y , such as a public policy or a public good (which equals the electorate's utility) according to the additive technology

$$y_i = a_i + \bar{\theta}_i + \varepsilon_i. \quad (1)$$

a_i stands for effort, ε_i is a random component or noise and $\bar{\theta}_i$ is the agent's i time invariant characteristic or talent. For now the latter is assumed to be common knowledge.

Two homogenous players $i = 1, 2$ compete for the winner's price R_1 , whereas the loser receives R_2 . The difference in talent is $\bar{\theta}_1 - \bar{\theta}_2 = \Delta\theta$, and the differences in prizes $R_1 - R_2 = \Delta R$. Effort a_i is produced at strictly convex, increasing, and identical cost $C(a_i)$. Note that effort a_i can be reinterpreted in terms of rent extraction, i.e. high effort equals small private rents [Alesina & Tabellini 2004]. The noise terms ε_i are independent and identically-distributed (iid) random variables. G is the cumulative

distribution function of $(\varepsilon_2 - \varepsilon_1)$, and g its density function. We further assume the expected value to be $E(\varepsilon_1 + \varepsilon_2) = 0$, which together with the assumption of iid yields a combined variance of $var(\sigma_{\varepsilon_1}^2 + \sigma_{\varepsilon_2}^2) = 2\sigma_\varepsilon^2$.

Following the standard model of Lazear & Rosen player 1 wants to maximize expected utility

$$\max_{a_1} P(R_1) + (1 - P)(R_2) - C(a_1) \quad (2)$$

where the probability P of winning R_1 is given as

$$P = prob(y_1 > y_2) = prob(a_1 - a_2 + \Delta\theta > \varepsilon_2 - \varepsilon_1)$$

which yields

$$\max_{a_1} G(a_1 - a_2 + \Delta\theta)(R_1 - R_2) + R_2 - C(a_1). \quad (3)$$

The result of Lazear & Rosen (1981) can now be replicated by assuming both agents to be of equal talent, $\bar{\theta}_1 = \bar{\theta}_2$, and the noise to be normally distributed $\varepsilon_i = N \sim (0, \sigma_\varepsilon^2)$. The game is played as a symmetric Nash-Game where player 1 correctly anticipates a_2 (and consequently sets $a_1 = a_2$ and $g(0)$). Assuming an interior solution ³ we obtain

$$C'(a) = \Delta R g(0) \quad (4)$$

$$C'(a) = \Delta R \frac{1}{2\sigma_\varepsilon\sqrt{\pi}} \quad (5)$$

In this framework the agents will provide high effort if the prize is high and noise is small. If some fraction of the error term ε_i are common shocks, the latter drop out of the rank-order comparison and noise is reduced.

The important modification in order to apply this model to political elections is to distinguish between the incumbent and the challenger. Whereas, the incumbent's talent is still common knowledge ($\bar{\theta}_1$), the challenger's talent is assumed to be a random

³We discuss the implication of corner solutions and its important implications for politics below.

variable with mean $\bar{\theta}_2$ and with variance $\sigma_{\theta_2}^2$. The distribution of θ_2 is independent of ε_i , its density and distribution function are denoted by h and H . Therefore the incumbent's talent can be perfectly observed whereas the challenger's one contains a lot of noise. Note that we are only interested in the difference in the variances, here between 0 and $\sigma_{\theta_2}^2$, and that players are (only) ex ante identical. Similarly, the incumbent's talent could as well be a random variable with $\sigma_{\theta_1}^2 < \sigma_{\theta_2}^2$. Furthermore, uncertainty about the challenger's talent has the same effect as imprecise monitoring [O'Keeffe et.al. 1984]. By applying the convolution $g * h$, the maximization problem yields

$$C'(a) = (\Delta R) \int_{-\infty}^{\infty} g(a_1 - a_2 + \bar{\theta}_1 - x)h(x)dx \quad (6)$$

Again in equilibrium, the incumbent exerts the same effort as it is expected for the challenger and the ex ante probability of winning is $\frac{1}{2}$. Assuming $\bar{\theta}_1 = \bar{\theta}_2$ that is, the commonly know talent of the incumbent equals the expected talent of the challenger and using the formula for the convolution of two normally distributed random variables we obtain our main result⁴

$$C'(a) = \Delta R \frac{1}{\sqrt{\sigma_{\theta_2}^2 + 2\sigma_{\varepsilon}^2}\sqrt{2\pi}}. \quad (7)$$

In models of political accountability, as mentioned above, the reelection rule is usually assumed to be a cut-off rule or a standard given as $W = \bar{\theta}_2 + a_2^e$, where a_2^e stands for expected effort. In our setup this would yield

$$C'(a) = \Delta R \frac{1}{\sqrt{\sigma_{\varepsilon}^2}\sqrt{2\pi}}. \quad (8)$$

Comparing these two results we find the main feature which tournament models reveal, when applied to politics: The challenger is as important as the incumbent and one of the main problems of politics is the asymmetry in observability between the two. It is important to realize that in elections, the incumbent play against a commonly

⁴This is almost the same result as in Alesina & Tabellini (2004). However, their result is due to the incumbent's random ability confronted with a given standard in the presence of career concerns (formally, the standard is given by $W = \bar{\theta}_2 + a_2^e$, where a_2^e stands for expected effort). Furthermore, their result is independent of the current reward R .

expected effort, which is the same as a manager playing against a market on which he has no influence [Lazear & Rosen 1981]. In political accountability models additional information on the challenger and therefore the observability of the challenger is not an issue. Performance is controlled by a prize R and a standard, whereas nothing is more efficient than a correctly anticipated standard according to $W = \bar{\theta}_2 + a_2^e$.

A preliminary interpretation already yields some interesting insights: As the principal knows very little about the challenger's talent, the incumbent can exploit this uncertainty to extract rents. Moreover, because in today's political elections the candidates almost never perform in the same environment, the electorate cannot filter out common shocks. The electorate as the tournament designer has, therefore, several possibilities to boost the politicians' incentives: it may advance the challenger's observability (smaller σ_θ^2), enhance contests in the same environment (parts of σ_ε^2 drop out), or increase the difference between the winner's and the loser's prize ΔR .

How do our results correspond to the existing empirical literature? There has been substantial empirical research on the role of transparency in politics, most thoroughly by James Alt (2005). Yet, most studies follow the standard modeling approach by stressing only the transparency of the incumbent administration, whereas the potential challenger is treated as a black box. Therefore, there is hardly any empirical evidence, which can be directly tied to our model. But there are some results, which support features of the model.

Besley & Case (1995) show, for example, how yardstick competition - in which other constituencies are permitted for Comparative Performance Evaluation (CPE) - enhances the performance of politicians. There the mechanism is that the expectation of the challenger increases with the performance of the peer group. Empirical results on the effect of party competition on political performance are similarly promising. Besley, Persson & Sturm (2005) use the breakdown of the Democratic party's quasi-monopoly in the South of the United States after World War II to test their hypothesis, which is, in a nutshell, that stiffer competition improves politics. They base their quest on a Citizen Candidate Model, their main results corresponds well with our treatment. They find that when competition becomes stiffer, economic performance and candidate quality

will improve.

In the following we consider three important aspects of tournament theory and their implication for politics, namely sabotage, heterogeneous agents and non-linear incentives.

3 Important Aspects of Tournaments in Politics

3.1 Sabotage

A main theme of tournament literature is the dark side of Comparative Performance Evaluation (CPE): Tournaments do not only boost constructive performance, but also sabotage [Lazear 1989]. While sabotage plays almost no role in Political Economics, it is a central ingredient to real politics. Looking at the anecdotal evidence around the world it seems fairly reasonable to include destructive actions into a model of political contest. Surprisingly, there are only very few treatments of sabotage in politics, mostly dealing with negative campaigning [Skaperdas & Grofman 1995].

Sabotage is usually included into tournament models by assuming that output y_i does not only depends on the choice of effort, but also on sabotage s_j inflicted by the opponent. That is, $y_i = f(a_i, s_j) + \bar{\theta}_i + \varepsilon_i$ and in the simplest form $f(a_i, s_j) = a_i - s_j$. The cost functions are $C(a_i)$ and $C(s)$ and the loser's prize is 0. In a tournament of homogenous agents but asymmetric observability, the challenger finally has an opportunity to influence the outcome and the incumbent has to solve

$$\max_{a_1, s_1} P(a_1, s_1; a_2, s_2; \theta_1, \theta_2) * R - C(a_1) - C(s_1)$$

Again in a symmetric equilibrium, player 1 provides the same effort as his challenger. Furthermore, player 1 has to counter the expected sabotage by player 2. By using the properties of the normal distribution the marginal costs of effort can be expressed as a function of the prize R and the variances of the random variables:

$$\begin{aligned}
C'(a_1) &= R \frac{1}{\sqrt{\sigma_{\theta_2}^2 + 2\sigma_\varepsilon^2} \sqrt{2\pi}} \\
C'(s_1) &= R \frac{1}{\sqrt{\sigma_{\theta_2}^2 + 2\sigma_\varepsilon^2} \sqrt{2\pi}}
\end{aligned} \tag{9}$$

If $\sigma_{\theta_2}^2$ decreases, effort reacts as before, that is, it increases, but so does sabotage. The same is true for an increase of the prize R . This dark side of stiffer competition has to be taken into account, because sabotage is only innate to Comparative Performance Evaluation (CPE), its mere existence suggests that tournament models are appropriate to analyze political procedures..

Of special interest is how better observability of the challenger affects the agents' choice of sabotage. Assuming a general cost function of the form $C(a_i, s_i) = \frac{a_i^2}{c_a} + \frac{s_i^2}{c_s}$, where c represents the weight of the cost, the agents try to minimize aggregate costs by substituting one action for the other. The principal in turn prefers productive effort to destructive sabotage. If increasing transparency of political contest facilitates detection of sabotage and therefore its punishment, sabotage becomes relatively more costly. As a result, agents will substitute productive effort for destructive sabotage and the effect of better observability becomes ambiguous.

3.2 Uneven Contests

Traditionally, Political Economics provides two features of elections: Elections have the capacity to punish moral hazard, and to select the best agents into office. In a static model with equally talented contestants - as shown earlier - the latter is irrelevant. Allowing for heterogeneous candidates, however, introduces selection and thus an additional twist to the election process (for a comparison of the two approaches see Fearon 1999), namely the trade-off between incentives and selection. The importance of selection becomes evident when we consider tournaments with several periods and a final term, in which agents do not have any explicit incentives.

To begin with we describe the incentive effect of tournaments if agents are heteroge-

neous. Already Lazear & Rosen (1981) already demonstrated that if contestants know both their own and their opponent's talent⁵, even tournaments are very efficient. That is, equilibrium effort is the highest if contestants are of equal ability and have the same ex ante probability of winning. In our framework (without sabotage) we assume $\bar{\theta}_1 > \bar{\theta}_2$, that the known talent of the incumbent is higher than the expected talent of the challenger⁶. As a result equilibrium effort decreases compared to the solution in the case of homogeneous agents(6). In uneven contests incentives are further disrupted because the weaker player might have strong incentives to take greater risk [Rosen 1988].

Even if the incentive effect of heterogeneity is mostly negative, the selection effect is promising: the more talented contestant will win with a probability greater than $\frac{1}{2}$. That is, in uneven contest the better candidate will indeed be more likely to win the top prize. The principal has a better chance to choose the more talented agent when the difference in talent $\Delta\theta$ is large and uncertainty low; the worse the electorate's ability to monitor the candidates, the worse its ability to select the better one. Therefore the observability of the challenger also affects the selection property of tournaments. However, the ability to select an agent because of a larger $\Delta\theta$ comes at the expense of weak incentives. One solution would be - as already proposed by Lazear & Rosen (1981) - to handicap the stronger player. However, handicapping would prevent the voters from choosing the more talented candidate. A similar trade-off holds for adjusting the loser's prize in order to attract additional high quality contestants: this would reduce the prize spread and therefore the incentives of the frontrunner.

The trade-off between incentives and selection is one of the main issues in the tournament literature. Not surprisingly though, this literature stresses the importance of matching equally talented agents in contests by finding mechanisms, which make it possible for the tournament designer to control the entry into tournaments [Rosen 1988]. To cope with this problem of adverse selection the tournament designer has to demand some kind of precommitment, which often comes in the form of an auction mechanism or a tournament preceding the main contest [?]. In politics the preselection is usually

⁵For the sake of simplicity we do not allow for adverse selection on the tournament stage.

⁶Lazear & Rosen (1981), as many others, model heterogenous agents with different marginal cost $C'_1(a) > C'_2(a)$.

conducted by the political parties, which may apply a wide range of procedures ranging from primaries such as in the United States, to a top-down appointment by a party elite. The danger is that the selection is not conducted on the base of performance but on the base of the candidate's loyalty to a party elite. Tournament theory suggests another mechanism: multiple rounds e.g. in the form of an elimination tournament [Rosen 1986]. In Section 4.1 we will discuss how federalism can be reinterpreted as a sequence of elimination tournaments and exploit their selection and incentive properties.

The application of tournament models to politics stresses that, in order to secure high incentives, the quality of the incumbent is as important as the quality of the challenger, and the opposition as important as the government. Yet, the trade-off between selection and incentives has some serious consequences if we apply the model to political contests. To consider the implications we sketch a slightly dynamic extension of the original model with two time periods. In the first term, we suppose there are two candidates, which we assume to be drawn from the same sample. They compete against each other and the winner is promoted to the next round. Note that in the first round none of the candidates is the incumbent. In the second round the first round winner competes against a new challenger who again is drawn from the original sample. In such a framework the voters censor the distribution of the randomly realized ability in the first round, and thus the expected ability of the second round incumbents shifts upwards. Scott Ashworth (2002) describes this selection effect as the source of the incumbency advantage.

In terms of incentives, tournament theory suggests that the matching of an incumbent with an ex ante unselected challenger results in uneven and therefore less efficient contests. This inefficiency is inherent to most political systems as the challenger is always drawn from the same uncensored pool of candidates. Consequently the voters lose from their inability to select outside candidates with similar expected talent in even tournaments. The universally observed incumbency advantage indicates the significance of the phenomenon.

The tournament literature furthermore establishes some interesting interdependencies between uneven contests and sabotage, with interesting implication for politicians. If there are more than two contestants, such as in council or even parliamentary elections,

there is a tendency that the talented agents are more heavily sabotaged [Chen 2003]. As a result sabotage equalizes promotion chances or even worse, the most able candidates systematically lose. In the worse case, this will deter the most able candidates from entering the contest in the first place, depending on their outside options e.g. in the private sector [Münster 2004].

3.3 High Variability of Incentives

Tournaments provide highly nonlinear incentives. As a result agents react very sensibly to even small changes in the framework of a contest as well as in the environment. Frequently, only a small modification might turn an arms-race like contest with massive over investment into a contest, in which both players exert zero effort. Not surprisingly therefore, experiments to test tournament theory as well as empirical research in general, have established a high variance in performance as one of the key characteristics of tournaments.⁷

Rosen & Lazear (1981) have already highlighted the danger of zero-effort equilibria resulting from lack of global incentives.⁸ To understand the implications of tournaments in politics, such equilibria are essential because they include the danger of truly lame ducks and of long lasting deadlock.

O’Keeffe, Viscusi & Zeckhauser (1984) showed that unfair contests (one player is handicapped) and uneven contests (the players have different ability) provide strong incentives for the disadvantaged player to shirk. There are many situations in politics, in which such a low-effort equilibrium will apply. For example, politicians will shirk when promising opponents become non-eligible because of a private scandal, or when a dominate party handicaps the opposition. The same holds true when there is a too small difference between the winning and the losing prize; then it might pay off to avoid the cost of effort altogether and collect the bottom prize.

One further problem might be that there is too little noise in the observation of

⁷For an overview see McLaughlin (1988) and Harbig & Irlenbusch (2004).

⁸This phenomenon is discussed in many articles on tournaments, most thoroughly in O’Keeffe, Viscusi & Zeckhauser (1984).

output, because contests need a certain amount of randomness in order to provide global incentives. This applies especially if a high-effort equilibrium is already endangered, for example in unfair contests. It is difficult to imagine a situation in politics where monitoring precision of politician's performance would be too efficient and therefore would provoke a low-effort equilibrium. However, if the contestants are rather long living parties than individual candidates, things are different. Then voters might indeed have very good knowledge about what to expect from their agents who consequently might choose to exert zero effort. Moreover, such low-effort equilibria would very likely hold over a longer period because voters expect both parties to choose equally low effort, and therefore cannot effectively reward performance.

Moreover, whenever incentives are relatively weak, there lurks the danger of collusion. As the rank-order of contestants is the same if they both exert effort or shirk, collusion usually pays off as long as the contestants are able to coordinate. The danger is especially apparent for long-living parties, which may alternately collect the winning prize.

Tournaments further provide high-powered incentives, which enhance unproductive signaling. Especially, when performance is costly and precise monitoring difficult, productive effort might become substituted for cheaper signals. This applies particularly to the weaker player. In politics, election campaigns provide plenty of evidence for such unproductive signaling actions.

4 Making Politics Effective

The application of tournament models to politics allowed some interesting insights. The apparent shortcoming of modern democracy is the principal's inability to monitor the challenger. The comparison of candidates contains plenty of noise and external shocks cannot be excluded. Consequently incentives become blurred. Elections enable the selection of more able candidates, though such gains come at the expense of low incentives. The tournament model of elections therefore stresses the importance of seeding candidates in even contests. Then again, the electorate has difficulties to do so because it lacks reliable information about the challenger. Moreover, the electorate can hardly adjust the

winning prize and can almost never attract additional candidates by offering a loser's prize.

To keep incentives high the pairing of candidates has to be even. A poor institutional design may provoke continuous uneven contests, as indicated by the incumbency advantage. The problem is that a high ability candidate can neither become paired with a high ability outsider, nor can she move to another constituency to meet one.

In today's democracy the choice of candidates is in general left to the internal screening capacity of the political parties. They owe their sheer existence and legitimacy to the lack of information about the individual candidates, especially about the challenger. Parties act as intermediary between principal and agent, though party discipline and good performance are rarely aligned. However, when parties are facing stiff competition for offices, we would expect them to select more able candidates in close races where the prize of winning the office is high.

The inability to receive reliable information on the challenger has further implications: Because the electorate is compelled to compare the candidates, the dimension of competition will very likely shift to areas where it can do so. When performance in office cannot be properly compared, then we would expect the electorate to concentrate on non-performance related features, such as beauty and charisma.⁹ Moreover, candidates have strong incentives to pursue unproductive rat races and signaling contests. The significance of election campaigns - as compared to performance - is mainly due to this information problem.

The question is then whether a clever institutional design can mitigate problems of tournaments in politics. Today, there are mainly two institutional frameworks with potential: In most western countries different scales of federalism provide the institutional environment. Whereas for the promotion of managers in a firm - the application from which rank-order tournaments originate - the pressure and incentives of the labour market provide the institutional setup. In the final section we will discuss these two aspects.

⁹On the role of beauty in politics see Berggren, Jordahl & Poutvaara (2006).

4.1 Federalism

In a federalist state we would expect to observe some of the predictions of the model. Because the principals can observe a challenger who is active on a lower governmental level, we would expect politicians to perform considerably better than politicians in a centralized state. The contest takes place, so to speak, between two incumbents. Moreover, as lower level constituencies confront the same central government and legislation, and most probably belong to the same economic region, common shocks drop out of the observation.

Moreover, the vertical hierarchy of institutions allows to promote more talented politicians into a higher office. Whereas without federalism, better than average candidates suppress incentives, they now have the opportunity to enter a next stage, where they meet an opponent of similar talent. Consequently, a hierarchy of political institutions where sequential tournaments seed the candidates in even contests, may satisfy the selection as well as the incentive goals of the electorate. In addition the prize can be altered: as long as there is a higher office available, candidates on the lower level will always perform partially for further promotion and their expected revenue includes future possible prizes. This in turn, encourages new entries by altering the loser's prize without diluting incentives too much.

We interpret the electoral processes in federalism as an elimination tournament a la Rosen (1986). The primary purpose of such a tournament design meets the condition to select the most talented candidates for the final round, while keeping incentives high. As long as there is a higher governmental level, politicians have additional incentives due to career concerns. This holds especially for stronger players because of the higher value they place on being able to continue. Moreover, in an elimination tournament heterogeneous contests are less probable because the mean talent of politicians rises at every stage. However, in order to maintain incentives, the top prize has to be substantially higher than the preceding ones. Thanks to the extra weight of the final stage's prize, contestants behave throughout the tournament as if they are in a game of infinite length. From this perspective, elections can also be interpreted as filters, which select the most

talented agents for the top-ranking prize, that is the highest office, whereas the crooks drop out [Cooter 2002].

Yet, the interpretation of federalism as an elimination tournament reveals some important shortcomings. The aim of a vertical contest is to select the best agents for the final round, not to provide optimal incentives for all contestants. Even though in elimination tournaments career concerns provide strong incentive for strong contestants, the weaker ones underperform and seek private rents [Rosen 1986]. Politicians with a low probability of promotion are resistant to the career concern effect and do not increase effort through vertical competition. Because there are on all levels a large number of potential promotion candidates, the extent of this effect might be especially severe. Note, that in politics the bottom prize is very unlikely zero, therefore candidates who shirk do not finish up with nothing, but rather with high private rents.

However, this picture neglects the possibility of sabotage. There is some anecdotal evidence that in federalist states, such as Germany and the USA, ambitious regional Governors frequently sabotage the federal government, even though they belong to the same party. We would expect potential challengers to harm incumbents on a higher governmental level, who in turn sabotages potential challengers. In fact, often the institutional design of multilevel government especially enhances sabotage, for example, by enabling regional governors to interfere on the federal level, or the central government to allocate federal transfers. In Germany, for example, this is one of the decisive features of the political system, because the regional "Ministerpräsidenten" have a comparably strong position due to the second chamber, the "Bundesrat". The incumbent typically reacts by promoting the potential saboteurs to the higher government level as Ministers.

4.2 An Open Market for Politicians

In federalism, the opportunity to observe the challenger's performance is still limited because horizontal competition is hardly possible. Similarly, the seeding of candidates into an even contest is restricted to the available candidates on the lower level. Moreover, there are at most three different governmental levels, which provide only a very limited

opportunity to select candidates into efficient tournaments. All the horizontal differences between constituencies of the same level, such as communities and cities of different size and prominence, cannot be exploited. The crux is that in politics outside agents are excluded. That is, non-residents and non-citizens, are not allowed to run for political offices.

Eichenberger (1999, 2003) therefore proposes to open the political market for non-residents and thus to facilitate competition among politicians. The advantages of such an institutional reform can be understood in terms of the tournament model: the challenger's observability would substantially increase, whereas external shocks, such as the overall economic development or decisions on higher governmental level could be filtered out.

The main advantage, however, of using a market mechanism to seed contestants into tournaments would be to exploit their reputation externality. While trying to win the prize in a tournament, candidates reveal information from which the principal as well as any outsider can learn about the agent's talent. This information is the only basis, on which a potential principal can efficiently seed candidates. The candidates, in turn, base their effort choice not only on winning the prize, but also on making the market believe they are talented. This enables them to run at a later stage, in better-endowed tournaments. Such implicit incentives, as shown in the ingenious article by Holmström (1999), derive from talent uncertainty, which we identified as the main shortcoming in today's politics. Therefore, in a market environment, the scattered and uncertain information on politicians which is inherent to politics, could that way turn into positive incentives.¹⁰

Seeding by a market which updates its beliefs about candidates' talent, makes it possible to combine the highly nonlinear incentives of tournaments with the linear incentive of a market. We would therefore expect that such an institutional arrangement would substantially strengthen incentives and at the same time stabilize political institutions by preventing low-effort equilibria.

¹⁰The interaction of explicit and implicit incentives is not yet perfectly understood. Meyer & Vickers 1997 find that if the agents' ability is uncorrelated, Comparative Performance Evaluation always improves incentives.

Knowing about the incentive effects of tournaments, the prize R should also be adjusted, away from the low monopsonist to a market wage.¹¹ Today the electorate can pay comparably poor salaries to politicians because of the lack of multiple constituencies competing for the best candidates. Considering the incentive effects of tournaments this might increase the politicians' rent-seeking because they trade implicit for explicit compensation. However, in a market environment the total prize is composed of the prize R of the tournament as well as the gains in reputation, which the principal does not need to compensate. Similar to the findings of Rosen (1986) for elimination tournaments, performance is controlled by the value of the game, which is most probably much higher in a market environment. Already the sheer increase of opportunities can account for that. In today's politics, in turn, there is mostly only one promotion path along the federal institutions. In a market environment, the multiple alternatives as well as the longer time horizon will substantially increase incentives for all agents

Another characteristic of an open market for politicians is the deterrence of sabotage. Firstly, in an open market sabotage becomes more costly because of the increasing number of potential opponents, and there are always new contestants entering the race when one is eliminated. Secondly, sabotage of one agent benefits all contestants. Thus, sabotage becomes a public good [Konrad 2000]. Finally, it is more difficult i.e. costly to sabotage a contestant in another jurisdiction and therefore external recruitment reduces sabotage. Yet, external recruitment is not considered to be altogether better, but the threat of an external contestant reduces the marginal return to sabotage [Chen 2003].

5 Conclusion

In essence modern democracy is based on contest and competition, which can be described and understood in terms of tournaments. Elections are meant to provide incentives and select the most able candidates, but their institutional design can neither fully exploit the incentive nor the selection property of tournaments. Furthermore they

¹¹Because of the exclusion of outsiders, a constituency can be described as a monopsonistic employer of politicians.

ignores the possibility of sabotage. A tournament model of elections stresses the importance of performance comparability. Better observability of the challenger improves the incumbent's incentives and enables the electorate to select the more able candidate; it improves the electorate's ability to rank candidates in a manner that simply outpaces any small institutional adjustment to increase observability of the incumbent.

The theory of rank-order tournaments makes it possible to shed light on today's political institutions. Yet, this paper is meant to be a first treatment and collection of ideas. Some obvious tracks for further exploration would be to include risk aversion and asymmetric information, which are both extensively addressed in the tournament literature. The matter, however, which we would foremost like to understand better, is the interaction of the highly nonlinear incentives in a tournament with the linear incentives provided by a market.

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