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Persistent rent extraction.

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Abstract

Representative democracy does not necessarily eliminate political corruption. Existing models explain the survival of rent-taking politicians by ideological divisions in the electorate and/or informational asymmetries. The current paper demonstrate that rent extraction can persist even if voters are fully informed and ideologically homogenous. We show that in such an environment, voters may gain by persistently reelecting a rent-taker that limits his rent extraction. Such an equilibrium occurs when voters and politicians do not discount the future too heavily, and the share of honest candidates is relatively small.

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1 Introduction

In representative democracies voters may condition reelection on the observed performance of incumbents. Elections allow voters to "throw out the rascals" in peaceful ways. Arguably this is the defining characteristic of democratic government (Hayek 1979:137; Riker 1982; Popper 1989:344; Schumpeter 1942). Over the past 30 years or so the limitations of this argument have been explored in formal models of electoral agency.

Rent-takers are permitted to survive elections in agency models for a number of reasons. With pure moral hazard, rent-taking incumbents survive due to private information (Barro 1973; Ferejohn 1986). In models with both moral hazard and selection (type-uncertainty), rent-takers can survive by copying the behavior of honest incumbents (Austen-Smith & Banks 1989; Banks & Sundaram 1993; Besley 2006; Fearon 1999; Maskin & Tirole 2004). If voter ideology is added, a majority of voters may also prefer rent-takers to honest candidates for ideological reasons (Besley 2006; Polo 1998; Svensson 1997).

Empirically, it is not uncommon for reputed rent-takers to survive elections. Some even manage to get reelected several times. Sometimes this happens in ideologically homogenous societies. Consider a few motivating cases. By standard measures, Argentina, Croatia, Greece and Italy are among the most ideologically homogenous electoral democracies in the world.¹ However, as measured by indexes

¹ "Electoral democracy" is defined as in Cheibub et al. (2010). Self placement scores on the left-right axis from the World Value Surveys return an average standard deviation of 2.18 over the 1994-2002 period. Comparable numbers for the four cases: Argentina 1.98; Croatia 1.79; Greece 2.12; and Italy 2.20. Average ethnic, linguistic and religious fractionalization for all electoral democracies in the WVS dataset were 0.38; 0.33; and 0.46 respectively. Comparable numbers for the four cases were Argentina 0.26, 0.06, 0.22; Croatia 0.37, 0.08, 0.44; Greece 0.16, 0.03, 0.15; and Italy 0.11, 0.11, 0.30 (Norris 2009).

of corruption in public life, they perform poorly.² In these countries recent political leaders have survived in office for protracted periods of time in the face of elections. Available evidence indicates that voters knew about the rent taking behavior of their politicians.

Carlos Menem of the Peronist party entered his second consecutive term as president of Argentina in the election of 1995. The corrupt nature of the Menem administration was widely known prior to his reelection. As one commentator puts it:

"...business informants in Argentina explained to me... that in the 1980s, under the first democratic administration of President Alfonsín, it was difficult to know when a bribe was expected, which officials were or were not corrupt, or what the appropriate tariff might be. In the 1990s, under President Menem and the Peronists, by contrast, there was, according to these sources, no ambiguity or embarrassment, and the rates and procedures were clear cut and predictable" (Whitehead 2000:112).

Ivo Sanader became prime minister after leading the Croatian Democratic Union party (HDZ) to electoral victory in 2003.³ Subsequently, confidence in him was reaffirmed in the 2007 election and his premiership continued. The HDZ - in the firm grip of Franco Tudjman - ruled Croatia from its foundation in 1992, until electoral defeat in 2000. During this period HDZ built a horrible reputation for wide ranging and habitual abuses of power, including ethnic cleansing, war crimes, suppression of the press, economic mismanagement and corruption. Sanader served under Tudjman in several high positions. His already tarnished reputation did not improve during his first term as prime minister, as Sanader became associated with several widely publicized corruption incidents.⁴

² Transparency International's average corruption perception index (cpi) for the years 1994 - 2002 (0 to 10 scale; low numbers=corrupt) was 5.0 for all electoral democracies. Comparable scores for the four cases: Argentina 3.0; Croatia 3.5; Greece 4.6; and Italy 4.9.

³ Hrvatska demokratska zajednica (HDZ).

⁴ According to Divjak (2010) these ranged from non-transparent military procure-

The Panhellenic Socialist Movement (PASOK) ruled Greece from 1981 to 2004, with a spell in opposition from 1990 to 1993.⁵ The extensive rent taking activities of PASOK under Andreas Papandreu was well known to the public (Dobratz & Whitfield 1992). Yet PASOK survived numerous elections. In the 2004 elections Karamalis and "New Democracy" won the premiership on an anti-corruption campaign. Karamalis's mandate was renewed in the 2007 election, despite cabinet members from "New Democracy" being involved in several serious and publicized corruption scandals preceding his reelection (Stratos & Karyotos 2007).⁶ In the 2009 election PASOK, running on an anti-corruption platform, reclaimed the Greek premiership (now with Andreas Papandreos' son George at the helm).⁷ Greece appears to be short of clean candidates.

Erik Chang et al. (2008) find that the reelection rate of Italian legislators in the postwar period was 51% for legislators charged with corruption, compared to 58% for legislators running without such charges. This startling finding seems hard to reconcile with explanations of electoral agency stressing informational asymmetries. Explanations in terms of ideological polarization are weakened by the fact

ment; bribes in the privatization of food chains ("Podravka") and banking ("Hypo"), as well as kickbacks in infrastructure contracts ("HAC"). The most publicized (from 2006 onwards) incident was the so called "wrist watch scandal", in which Sanander was found in breach of the rules of transparency by failing to register his collection of wristwatches (estimated worth \$200,000) prior to the 2003 election.

⁵ Panellinio Sosialistikó Kínima (PASOK).

⁶ According to Polychroniou 2008: "Bond trading scandals in which state pension funds overpaid millions of euros for state bonds, a sleazy sweep up of the Vodafone case (Vodafone was embroiled in phone tapping scandals involving leading business and political members of the Greek establishment), dubious business dealings by a host of ministers and deputies which led in the end to their downfall, last summer's forest fires catastrophe and the subsequent parceling out of burned forest land to private interests have pretty much characterized the political style of New Democracy during its tenure in power."

⁷ Bågenholm (2009:13) documents that all Greek parties in all Greek election campaigns from 1983 to 2007 had anti-corruption statements in their party manifesto. In this perspective neither the PASOK campaign of 2009, nor the "New Democracy" campaign of 2004, were perhaps surprising.

that Italy is among the ideologically most homogenous democracies in the world. Furthermore, the differences demonstrated by Chang et al. (2008) are insignificant for legislative assemblies except the one that took office during the system collapse in 1993-94. Thus, an unwillingness to throw out corrupt incumbents does not seem to be driven by the (presumably) deeper ideological cleavages in early postwar Italy.

Why are corrupt rulers, such as the ones above, not ousted in elections? Why do people knowingly accept that their leaders abuse power for personal gain? Existing electoral agency models cannot account for the survival of such incumbents in ideologically homogenous electorates, when it is common knowledge that the incumbents are in fact rent-takers, enriching themselves at the public's expense. We fill this gap in the literature. In our model corrupt incumbents may survive a series of elections in equilibrium. This happens in spite of it being common knowledge that the incumbent is in fact a rent-taker, and in absence of ideological divides in the electorate.

2 Model

We start by analyzing a world in which incumbents are constitutionally barred from serving more than a fixed number of terms; i.e., a world with "term limits". Thereafter we analyze a world without term limits.

Consider an electorate of size n . Citizens are identical in all relevant aspects.⁸ In particular they have identical incomes and face an identical (and given) income tax rate. Rulers allocate tax income Z between a publicly provided good and rents. If the total tax income is allocated to the publicly provided good, each citizen receives $z = \frac{Z}{n}$ units worth of consumption from this provision. Rents are extracted from total tax income. Let R denote rent extraction, and let $r = \frac{R}{n}$. A voter's consumption of the publicly provided good in period t equals $(z - r_t)$,

⁸ This assumption is, of course, very strong, and significantly reduces the need for coordination among voters. It is nonetheless defensible, given our aim, which is to analyze agency problems in the absence of ideological diversions in the electorate.

$t \in [0, T]$. T is allowed to be either fixed or indefinite. To simplify (without loss of generality) maximal periodic rent-extraction equals Z .⁹ A voter's periodic utility is assumed to increase linearly in the quantity of the publicly provided good ($z - r_t$).

The electorate n consists of a fraction $0 \leq \theta \leq 1$ 'good citizens' (G), and a fraction $(1 - \theta)$ 'bad citizens' (B). G -type incumbents never extract rents. B -type incumbents maximize expected rents for the remainder of the game. Own type is private knowledge. All players discount utility with a common factor $0 \leq \delta < 1$. We assume that the periodic utility of a G -type incumbent is increasing linearly in Z , while the periodic utility of a B -type incumbent is increasing linearly in R . For ease of exposition we rescale the periodic utility of incumbents by $\frac{1}{n}$.

The following rules are imposed: Period t incumbents take the allocation decision in t . The outcome of the allocation decision is observed (without any noise) by all players at the start of period $t + 1$. Based on this observation citizens decide whether to keep or throw out the period t incumbent. If the period t incumbent survives, he or she makes the allocation decision in period $t + 1$. If the period t incumbent loses the election, the new incumbent is selected by a random draw from among the n citizens. The newly elected incumbent takes the allocation decision in $t + 1$. This goes for all $t \in [1, T]$.¹⁰ The incumbent in $t = 0$ is randomly drawn from the n citizens, and makes the allocation decision in $t = 0$. We assume n to be very large. Thus the probability that the same citizen is drawn to serve as incumbent twice is (approximately) zero.

2.1 Term limits

After any period in which the incumbent extracts any rents, the only subgame perfect equilibrium behavior of the voter is to oust the incumbent immediately, if there are term limits. This follows from backward induction. Once an incumbent

⁹ No additional insights are gained by capping maximal periodic rents at a positive level below Z .

¹⁰ With T being finite in the term limit case, and infinite in the case without term limits.

has extracted any rents, it is common knowledge that he is a B -type. For this reason he will certainly extract maximal rents in the final period. Knowing this the voters will oust him in the penultimate period. But then the incumbent has no reason not to extract maximal rents in the penultimate period. Clearly, this logic carries over all the way back to the first period. The conclusion is that the only subgame perfect equilibrium behavior after any rents has been taken at any stage of the game, is for the voter to throw out the incumbent immediately. Given a discount factor $\delta < 1$, the optimal stage at which to extract rents is the first stage where the opportunity presents itself. Once a G -type incumbent is selected, no rent is extracted and this incumbent is kept for the remainder of the game.

2.2 No term limits

There is no need to consider honest incumbents further. A G -type sets $r_t = 0$ by definition. In what follows we focus on two strategies (V_1 and V_2) for voters, and two strategies (I_1 and I_2) for B -type incumbents.

V_1 Reelect the incumbent in $t + 1$ iff $r_t \leq r^*$, otherwise throw the incumbent out ("cut-point")

V_2 Reelect the incumbent in $t + 1$ iff $r_t = 0$, otherwise throw the incumbent out ("zero tolerance")

I_1 Extract $r_t = r^*$ iff no incumbent that extracted $r_s \leq r^*$ was thrown out in period $s < t$, otherwise extract $r_t = z$ ("trigger")

I_2 Extract $r_t = z$ ("all out")

Consider the cut-point strategy V_1 . Assume that B -types use the trigger-strategy I_1 . Notice that I_1 uses the harshest possible threat; if a B -type behaves according to the strategy but is nevertheless thrown out of office, any B -type incumbent will extract maximal rents (z) in any future period. A broken promise from the voters is never forgiven (despite the fact that some incumbent other than the current one suffered from the voters' breach of promise, and no matter how far

back in time the breach happened). The substance of this assumption is discussed below.

Can (I_1, V_1) be supported as a Nash equilibrium? The voter minimizes the rent taking of a B -type incumbent by setting r^* so as to make a B -type indifferent between extracting maximal rents now (z) and being defeated in the next election, or taking as many rents as possible and still surviving. Maximal rent-taking under the reelection constraint is r^* . The expected utility of a B -type playing I_1 against V_1 is therefore

$$EU_B(I_1, V_1) = \frac{r^*}{(1-\delta)} \quad (1)$$

The smallest r making I_1 a best reply against V_1 is given by $z = \frac{r^*}{(1-\delta)}$. This can be expressed as an incentive constraint

$$r^* = (1-\delta)z \quad (2)$$

Can V_1 be a best-reply against I_1 ? In order to answer this, we need only compare V_1 to the "zero tolerance strategy" V_2 . Any strategy that threatens throwing out the incumbent if he takes more than a critical share that is lower than $(1-\delta)z$ achieves exactly the same as V_2 : B -types remain undisciplined, and therefore take $r_t = z$. Seen from the perspective of a rational voter, a strategy that promises reelection for rent-taking $r^* > (1-\delta)z$ makes no sense (it transfers more wealth than necessary in order to discipline the rent-taker). Thus the problem of the voter is reduced to a choice between two possible strategies, V_1 or V_2 .

The voters' discounted expectation of playing V_1 against I_1 is (where the last expression on the RHS uses the incentive constraint in 2):

$$EU_V(I_1, V_1) = \frac{\theta z + (1-\theta)(z - r^*)}{1-\delta} = \frac{\theta z + (1-\theta)\delta z}{1-\delta} \quad (3)$$

The voter's discounted expectation of using V_2 against I_1 is

$$EU_V(I_1, V_2) = \frac{\theta z}{1-\delta} + (1-\theta)\delta z + \frac{\delta(1-\theta)\theta z}{(1-\delta)(1-\delta(1-\theta))} \quad (4)$$

Equation (4) is determined as follows. If a G -type is drawn in period $t = 0$, he is kept from then on and the voter gets $\frac{z}{1-\delta}$. This happens with probability θ . If a

B -type is drawn in period $t = 0$ the voter gets $(z - r^*) = \delta z$ (by 2). This happens with probability $(1 - \theta)$. After such an event, however, no future B -type restrains his rent-taking, so the voter thereafter gets zero utility in each period until a G -type is drawn (and kept for eternity). The expected discounted utility following the draw of a B -type in period $t = 0$ is therefore $\left[\frac{\delta(1-\theta)\theta z}{1-\delta} + \frac{\delta^2(1-\theta)^2\theta z}{1-\delta} + \frac{\delta^3(1-\theta)^3\theta z}{1-\delta} + \dots \right]$, or $\frac{\delta(1-\theta)\theta z}{1-\delta} [1 + \delta(1 - \theta) + \delta^2(1 - \theta)^2 + \delta^3(1 - \theta)^3 + \dots]$, which reduces to the last term on the right hand side of (4).

For V_1 to be a best reply against I_1 we need $EU_V(I_1, V_1) \geq EU_V(I_1, V_2)$, which amounts to the requirement that $\frac{\theta z + (1-\theta)\delta z}{1-\delta} \geq \frac{\theta z}{1-\delta} + (1-\theta)\delta z + \frac{\delta(1-\theta)\theta z}{(1-\delta)(1-\delta(1-\theta))}$. After rearranging we find that V_1 is a best-reply to I_1 iff

$$\frac{\delta}{1 + \delta} \geq \theta \quad (5)$$

The condition in (5) is the condition for (V_1, I_1) to be a Nash equilibrium of the game.

The next question is whether this Nash equilibrium can be subgame perfect. Start by considering a single deviation by a B -type incumbent from the equilibrium path. The deviation nets the B -type incumbent a payoff equal to z in the period in which it is conducted, followed by a payoff of zero in all future periods. Deterrence is guaranteed by the incentive constraint in (2).

Consider now a single deviation by a B -type incumbent from the punishment path. Such a deviation must take the form $r_t = r^*$ in the period in which the deviation takes place. After this the B -type incumbent returns to I_1 and chooses $r_t = z$ in all future periods. A single deviation from the punishment path is unprofitable if $z \geq r^* + \delta z$. Substituting the incentive constraint (2) into this expression, we appreciate that a B -type incumbent can *never* profit from a single deviation from the punishment path.

What remains to be shown is that the voter likewise can never profit from single deviations from the (I_1, V_1) equilibrium. Consider first a deviation from the equilibrium path. The relevant deviation consists of not reelecting a B -type that extracted $r_t = r^*$, and subsequently returning to V_1 in $t + 1$. In the deviation period, the voter's payoff is no different from his payoff had he followed the dictates

of strategy V_1 (which instructs the voter to reelect). However, the single deviation produces an instance of a B -type being dumped despite showing sufficient moderation in his rent extraction. By assumption, no future B -types will constrain their rent extraction in such a history. After the deviation from the equilibrium path, therefore, the voter's expectation is zero until he happens to draw a G -type, who is kept and provides him with z from then on. Formally (and paralleling the derivation of 4), the voter's expectation after the single deviation can be expressed as: $\frac{\theta z}{1-\delta}[1 + \delta(1-\theta) + \delta^2(1-\theta)^2 + \delta^3(1-\theta)^3 + \dots]$, or more compactly as $\frac{\theta z}{(1-\delta)(1-\delta(1-\theta))}$. It follows that a single deviation of this kind is unprofitable if $\frac{\theta z}{(1-\delta)(1-\delta(1-\theta))} \leq \frac{\delta z}{1-\delta}$. After rearranging, this inequality reduces to the Nash condition in (5).

What about a single deviation from the punishment path? Once punishments are activated no B -type ever constrains his rent extraction (in accordance with I_1), and all B -types are dumped in elections (in accordance with V_1). Thus, the punishment path requires the voter to oust a B -type that extracted $r_t > r^*$. The relevant single deviation from the punishment path is to violate V_1 by reelecting a B -type that extracted z in rents in the present period. This is followed by a return to the punishments described in V_1 in the next period. It follows that the voter's single deviation gives him zero payoff in the deviation period. In the next period (in which the B -type continues to extract maximal rents) the voter returns to ousting bad politicians. The voter gets a payoff of zero in this period as well. The single deviation simply postpones the opportunity of installing a G -type politician. The deviation is unprofitable if $\frac{\theta z}{(1-\delta)(1-\delta(1-\theta))} \geq \frac{\delta \theta z}{(1-\delta)(1-\delta(1-\theta))}$, which is true by the assumption that $\delta < 1$.

Summing up, (I_1, V_1) is a subgame perfect equilibrium if $\frac{\delta}{1+\delta} \geq \theta$. Thus, if (I_1, V_1) is a Nash equilibrium, it is also subgame perfect. The left hand side of this requirement equals $\frac{1}{2}$ for $\delta = 1$, and zero for $\delta = 0$. Put into words, if the fraction of honest candidates exceeds $\frac{1}{2}$, incentivizing rent-takers is impossible in equilibrium. If the fraction of honest candidates is below $\frac{1}{2}$, rent takers can be incentivized in equilibrium. Incentivizing, however, requires more patience (δ) the larger the fraction of honest candidates (θ) is. These relations are depicted in Figure 1.

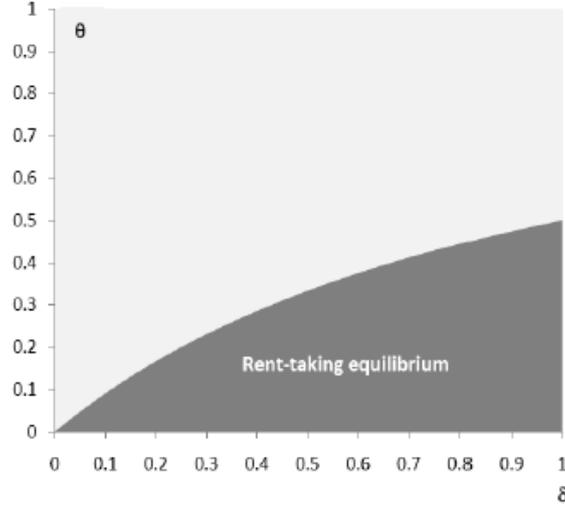


Figure 1: *Existence of a rent taking equilibrium*

What if we are outside of the range where rent-takers can be disciplined? Notice first that (I_2, V_2) is a Nash equilibrium. Provided the voter always sets $r^* = 0$ a B -type incumbent can do no better than taking $r_t = z$. And conversely, provided that a B -type takes exactly $r_t = z$, the voter can do no better than setting $r^* = 0$. But is this equilibrium subgame perfect? The answer is "yes, for all parameter values δ and θ ". This is easily seen by recapitulating the definition of a subgame perfect equilibrium. Such an equilibrium is Nash in every subgame. In the game under consideration, each new period constitutes a subgame. There are two kinds of subgame. One kind is where the voter got z in the preceding period, and another kind in which the voter got zero in the preceding period. In the first kind of subgame, it is a best reply to re-elect; in the last kind of subgame it is a best reply not to re-elect. The voter responds optimally to the incumbents' observed actions and given the voter response, the incumbents' actions are also optimal. Accordingly, (I_2, V_2) is Nash in every subgame, and therefore subgame perfect.

We now show that (I_1, V_1) is Pareto-preferred to (I_2, V_2) . In the first of these equilibria voter expectation equals $\frac{\theta z + (1-\theta)\delta z}{1-\delta}$. In the second equilibrium voter expectation equals $\frac{\theta z}{(1-\delta)(1-\delta(1-\theta))}$. The first expression is larger than the latter

expression if $\delta < 1$, which is true by assumption. What about a B -type incumbent? The incentive constraint guarantees that a B -type incumbent is indifferent between the two equilibria, so (I_1, V_1) is Pareto-preferred to (I_2, V_2) .

Notice that even though the discipline-equilibrium Pareto-dominates the no-discipline-equilibrium, discipline is credible only for certain combinations of parameters (the dark grey area of Figure 1). The upshot is that B -types cannot be incentivized credibly in a range of situations in which voters would profit from discipline, while B -types would not lose from discipline (the remaining area of Figure 1). In situations where incentives are credible, two equilibria coexist: (I_1, V_1) (with discipline of B -types), and (I_2, V_2) (without discipline of B -types).

Players face an equilibrium selection problem. Theory does not provide unambiguous suggestions in such cases (Harsanyi & Selten 1988; Samuelson 1997). In isolation, however, the fact that the (I_1, V_1) equilibrium Pareto-dominates the (I_2, V_2) equilibrium favors the former equilibrium, in which rent-takers are disciplined.¹¹ It is worth noting that the coordination problem voters face when the two equilibria coexist is significantly reduced by the fact that voters are homogenous, and that only a majority is required to pick an equilibrium.

3 Conclusion

In our model discipline is induced by a strategy in which dishonest incumbents extract maximal rents in all future periods, once voters have committed a single breach of the (implicit) promise to reelect if rent extraction is kept below a certain threshold ($r_t \leq r^*$). This is a very harsh threat indeed. However, the threat can be scaled down in a number of ways.¹² The consequence of scaling down the threat

¹¹ It can be shown that both of the equilibria discussed are renegotiation proof (proof available on request), so this particular refinement does not provide guidance in our model. We place limited weight on this refinement anyhow. The concept assumes a kind of collective rationality that is problematic, and produces (very) counter intuitive predictions in important classes of games (Barrett 1999 with references).

¹² We mention three. Firstly, rent-takers may extract maximal rents ($r_t = z$) for k periods after the voters' promise has been broken, and then return to moderate

is the same irrespective of how we do it; the set of subgame perfect equilibria that support disciplining of rent-takers will shrink, and, for a mild enough threat, disciplining rent-takers will not be possible anymore.

Our model shows that persistent rent extraction might be an equilibrium outcome, even in a full information environment in which there is no ideological heterogeneity. This is new to the literature on electoral agency. Rent-takers survive in our model if the fraction of honest incumbents is sufficiently small and patience is great enough. In equilibrium voters accept limited periodic rent extraction, rather than provoking a (potentially long) string of incumbents that extracts maximal rents, (eventually) followed by no rent extraction for eternity. We believe such survival to be a real world phenomenon.*

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extraction ($r_t = r^*$) again, until a new breach of the promise to reelect is followed up by k new periods of maximal rent extraction, and so on. Secondly rent-takers may come in two sub-types; one that continues to moderate his extraction after a breach of the voter promise, and one that extracts maximally after such a breach. The threat, of course, is harsher the larger the share of the last sub-type. Thirdly, rent-takers may extract maximal rents with positive probability in the period following a breach of the voters' promise, while this probability decreases with time since the last breach.

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