CRED WORKING PAPERS

# Endogenous Elites: Power Structure and Patron-Client Relationships

## CRED WP 2010/08

**Petros G. Sekeris**

**Center for Research in the Economics of Development**

**University of Namur**

# Endogenous Elites: Power Structure and Patron-Client Relationships *

Petros G. Sekeris

Tuesday 30 March, 2010

**Abstract**

In weak institutional settings, autocrats barter political and economic concessions for support to remain in power and extract rents. Instead of viewing the favors' beneficiaries, i.e. the elites, as an exogenous entity, we allow the king to decide whom to coopt provided the subjects are heterogeneous in the potential support - their strength - they could bring to the regime. While the ruler can select the elites on the basis of their personal characteristics, an alternative strategy consists in introducing some uncertainty in the cooptation process. The latter strategy allows the king to reduce the clients' cooptation price since in the event of a revolution the likelihood of being included in the future body of elites is lower. We show that weak rulers are more likely to coopt the society's strongest individuals, while powerful rulers diversify the composition of their clientele. Moreover, when agents value more future discounted outcomes, the king is more likely to randomly coopt subjects. Weak institutions Autocracy Rent seeking Elites

*Petros G. Sekeris, psekeris@fundp.ac.be. This work was supported by a grant from the Inter-university Attraction Pole (IAP) program funded by the Belgian Federal Science Policy Office.

# 1 Introduction

Recent developments in the economics and political science literature have contributed to a deeper understanding of the close interrelationship between institutions and political regimes. In weakly institutionalized settings, rulers acquire and maintain the right to hold office even when most of the citizens disagree with the policies implemented. The lack of "democratic accountability" is not synonym of anarchy, however, since a social contract typically ties the ruler to the rest of the population. The terms of this social contract depend on both the polity's institutional development, and on the associated dictator's[1] degree of accountability. The present paper focuses on those ill-performing regimes where rulers rely on clientelistic networks to remain in power as a consequence of the institutional vacuum. More precisely, we explore a king's optimal cooptation strategy and the determinants of alternative clientelistic patterns. The centrality of this question, in our view, lies in that the ensuing wealth distribution directly impacts on the quality of the institutions, and thereby constitutes a fundamental pillar of the inequality-development nexus in weakly institutionalized polities (Cervellati et al., 2008).

Feeble institutional constraints are accompanied by autocratic rulers who are tied to their subjects by mutual rights and obligations specified in an informal contract which must be self-enforcing (Kirstein and Voigt, 2006). To secure sufficient power to avert revolutionary attempts, a non-democratic leader may create a climate of fear, while a complementary tool consists in distributing rewards. Since, however, the leader's endogenously accumulated power cannot be controlled by this same coercive power (Bar-El, 2009), the leader's followers need to be rewarded accordingly. Hence, under this social contract the king coopts subjects by bartering political and economic concessions for support to remain in power and extract rents[2] (Azam, 1995; Platteau, 1995).

Cooptation is therefore a basic ingredient of the self-binding contracts tying rent-seeking dictators to their subjects. Such bonds, that have equally been defined in the literature as patron-client relationships, can be understood as an asymmetric exchange where-by the recipient of a gift vows allegiance to the patron by rewarding the latter with his support and thus increasing the dictator's power (Homans 1961; Blau 1964; Wintrobe 1998; Konrad and Leininger, 2007; Platteau and Sekeris, 2007)[3]. When rulers make extensive use of this cooptation strategy, we are in the presence of a *personal rule* (Jackson and Rosberg, 1984; Padro-I-Miquel, 2007) where "the rivalries and struggles of powerful and wilful men, rather than impersonal ideologies, public policies, or class interests, are fundamental in shaping political life" (Jackson and Rosberg, 1984: 421).

While rulers extract rents and, therefore, potentially hamper economic development, some sharing of the pie with relevant subjects - the patron's clients - must occur in parallel. But this postulate is contradictory with the simplifying assumption adopted elsewhere in the literature that rulers and the ruling elites (clients) constitute a single and exogenous entity (see for instance Acemoglu and Robinson, 2000, and Acemoglu et al., 2001). The latter approach implicitly assumes that the most powerful elements of the society spontaneously unite in a monolithic block. Such coalitions may indeed form, as exemplified in Mugabe's power-sharing agreement with Tsvangirai, or in General Musharraf's support of (and by) the Pakistanese

[1] According to Wintrobe (1998), the accountability criterion can be used to distinguish dictatorships from democracies.

[2] Notice that such contracts are immune from commitment problems to the extent that, given the compensations granted by the king are linked to his rule, it is incentive compatible for the favors' beneficiaries to support the on-going regime. On the other hand, the king also circumvents potential commitment problems by actually transferring these favors instead of barely promising privileged treatments.

[3] Indeed, material goods can be traded against allegiance since the payback may take a form different from the medium of the original favor (Ekeh 2004: 35). Hence commodities may be exchanged against symbolic attributes such as social prestige and political power; a material gift, which never goes un-repaid, can thus be reciprocated, say, by a demonstration of loyalty, allegiance, homage, respect, subordination, devotion, etc...

army's top officers during his presidency (2001-2008). When such coalitions form, they result in the most unequal distribution of income. Other types of coalitions have equally been observed, however, as the populist policies of Chavez in Venezuela, and of Ahmadinejad in Iran corroborate. Given these observed differences in cooptation policies, we address the question of what makes specific agents relevant. What are the subjects' characteristics that determine their inclusion in the body of elites?

The subjects' loyalty has been identified in the literature as a fundamental determinant of a leader's clients (Bueno de Mesquita et al., 2002; Egorov and Sonin, 2006). When defining loyalty as the propensity of supporters to defect from a leader to a challenger we grasp how essential this concept is both because of the political stability the despot may enjoy, and because of the reduced material demands of faithful supporters. Bueno de Mesquita et al. (2003: 66) attract our attention on the strategy of coopting the subjects whose exit opportunities are the gloomiest because of these individuals' loyalty. Since despots secure their followers' loyalty by outbidding the exit opportunities of the latters (Wintrobe, 2001), increasing the subjects' loyalty equally reduces cooptation costs. An optimal strategy for the leaders therefore consists - to the extent it is feasible - in increasing their subjects' loyalty. Creating stigmata to modify the agents' loyalty has undeniably been applied throughout history. Rare are the situations, however, where subjects have failed to adapt to such changing environments, thereby annihilating the whole mechanism. In the present paper we focus our attention on those contexts where no particular characteristics of the subjects such as their race or their religion tie them to a specific regime.

Taking a step toward the endogeneization of the ruling coalition, some authors have incorporated in their reasoning the fact that the proceeds of an extractive strategy depend on the size of the ruling coalition which is therefore endogenously determined (Bueno de Mesquita et al., 2003; Acemoglu et al., 2004, North et al., 2009). Under the premise that all potential clients are of equal importance, this approach is certainly convincing. Lifting the homogeneity assumption, however, widens the strategy set of the ruler. Acemoglu et al. (2008) recognize the importance of agents being heterogeneous in power, and analyze the endogenous formation of the ruling coalition. This approach diverges from the patron-client setting we have described, where a monopolistic ruler purchases clients to avert turmoil. In choosing which subjects to patronize, and which to jettison, the monopolistic ruler gauges the contribution of a particular agent, in terms of power, to his cooptation cost. Hence, if as one would expect, weaker subjects are corruptible at more moderate prices, the king may decide to 'trade' a small number of powerful clients for cheaper, albeit weaker, subjects.

Acemoglu et al. (2001), and Padro-I-Miquel (2007) provide alternative explanations regarding the low cooptation cost borne by some autocratic rulers. In the former model the ruling elite faces two opposition groups that could jointly overturn the kleptocratic dictator if only the elites did not credibly threaten to buy-off one of the factions in case of a revolutionary attempt. In the latter paper, the ruling elites take advantage of the fear felt by their ethnically similar clients at the prospect of being saddled with a ruler of an other ethnic group in case of a revolution. In a closely related article to these two studies, Gandhi and Przeworski (2006) show that, when the opposition to the regime is sufficiently strong, rents (and policy concessions) are used as a cooptation device at equilibrium.

While these papers point at mechanisms that influence the cost of cooptation, none enlightens us on the size of the clientele, and on its composition[4]. Both Gershenson and Grossman (2001) and Bueno de Mesquita et al. (2003) broaden our comprehension of elites formation by allowing the size of the clientele to be endogenous. The associated trade-off is that a larger clientele makes the regime safer but is also costlier to sustain (see also North et al., 2009). The trade-off between the clientele's size and the cooptation cost is also underlined in Bertocchi and Spagat (2001). In their setting, the individual cooptation cost is endogenous, and weak (strong) governments distribute large (small) benefits to few (many) clients.

[4]Acemoglu et al. recognize that "the gains to an extractive strategy may depend on the size of the ruling elite. When the elite is small, each member would have a larger share of the revenues, so the elite may have a greater incentive to be extractive" (2001: 1376)

The models just presented either assume that a single representative agent acts on behalf of the potential clients, or else suppose the clients belong to a pool of homogeneous agents. Acemoglu et al. (2008) lift this hypothesis and study the endogenous formation of ruling coalitions. The authors assume that coalescing agents that gather sufficient power can eliminate potential opponents forever and share the society's rents among themselves. We diverge in two respects from Acemoglu et al. (2008). Notice first that patron-client relationships cannot be analyzed in their setting since the necessary hierarchy among the ruling coalition members constitutes a black box. By pre-defining the potential kings, we impose a hierarchy that eventually allows us to understand whom the patron is willing to take as a client. The second main divergence rests in the hypothesis that potential foes can be eliminated. In our setting, however, we assume that the king coopts subjects that thereby strengthen his ranks, without giving him the possibility to eliminate opponents. Had the king such a possibility to recursively decide whom to annihilate, apart from the reduced number of clients we would observe at equilibrium, few qualifications to our main findings would be added.

As Acemoglu et al. (2008), we allow each agent to be heterogeneously endowed in power and we derive results regarding the equilibrium cooptation price, the size of the clientele, but also regarding the identity of the clients. One of the central results of our paper echoes the above finding of Bertocchi and Spagat (2001). We add, however, the qualification that (relatively - but not too) weak rulers will selectively choose to bribe the society's strongest individuals, while (relatively) strong rulers diversify the composition of their clientele. To understand the rationale of this result, one needs to grasp the mechanisms of the underlying strategies: the selective coopation strategy, and the random cooptation strategy. The former strategy consists in selecting one's clients on the basis of their personal characteristics, i.e. their power attributes. The clients anticipate that if a revolution was to occur they would be called in the new elite's body again *because of* their power attributes. To avert a revolution, the number of subjects the "king" has to rely upon will be relatively low because of their substantial individual strength. The clients' individual cooptation cost, however, is likely to be important. Under the second strategy, the ruler deliberately allocates gifts in a partially indiscriminate fashion, hence the denomination "random". More precisely, the leader secures the support of a portion of each strata of the society, and therefore includes in the body of elites both weak and strong subjects alike. This obviously implies some strong potential opponents being sidelined. The equilibrium individual cooptation cost under the random cooptation strategy is therefore lower, while the clientele is larger. As a consequence, a weak ruler prefers sharing with few individuals the society's rents so as not to dilute the wealth among a large number of clients. A strong ruler, on the other hand, requires little support, and therefore prefers to randomly coopt clients among a large pool of subjects, with a view to ensuring a low individual cooptation price. Remark that the ruler needs not to be too weak for, otherwise, he may prefer behaving as a "roving bandit", i.e. maximizing the product of theft and, hence, depriving the citizenry of its wealth in the manner described by Olson (1993).

A second interesting finding links the optimal cooptation strategy to the discount factor. We show that when agents value more future discounted outcomes, the king is more likely to randomly coopt the clients. For low discount factors, the ruler will either selectively choose his clients, or else be a roving bandit (Olson, 1993; McGuire and Olson, 1996), depending on his "roving ability", i.e. his ability of not getting caught while depriving his subjects of their wealth.

To highlight the relevance of the two cooptation strategies we propose in this model, we present in the next section a short overview of the cooptation strategies in $XX^{th}$ century Russia. In a second section we present the model and the main results, and in the last section we conclude.

## 2 Cooptation in $XX^{th}$ century Russia

20th century Russia provides an interesting historical record of varying cooptation strategies that we can partially interpret in light of the two strategies we propose in this paper: the selective cooptation strategy, and the random cooptation strategy. In the pre-Stalin and post-Khrushchev periods, the cooptation patterns were essentially "selective". By that we mean that the favours were granted to clients on the basis of their individual features (wealth, lineage, education). On the other hand, both under Stalin and Khrushchev, the body of elites was much more heterogeneous in terms of the characteristics deemed relevant for securing the regime's integrity, and the benefits granted to the clients were usually more modest. It is therefore not unreasonable to pinpoint elements of the random cooptation strategy in these latter situations.

A diachronic feature of Imperial Russia was the Czars' reliance upon a very narrow section of the population, the nobility. As in the rest of medieval and Renaissance Europe, the king's court gathered the kingdom's most powerful and influential elements[5]. The 1917 revolutions that empowered the Bolsheviks were expected to radically transform the existing order. Once in power, however, the ambitious intellectuals that had mounted the revolution emulated their predecessor's clientele (Grossman, 1999; Bueno de Mesquita et al., 2003). The elites throughout this period were therefore selected upon those personal characteristics that granted them with power in the society.

Until the fall of the USSR in 1991, the policies of all Soviet Union's strongmen heavily relied on the system of Communist Party membership that institutionalized cooptation (Bertocchi and Spagat, 2001). With the rise of Stalin to the position of General Secretary of the Communist Party of the Soviet Union's Central Committee in 1922, the whole clientelistic network underwent dramatic changes. The strategy of Joseph Stalin[6] consisted in concentrating all the nation's power in the hands of an almighty ruler, himself, while cultivating a climate of fear[7]. In parallel, however, instead of pursuing the strategy of coopting the most powerful elements of the nation alone, Stalin widened the accessibility to high offices and therefore systematically embraced much less competent agents as well (Solzhenitsyn, 1973)[8]. These decisions are consistent with the random cooptation strategy. Stalin alienated powerful elements of the society by taking unprecedented measures against many members of the old Bolshevik elite, and against highly ranked military officers (Solzhenitsyn, 1973; Belova and Gregory, 2009). The evidence on Stalin's top officers provided in Egorov and Sonin (2006) is striking. It is documented that in 1934 and in 1937, around 40 percent of the highest ranked officials of the NKVD[9], on whom Stalin relied heavily to secure the control of the state, had less than 7 years of total schooling, while another 40 percent had not completed 10 years of schooling.

During the Khrushchev era that followed Stalin's death, the new priorities of the central command were to promote economic growth while securing the privileges of an increasingly large and diversified body of elites. The use of the random cooptation strategy therefore persisted and Khrushchev's policies have accordingly been qualified quasi-populist (Cohen, 1979).

[5]The causal link may seem dubious since being the follower of a King obviously endows one with power. To the extent that strength is equally a function of wealth, family ties, and astuteness and cunningness, our interpretation that personal characteristics translate into power hold.

[6]Stalin is known to have been subject to deep paranoid personality disorder.

[7]Joseph Stalin is said to have cynically claimed that "one death is a tragedy, a million deaths is a statistic (Bueno de Mesquita et al., 2003: 347). During the Great Terror (1936-1938), the Soviet regime conducted massive purges that, according to some sources, are said to have provoked up to 20 millions of victims (Bueno de Mesquita et al., 2003).

[8]Stalin's strategy, according to the standard interpretation of scholars, consisted in getting rid of his political enemies. Lazarev (2003) opposes this argument by claiming that the large scale replacement of highly ranked officers, and the promotion of "young cadres" to positions previously held by "enemies of the people" constitute evidence supporting his own theory. His argument, which does not contradicts ours, is that Stalin intended to provide incentives to rank-and-file members so that the latter produce higher effort, and thereby increase the overall rents.

[9]Peoples Commissariat for Internal Affairs, or what amounts to the Ministry of internal affairs.

As soon as he acceded to power, Brezhnev (1964-1982) proceeded with the implementation of a number of conservative reforms and changed cooptation strategy. The elite's privileges were strengthened; the favourable treatment up to then enjoyed by a wide category of citizens was interrupted; the people's freedom got significantly reduced (Cohen, 1979), and, in comparison with the previous administration, the educational qualifications of the reduced body of elites that benefited from the system, i.e. the nomenklatura, were drastically improved (Hanley et al., 1995). In fact, years of economic decline compelled Brezhnev to restrict the accessibility to high offices because of the important cost of having, in his predecessors' fashion, a large clientele. Indeed, the decline of the central regime's power would have compelled the ruler to accommodate more subjects in the nomenklatura. The observed switch in cooptation technique would then be consistent with a desire to reduce cooptation expenditures.

Between Brezhnev's death in 1982 and the collapse of the Soviet Union in 1991, the USSR experienced a transitory period that was mainly marked by Gorbachev's pro-western policies. As it was approaching its end, and until its collapse, the regime carried out a number of reforms of the body of its elites. The most notable transformation was the relatively high turnover among these elites, whose ranks were filled with much younger, educated members of high social origins (Hanley, 1995; Kryshtanovskaya and White, 1996).

The demise of the USSR did not disturb the old practices of assigning key political and economic positions to powerful citizens: "the Russian government facing the opposition of industrial ministries, managers, workers, and regional and local governments which held formidable power, handed over huge amounts of wealth to a very narrow section of the society that, in turn, supported Boris Yeltsin's re-election" (Bertochi and Spagat, 2001: 606). It is in fact not surprising that a collapsing central power preferred to rely on its most powerful elements instead of seeking the approval of a wider spectrum of the society. Indeed, as a consequence of the regime's weakness, the latter strategy would have required the inclusion of a very large segment of the society. The new post-communist elites were drawn from Soviet-era nomenklatura members (Kryshtanovskaya and White, 1996). Despite the replacement of some of Breshnev's lieutenants by younger members of the old nomenklatura, the *class reproduction* has been very extensive (Hanley, 1995; Kryshtanovskaya and White, 1996:722).

This short overview on the elite selection and composition in Russia during various periods of the XXth century allows us to identify two distinct cooptation techniques. One strategy used by Russian rulers (Czar Nicholas II, the Bolsheviks, Brezhnev, Gorbachev, Yeltsin) consists in selecting clients on the basis of specific individual characteristics. An alternative strategy applied by Stalin and Khrushchev is to purposefully not rely on individual-specific characteristics. The model of the next section brings elements that help us understand these various cooptation techniques.

# 3 The model

## 3.1 The Framework

Consider a kingdom of size $R$ (*stock*), where each parcel of land generates an equal amount of rents per time period (*flow*). The total per-period flow is denoted by $r$. This kingdom is inhabited by $n$ subjects, and one leader and a challenger denoted, respectively, $k$ and $\bar{k}$. The distribution of property rights over the kingdom's total territory in time period $t$ is denoted by the vector $\mathbf{R}^t = \{R_k^t, R_1^t, \dots R_n^t\}$, where the superscript designates the time period, and the subscript captures the identity of the players. The game starts in period 0 and the ruler holds all the territory, i.e. $\mathbf{R}^0 = \{R, 0, \dots 0\}$. Moreover, when a ruler is newly enthroned in time $t$, $\mathbf{R}^t = \mathbf{R^0}$. At each time period, the leader $l$ faces the constant risk of being overturned by the challenger and his backers. Given the revolutionary threat, the ongoing king can either predate the community's wealth, or else coopt subjects to remain in power by distributing property rights. Denote these actions by $a_k^t = \{p, c\}$,

If $a_k^t = p$, the predatory leader appropriates the entire present *flow* of resources, $r$, and attempts to flee the community with the booty. We assume that with probability $(1 - \varphi) \in [0, 1]$ a predator gets caught by his subjects who then share equally these rents among them. The king may alternatively opt for cooptation, i.e. $a_k^t = c$. The leader then coopts subjects of his kingdom by granting them property rights over lumps of the productive resources, i.e. over parcels of the territory. We assume that transferring property rights involves a minor transaction cost of $\epsilon$ per transaction. In period $t$ the property rights vector inherited from the previous period, $t - 1$, is denoted $\mathbf{R^t}$. Given this inherited property rights' vector, the ruler decides the new property rights vector $\mathbf{R^{t'}}$ in period $t$. The ruler bears a cost of $z\epsilon$, where $z$ stands for the number agents whose property rights are altered in period $t$. Provided the same ruler remains in power from one period to another, $\mathbf{R^t} = \mathbf{R^{t-1'}}$. If the king is deposed all the territory comes under the control of the newly enthroned king who inherits all the community's stock of resources, i.e. $R_k^t = R$, and who therefore faces the same choices as the initial leader.

In a second stage of the game, the subjects who are asymmetrically endowed in strength simultaneously decide whether to devote their individual strength to support and protect the ruler (supporters), or else to oppose him (dissidents)[10]. Formally, in time period $t$ any subject $i$ takes an action $a_i^t = \{s, d\}$ with $s$ designating the decision to support the leader, and $d$ the decision to dissent. Each subject $i$ is endowed with some strength $f_i$ that depends on his type. There are $k$ types of individuals and an equal number of subjects of each type. We label the subjects by two subscripts; the first one denotes his type, and the second one designates his position inside a group of subjects of the same type. When ranking the kingdom's subjects according to their strength we obtain the following vector: $(f_{11}, f_{12}, \dots f_{1n/k}, f_{21}, f_{22}, \dots f_{2n/k}, \dots, f_{k1}$ $, f_{k2}, \dots f_{kn/k})$. The difference in strength between any two consecutive types is assumed constant and equal to the weakest type's strength, $\bar{f}/k$. We thus have that $f_{ji} = j\bar{f}/k$, and $f_{ki} = \bar{f}$. The subjects' aggregate strength is denoted by $F$. In deciding whether to support or the dissent, the subjects take into consideration the king's and the challenger's strength, which are both assumed to equal $L$. We assume that $L > \bar{f}$[11]. Furthermore, being in power grants the king an incumbency advantage, i.e. the control of an army whose strength equals $G$. The king's total strength equals the sum of his own strength and of his clients' strength, $G + L + \sum_{f \in \mathcal{S}} f$, where $\mathcal{S}$ stands for the subset of supporters. The opposition movement's aggregate strength, $D + L$, equals the sum of the dissident individuals' strength, $D = \sum_{f \in \mathcal{D}} f$ - where the $\mathcal{D}$ stands for the set of dissidents - and of the challenger's strength, $L$. If the dissidents manage to gather more power than the central regime, i.e. if $D > S + G$, a revolution occurs, the rebels appropriate the community's total rent and share the booty equally among them[12]. If, on the other hand, a revolution attempt fails, the king's supporters share the dissidents' rents equally among them. Lastly, notice that the leader's and the challenger's role does not only consists in deciding the sharing of the community's wealth when occupying the throne. We also assume that the two potential leaders fulfil a coordination role in our model. More precisely, if a subset of subjects are better off by *jointly* deviating from a profile of actions, such a deviation is implemented.

In the time period following a successful revolution, the new ruler who was previously the challenger obtains the control of the entire territory $R$, and the above-described two-stage game is played again. If however, the dissidents fail to gather sufficient strength to topple the regime, the ongoing leader remains in power.

[10] Following Acemoglu et al. (2008), we interpret this strength parameter as political or military power, depending on the polity's degree of institutional development.

[11] Assuming the potential rulers to be the kingdom's strongest elements is equivalent to having the king endogenously selected under an all-pay auction mechanism. Indeed, should the successful revolutionaries compete in a subsequent stage for the throne under an all-pay auction, the strongest individual would always prevail. See also Konrad and Leininger (2007).

[12] It could be objected that the revolutionaries' payoff should reflect their individual contribution to the outcome. Our interpretation of the revolution is, however, different. While the position an individual will occupy in the newly constructed society is a function of his strength, during the revolution this individual is as effective as anyone in *looting* the loosers' belongings.

The players interact over an infinite time horizon. We focus on the Markov perfect equilibria (MPE) of this game[13].

## 3.2 Analysis

Since we solve the game for the MPE, at any time period $t$ the players condition their action on $\mathbf{R^t}$ - the (inherited) property rights regime - and on the other players' (expected) actions. Any player $j$'s objective is to choose a strategy $\Sigma_j = (\sigma_j^0, \sigma_j^1 \dots \sigma_j^\infty)$ that maximizes his inter-temporal utility for any given strategy of the $n$ remaining agents. For a constant (and identical across agents) discount rate of $\delta$, the discounted flow of expected payoffs can be written as:

$$U_j(\Sigma_j, \Sigma_{-j}, \{\mathbf{R}\}_0^\infty) = \sum_{t=0}^{\infty} \delta^t u_j^t(\sigma_j^t, \sigma_{-j}^t, \mathbf{R^t})$$

Under the state variable vector $\mathbf{R}$ and given the other players' strategy, $\sigma_{-j}$, the maximal utility any agent $j$ can obtain is given by the following Bellman equation:

$$V_j(\mathbf{R}) = max_{\sigma_j}\Big\{u_j(\sigma_j, \sigma_{-j}, \mathbf{R}) + \delta \sum_{\tilde{\mathbf{R}}} V_j(\tilde{\mathbf{R}}) T(\tilde{\mathbf{R}}|\sigma_j, \sigma_{-j}, \mathbf{R})\Big\} \tag{1}$$

where $V_j(\mathbf{R})$ is the value function for $j$ under state $\mathbf{R}$, while $T(.)$, the transition function, gives the probability that some particular state is realized in the next time period.

We solve this game by optimizing backwardly for a period game. Given some vector of state variables, $\mathbf{R}$, we therefore first determine the subjects' optimal actions for any pair of actions $(a_k, \mathbf{R}')$ of the leader. We denote by the vector $\mathbf{b_{-k}}(a_k, \mathbf{R}') = (b_1(a_k, \mathbf{R}'), b_2(a_k, \mathbf{R}'), \dots b_n(a_k, \mathbf{R}'))$ the subjects' best response to the leader's decisions $(a_k, \mathbf{R}')$. These best responses yield sets of supporters, $S(a_k, \mathbf{R}')$, and of dissidents, $D(a_k, \mathbf{R}')$. Keeping in mind that the subjects have the possibility of coordinating their actions, $\mathbf{b_{-k}}(a_k, \mathbf{R}')$ must be robust to deviating coalitions of subjects. More precisely, there should not exist a deviating coalition $M$, such that:

$$(i) \qquad \text{If } D(a_k, \mathbf{R}') \leq S(a_k, \mathbf{R}') + G \text{ then } \exists M \in N \text{ s.t.}$$
$$\begin{cases} D(a_k, \mathbf{R}') \cup M > S(a_k, \mathbf{R}') \setminus M + G \\ \frac{r}{|(D(a_k, \mathbf{R}') \cup M)|} + v_i(R, 0, \dots 0) \geq r_i + v_i(\mathbf{R}') \ \ \forall i \in M \\ \frac{r}{|(D(a_k, \mathbf{R}') \cup M)|} + v_i(R, 0, \dots 0) > r_i + v_i(\mathbf{R}') \quad \text{for some } i \in M \end{cases}$$

$$(ii) \qquad \text{If } D(a_k, \mathbf{R}') > S(a_k, \mathbf{R}') + G \text{ then } \exists M \in N \text{ s.t.}$$
$$\begin{cases} D(a_k, \mathbf{R}') \setminus M < S(a_k, \mathbf{R}') \cup M + G \\ \frac{r}{|(D(a_k, \mathbf{R}'))|} + v_i(R, 0, \dots 0) \leq r_i + v_i(\mathbf{R}') \ \ \forall i \in M \\ \frac{r}{|(D(a_k, \mathbf{R}'))|} + v_i(R, 0, \dots 0) < r_i + v_i(\mathbf{R}') \quad \text{for some } i \in M \end{cases}$$

Condition $(i)$ states that if at optimality a revolution is averted, then it is never in the interest of a set of subjects whose joint opposition would depose the ruler to actually do so. Condition $(ii)$ is the analogous one when the best responses $b_{-k}$ yield a revolution.

[13] While the natural equilibrium candidate for an infinite time period game is the Subgame Perfect Equilibrium (SPE), we restrict the analysis to the MPE as has become standard in the related literature (see Acemoglu and Robinson, 2001; Acemoglu et al., 2004; Padró-I-Miquel). We follow this path to simplify the analysis since this assumption allows us to focus on a subset of the SPE set. While the latter equilibrium requires that the players' strategies are Nash in every proper subgame, the MPE possesses the additional feature that at any time period only the payoff-relevant history should matter.

A consequence of enabling the subjects to coordinate their actions is that, given the deterministic outcome of a revolution, either all subjects support the ruler, or else all subjects join the opposition. Indeed, not joining a successful revolution amounts to foregoing the sharing of the revolutionary loot, $r$, while supporting a movement doomed to failure involves a loss of the period rents, $r_i$.

Knowing the subjects' best responses, $b_{-k}(a_k, \mathbf{R}')$, the leader needs to determine his own optimal strategy. The following Lemma permits us to restrict our attention to the relevant actions of the ruler:

**Lemma 1** *There exist at most two potential equilibrium vectors of state variables* $\mathbf{R}^*$. *Either* $\mathbf{R}^* = \mathbf{R^0}$, *or else* $\mathbf{R}^* = \mathbf{R^{coopt}} = (R_k^{coopt}, R_1^{coopt}, \ldots R_n^{coopt})$.

The proof can be found in the Appendix.

The vector $\mathbf{R^{coopt}}$ stands for the territorial distribution such that the ruler's instantaneous utility is maximized under the constraint that the rents flowing to the clients are sufficient to avert a revolution ($a_i = s$ for all subjects). In the remaining of the analysis we restrict the range of parameters to $G < F$ to avoid the possibility that $\mathbf{R^{coopt}} = \mathbf{R^0}$[14]. While there exists an infinity of vectors averting a revolution, the associated cooptation costs differ. The ruler's objective consists in minimizing his expenditures, and the following lemma characterizes the ruler's strategies satisfying this condition:

**Lemma 2** *In a stationary equilibrium there exist only two cooptation strategies: the selective cooptation strategy and the random cooptation strategy*

The proof can be found in the Appendix.

The selective cooptation strategy consists in transferring property rights according to the agents' individual characteristics, i.e. their strength. The alternative strategy of randomly selecting the transfer recipients reduces the clients' individual claims because of the increased uncertainty associated with this selection process. Denote by $c^s$ the cost of *selectively* coopting clients, and by $c^r$ the cost of *randomly* coopting clients. Lemma 2 implies that at equilibrium, whenever $c^s < c^r$ ($c^s > c^r$), provided the ruler follows a cooptation (instead of predatory) strategy, his best response consists in selectively (randomly) coopting clients at *any* time period. In case of equality the leader is completely indifferent when first enthroned, but given his initial cooptation choice, it is optimal never to modify it afterwards because of the transaction costs. We break the inequality in favour of the selective cooptation mechanism.

## 3.3 Selective cooptation of clients

When the ruler selectively buys-off clients, the clientele remains composed of the same subjects irrespectively of whether a revolution occurred or not in the previous time period. This cooptation strategy grants the clients a particularly powerful situation since their exit option is to be clients of a new king in case the present ruler does not satisfies their present needs.

The individual cooptation cost, $x_i^s$ stands for the amount of rents that make agent $i$ indifferent, between, on the one hand, obtaining the present clientelistic rent forever, and, on the other hand, provoking a revolution that entitles him to be client of a newly enthroned king (the challenger). Formally:

$$(1 + \delta + \delta^2 + \ldots)x_i^s = \frac{r}{n} + (\delta + \delta^2 + \ldots)x_i^s \Rightarrow x_i^s = \frac{r}{n} \tag{2}$$

[14] If $G \geq F$, the king requires no internal support to remain in power and, hence, retains control over the entire territory. This would reflect a situation where the king never needs to commit to be non-predatory and to secure private property rights, a prerequisite according to North and Weingast (1989) to observe economic development.

Any individual receiving $x_i^s$ is deterred from joining the opposition, unless a revolution is expected to occur. This implies that if a subject receives less than $x_i^s$, his best response is either to support the ruler if the aggregate strength of subjects receiving at least $x_i^s$ is sufficient to avert a revolution, or else to oppose the regime. Since the individual cooptation cost is identical across subjects, the ruler's optimal strategy is to minimize the number of clients. It is therefore straightforward to conclude that the optimal *selective* cooptation strategy is to buy-off the community's strongest subjects.

In Appendix A.3 we compute the total number of individuals ($n^s$) to coopt, and this enables us to obtain the total cooptation cost under the strategic selection strategy, $c^s$, which equals:

$$c^s = n^s x^s = \left(1 - \sqrt{\frac{G+F}{n\bar{f}}}\right) r \tag{3}$$

From these results stems the next lemma:

**Lemma 3** *When the ruler selectively coopts his clients to remain in power, the higher the incumbency advantage as measured by the kingdom's army and/or the weaker the subjects, the smaller the number of subjects to coopt, and, therefore, the lower the total cooptation cost.*

The ruler coopts only the strongest subjects since the clients' claims being independent of their strength, the optimal strategy consists in minimizing the number of clients. Since a stronger central power requires less clients in order to retain power, the total cost of cooptation decreases in the ruler's incumbency advantage. Likewise, when the subjects are weaker their support is less compelling, and the analogous conclusions can be drawn.

## 3.4 Random cooptation of clients

We next turn to the computation of the random cooptation strategy's choice. As the stochastic connotation may prove misleading, we attract the reader's attention on the exact working of this strategy. Under the random cooptation strategy, the leader selects an equal number of subjects inside any power-type group of individuals. The randomness in the selection process therefore occurs among subjects of the same type. When the ruler survives to the next time period, since the territories transferred proved just sufficient to avert a revolution, the property rights' vector will remain unaltered forever, i.e. the king has no incentive to bear the (small) transaction costs associated with a modification of the property rights distribution. A direct consequence of this strategy is that independently of their strength, all the subjects have the same likelihood of being selected as clients. Compared to the selective cooptation scenario, the community's strongest elements are therefore less eager to provoke a revolution when already belonging to the clientele. As a consequence, this enables the ruler to bribe subjects at a lower cooptation price.

The individual cooptation cost, $x_i^r$, is such that the clients are therefore indifferent between obtaining the present clientelistic rent forever, and provoking a revolution that entitles them to be clients of a newly enthroned king with some probability less than unity. Formally:

$$(1 + \delta + \delta^2 + \ldots)x_i^r = \frac{r}{n} + (1 - \pi_\lambda^r)(\delta + \delta^2 + \ldots)x_i^r \Rightarrow x_i^r = \frac{(1-\delta)r}{\left(1 - \left(1 - \pi_\lambda^r\right)\delta\right)n} \tag{4}$$

Where $\pi_\lambda^r$ stands for the share of subjects that are not coopted by the ruler. The share of subjects that are coopted at equilibrium, $(1 - \pi_\lambda^r)$, is thus given by the following expression when the ruler applies the random selection strategy:

$$\pi_\lambda^r nE(f) = G + (1 - \pi_\lambda^r)\, nE(f) \Leftrightarrow \pi_\lambda^r = \frac{G + F}{2F} \tag{5}$$

This allows us to evaluate the total cost of randomly selecting the clients, $c^r$:

$$c^r = (1 - \pi_\lambda^r) n x^r = \frac{(1 - \delta)(1 - \pi_\lambda^r)}{1 - (1 - \pi_\lambda^r)\delta} r \tag{6}$$

We can then state the next lemma:

**Lemma 4** *When the ruler randomly coopts his clients to remain in power, the total cooptation cost is increasing in the subjects' strength and decreasing in the ruler's strength. If the agents value more the future, the total cooptation cost decreases as the subjects become individually less demanding.*

While, similarly to the selective cooptation strategy, the total cooptation cost is increasing in $F$ and decreasing in $G$, the reasons driving this result are richer under the random selection strategy. Indeed, on the one hand, like in the selective gift making, the *number* of clients decreases in the ruler's strength and increases in the subjects' aggregate strength. Under the present scenario, however, the individual cooptation *cost* moves together with the number of clients, thus reinforcing the previous effect. The reason lies in that as the size of the clientele becoming larger, the likelihood of being randomly assigned a gift increases as well. Stronger subjects, or subjects that face weaker rulers, will therefore be more demanding in terms of compensation for not rebelling since their exit opportunity is more attractive. The second part of the proposition highlights the negative relationship between the value of the gift and the discount rate. This result may seem counter-intuitive to the extent that when assigning more weight to the future, one increases the value of that option. The intuition of this result hinges on that the discounted expected payoff of provoking a revolution has to be compared with the discounted expected payoff of supporting the ruler. A client provoking a revolution runs the risk of not being included in the body of elites under the new king. Supporting the king, however, implies the subject secures a constant flow of rents in the future. When subjects attribute more weight to the future, the king is therefore able to reduce the gift necessary to keep the present clients disciplined.

## 3.5 Equilibrium gift

Our analysis highlights the two different cooptation equilibria that may emerge. In the game's first stage, however, the ruler equally needs to decide whether to "predate" the kingdom or to "coopt". In this section we explore the conditions giving rise to the various equilibria.

Because of the stationarity of the strategies implied by the Markov hypothesis, and given that the ruler and the challenger have the same characteristics, the cooptation strategy is an equilibrium strategy if it is robust to the One-Stage-Deviation Principle (see Fudenberg and Tirole (1991:108-110)). This is the case if the following condition is satisfied:

$$(r - c) + \delta\,(r - c) + \delta^2\,(r - c) + \ldots \geq \varphi r \Leftrightarrow c \leq (1 - \varphi(1 - \delta))\, r = c^{coopt} \tag{7}$$

where $c = min\{c^s, c^r\}$, stands for the minimal cost in terms of foregone rents that the on-going ruler should support to avert a revolution. On the LHS of this expression one can read the inter-temporal utility of the ruler when transferring rents (through territorial concessions) of total value $c$ in any single time period. The RHS payoff captures the deviation payoff, given that the challenger sticks to the equilibrium strategy of coopting clients to remain in power.

On the other hand, the predatory strategy is an equilibrium strategy if:

$$\varphi r + \varphi\delta^2 r + \ldots > (r - c) + \delta\varphi r + \ldots \Leftrightarrow c \geq \frac{1 + \delta - \varphi}{1 + \delta} r = c^{predate} \tag{8}$$

where the LHS of the first inequality captures the deviation payoff. Comparing the "predation" condition with the "cooptation" condition, we can easily show that $c^{predate} < c^{coopt}$ meaning that for $c < c^{predate}$ the optimal strategy consists in coopting, and for $c > c^{coopt}$ the optimal strategy is the predatory one. For intermediate values of $c$ it is straightforward to show that the utility of the predator is higher to the one of the coopting ruler, thus implying that the threshold value of $c$ is given by $c^{predate}$.

The total cooptation cost should therefore not be too high for the king to coopt. Indeed, by condition (7) we know that the total cooptation cost should be lower than $c^{coopt}$, which is independent of the king's relative strength. Moreover, from Lemmas (3) and (4) we know that relatively more powerful kings face lower total cooptation costs, independently of the elites' selection mechanism. Hence, while relatively stronger kings are more likely to coopt, we still need to identify their optimal cooptation strategy. The ruler opts for the strategic cooptation of clients if $c^s < c^r$, which can equally be expressed as (see Appendix A.4):

$$1 > \left(1 + \sqrt{\frac{G + F}{2F}}\right)\delta \tag{9}$$

Some straightforward comparative statics on Condition (9), allow us to state the following proposition:

**Proposition 1** *When a leader rules as a "stationary bandit", he is more likely to selectively coopt clients, instead of randomly choosing the elites, when the subjects are strong and when the King's strength is low.*

While one would clearly expect weak rulers to despoil the kingdom of its wealth rather than establishing a long run social contract, Proposition (1) equally sheds light on the trade-off faced by relatively stronger kings. Powerful kings have the possibility to either afford a small clientele of expensive subjects when dispatching targeted gifts, or else to coopt a larger clientele of less exigent clients who are chosen randomly.

We have shown that when the incumbency advantage is stronger, the ruler requires less support from his subjects under both strategies, as highlighted in Lemmas (3) and (4). Under the random selection mechanism, however, we described the additional role of the incumbent's strength in securing cheap clients: by reducing the number of clients required to control the community, a stronger ruler decreases the odds that an insurgent may become a client under the new regime, and, therefore, the present elites are coopted at a more modest price. Even in the absence of this second mechanism, however, increasing the incumbent's strength would have a starker impact on the number of randomly coopted subjects (i.e. larger reduction of the recipients' pool) since under the random selection strategy the coopted individuals are on average weaker. It thus follows that combining the two mechanisms exacerbates the tendency pushing stronger rulers to randomly choose the elites. Regarding the subjects' aggregate strength, the same mechanisms apply and we therefore reach the same conclusions.

Understanding which clientelistic policy a ruler adopts is only relevant when the king is a "stationary bandit", i.e. if he coopts at equilibrium. The conditions making him willing to develop a clientelistic network are therefore essential. Proposition (1) points at the very intuitive effect of increasing the king's relative strength: the more secure a ruler's power, the more likely he struggles to remain in power. The players' time preferences are also essential, however, in understanding the king's optimal strategy. On the one hand one expects more patient rulers to prefer the cooptation strategy, which turns out to be the case in our setting. On the other hand, however, the effect of the discount rate on the optimal cooptation strategy is not straightforward. Rearranging Expression (9), we can obtain a threshold value of the discount factor,

$\delta^* = \left(1 + \sqrt{\pi^r}\right)^{-1}$, below which, provided the predatory strategy is dominated, the king always prefers selectively designating the elites rather than randomly coopting clients. From these observations stems our next proposition:

**Proposition 2** *The higher the discounted value of future outcomes, the more likely that a king establishes a long-run relationship with randomly coopted clients at equilibrium. For lower discount rates, the king is more likely to selectively choose the elites, unless the king's probability of successful theft is sufficiently large and the king becomes a "roving bandit".*

Proposition (2) states that there exists a unique discount rate $\delta^* = (1 + \sqrt{\pi^r})^{-1} \in [0, 1]$ below which the ruler selectively assigns gifts, and above which the random selection strategy is followed. Indeed, when $\delta = 0$ the randomly chosen elites are as demanding as the selectively picked clients since the prospect of being a client if a revolution succeeds is irrelevant in the decision-making process (see equation (5)). Given that randomly selecting clients necessarily implies more subjects being bribed at equilibrium than if the stronger elements of the community had been selectively coopted, it follows that when $\delta = 0$ the selective selection strategy always dominates the random selection strategy. At the other extreme, when $\delta = 1$, the randomly coopted subjects are not willing to jeopardize the comfortable position of belonging to the body of elites, for the uncertain alternative of toppling the king and running the risk of receiving no rents at subsequent time periods. The subjects are therefore willing to compromise with extremely modest gifts since all future periods grant them the same discounted utility. Since the value of the gift is nil at the limit, the random selection mechanism is necessarily more attractive, even though the number of subjects to buy-off is larger. Continuously increasing the value of $\delta$ from 0 to 1, the individual cooptation cost under the random selection mechanism is continuously decreasing as well, hence the proposition's result. Our finding reflects the standard game theoretic result that as the discounted value of future outcomes becomes more important, the agents become more cooperative. Indeed, the randomly coopted subjects become more cooperative when $\delta$ increases, and this translates in a willingness to compromise for lower compensations.

# 4 Concluding remarks

In this paper we investigate the endogenous incorporation of subjects in the body of elites when a rent maximizing autocrat allocates gifts to remain in power. While a weak and/or impatient ruler is likely to behave as a "roving bandit", two alternative strategies may be implemented by a king who chooses to be a "stationary bandit". The ruler can choose his clients for their personal characteristics, i.e. their power attributes. Selectively chosen elites anticipate that in the event of a revolution, their privileged position is not jeopardized since it will be in the successor king's interest to integrate them in the clientele as well. Thus, all clients can credibly threaten the king to join the opposition, and this eventually means the clients' individual cooptation price is important. As a consequence, under the selective cooptation strategy the ruler seeks to minimize the number of clients and he therefore integrates only the society's strongest elements in the elites. Under the alternative random cooptation strategy, the king deliberately coopts subjects in a more stochastic manner. The clients anticipate that, under this strategy, the risk of exclusion from the body of elites in case of a revolution is significantly increased, and are thus more inclined to compromise. This reduced individual cooptation cost comes at a price, however, since by randomly allocating favours the king does not integrate in the elites all the society's strongest elements. In fact some strong subjects may not be included in the clientele, while some weak subjects are granted a privileged treatment. As a consequence, for a revolution to be averted, the overall size of the clientele needs to be larger.

Two main results are derived from our model. In the first place, we ascertained that when the king is weak relative to his subjects, he selectively bribes the society's strongest individuals, while a relatively strong ruler diversifies the composition of his clientele. A weak ruler prefers to share with few individuals the society's rents, rather than to scatter the privileges among a large number of clients, and thus forgo a greater part of the wealth. On the other hand, a strong ruler requires little support, and therefore prefers to randomly coopt (few) clients among a large pool of subjects so as to ensure a very low individual cooptation price.

The second central finding of this work regards the effect of the discount factor upon the king's equilibrium strategy. We show that if the discounted value of future outcomes is high, it is more likely that a king establishes a long-run relationship with randomly coopted clients at equilibrium. For low discount rates, the king will either selectively choose his clients, or else will be a roving bandit if the likelihood of his not being caught while depriving his subjects of their wealth is sufficiently high. This result hinges on the mechanism underlying the random cooptation strategy: for higher values of $\delta$ the prospects of not being included in the future elites in case of a revolution are more detrimental upon a client's utility. As for the selectively coopted clients, their present actions do not impact upon their future payoff, hence their actions are independent of the discount factor.

Equipped with our model and the results we just presented, we can better interpret the anecdotal evidence on Russia exposed earlier. We do not aim at providing a thorough explanation of the various policies followed by the Russian leaders since the internal organization of Russian elites is too complex to be captured with this simple model[15].

Czar Nicholas II was indeed in constant need of internal support to secure his ruling position, especially so in the aftermath of the humiliating defeat of the Imperial forces in the war against Japan in 1905. For their part, the Bolsheviks, after seizing power thanks to the successful 1917 revolutions, faced a very strong internal opposition. Some forty years later, when in 1964 Brezhnev took over power the de-Stalinization and liberalization policies of the Khrushchev era had spawned new forces in the Soviet Union. The number of elites got significantly reduced and key positions were only accessible to the most influential members of the Communist Party. The effects on the Russian economy were fatal, and by the time of Brezhnev's death in 1982 the whole system was literally crumbling. In the 1980s dissent in the U.S.S.R. reached unprecedented levels. The successive pre and post-communist regimes therefore granted increasingly important positions and privileges to rising opponents.

In contrast with the practice of privileging one's most dangerous potential adversaries, both Stalin and Khrushchev purposefully allowed citizens of lower social rank, and with less political influence, to penetrate the previously hermetic circle of elites. Stalin managed to create an environment of Fear and to personally control the military, thus directly influencing the power balance between the regime and potential internal opponents. Khrushchev inherited a weak and obedient society and was therefore able to implement the reforms mentioned earlier while perpetuating Stalin's policy of not exclusively rewarding the society's most powerful elements.

# A Appendix

## A.1 Proof of Lemma 1

In $t = 1$, either a revolution occurred in the previous time period, hence $\mathbf{R^1} = \mathbf{R^0}$, or else no revolution occurred and $\mathbf{R^1} = \mathbf{R'^0}$. Define $\mathbf{R^{0'}} = \mathbf{R^{coopt}}$. We want to show that $\mathbf{R^{coopt}}$ is uniquely defined. Assume

[15] see Kryshtanovskaya and White (1996) for a detailed description of the Russian elite's organization.

not. Then there exists some strategy that we denote by tilde such that $\tilde{\mathbf{R}}^{\tau} \neq \tilde{\mathbf{R}}^{\tau+1}$ for some $\tau > 0$. If $u_k^{\tau}(\tilde{R}^{\tau}) > u_k^{\tau}(\tilde{R}^{\tau+1})$, this strategy cannot be an equilibrium one since it is dominated by a strategy such that : $\hat{\mathbf{R}}^{\mathbf{t}} = \tilde{\mathbf{R}}^{\mathbf{t}}$, $\forall t \neq \tau + 1$, and $\hat{\mathbf{R}}^{\tau+1} = \tilde{\mathbf{R}}^{\tau}$. Indeed, denoting by $z^t$ the number of property rights that are modified in period $t$, we have that the strategy tilde is dominated by the alternative strategy if:

$$\delta\left(u_k^{\tau}(\hat{R}^{\tau+1}) + \hat{z}^{\tau+1}\epsilon\right) > \tilde{z}^{\tau}\epsilon + \delta u_k^{\tau}(\tilde{R}^{\tau+1})$$

Taking the limit of this expression when $\epsilon$ tends to zero, we obtain: $u_k^{\tau}(\hat{R}^{\tau+1}) > u_k^{\tau}(\tilde{R}^{\tau+1})$, which has been assumed so.

Similarly, if $u_k^{\tau}(\tilde{R}^{\tau}) < u_k^{\tau}(\tilde{R}^{\tau+1})$, we can replicate the tilde strategy with the difference that $\hat{\mathbf{R}}^{\tau} = \tilde{\mathbf{R}}^{\tau+\mathbf{1}}$, and show this alternative strategy yields a higher payoff. Thus, at equilibrium the property rights vector needs to be the same at any two consecutive periods, and, therefore, $R^{coopt}$ is uniquely defined.

## A.2 Proof of Lemma 2

Lemma 2 is the consequence of two facts: (*i*) if $f_{ij} > f_{lj}$, then we must have that $x_{ij} \geq x_{lj}$, and (*ii*) if it is optimal to reduce the likelihood of a specific subject being coopted as compared to the random cooptation strategy, then it is optimal to assign him a zero likelihood of being coopted.

Denote by $\pi_{ij}$ the likelihood agent $ij$ is coopted. The first part of the proof is straightforward. Assume the opposite. Then it means that $p_{ij} < p_{lj}$. Invert the probabilities of coopting both agents, so that their payoffs are inverted as well and the total cooptation cost remains unchanged. It follows that the net gain in *support* for the ruler equals $2(f_{ij} - f_{kj})$, with the difference being counted twice because whatever is lost to the opposition amounts to a gain for the leader. This creates scope for reducing the number of subjects, and this operation is therefore always implemented.

The second part of the proof is a consequence of the linearity property of the payoff functions in the cooptation strategies. Indeed, any payoff in $[x^r, x^s]$ can be replicated by a linear combination of these payoffs. Denote by $\alpha_{ij}$ and $1 - \alpha_{ij}$, respectively, the probability that subject $ij$ is selectively and randomly coopted. By linearity we have that:

$$x_{ij} = \alpha_{ij}x^s + (1 - \alpha_{ij})x^r$$

Equivalently, the linearity property implies that if $x_{lj} < x^r$, $kj$'s payoff can be written as a linear combination of the random cooptation and of no cooptation at all. Hence, denoting the respective weights by $\beta_{lj}$ and $1 - \beta_{lj}$ we obtain:

$$x_{lj} = \beta_{lj}x^r$$

Assume that it is optimal to have $x'_{lj} < x^r$ as compared to $x_{lj} = x^r$. This implies that $\beta'_{lj} < 1$, and that the likelihood of another agent being selectively coopted - subject $ij$ - increases. From (*i*), it follows that $x'_{ij} > x_{ij} \geq x_r$, and that $\alpha'_{ij} > \alpha_{ij}$. The cost of this operation to the ruler equals: $(\alpha'_{ij} - \alpha_{ij})x^s - (\alpha'_{ij} - \alpha_{ij})x^r = \Delta\alpha(x^s - x^r)$. The benefit of this operation is given by: $(1 - \beta'_{lj})x^r = -\Delta\beta x^r$. Since this operation is profitable, $-\Delta\beta x^r > \Delta\alpha(x^s - x^r)$. Given, however, that the conflict probability is linear in the participants' strength, a decrease in $lj$ strength of $\Delta\beta$ will always be exactly compensated by an increase in $ij$'s strength of $\Delta\alpha$. Hence, it is optimal to set $\beta_{lj} = 0$.

## A.3 Optimal number of clients under selective co-optation

Since the co-opted subjects are the community's strongest individuals, the weaker subject to be co-opted, subject $\lambda$, is such that:

$$G + S = D \Leftrightarrow G + F = 2D \Leftrightarrow \frac{G+F}{2} = \sum_{j=1}^{n/k} \sum_{i \leq \lambda} f_{ij} \tag{10}$$

And this expression can be written as:

$$\frac{G+F}{2} = \frac{f_\lambda}{2} \lambda \frac{n}{k} \tag{11}$$

Since $f_\lambda = \lambda \bar{f}/k$, we deduce that the strength of any subject of type $\lambda$ is given by:

$$G + F = \frac{\lambda^2}{k^2} \bar{f} n \Leftrightarrow \lambda = \sqrt{\frac{G+F}{n\bar{f}}} k \tag{12}$$

We can therefore compute the total number of subjects to coopt, $n^s$:

$$n^s = \frac{n}{k}(k - \lambda) = n \left( 1 - \sqrt{\frac{G+F}{n\bar{f}}} \right) \tag{13}$$

## A.4 Comparison of $c^s$ and $c^r$

Using expressions (3) and (6), $c^r > c^s$ if:

$$\left( 1 - \sqrt{\frac{G+F}{n\bar{f}}} \right) r < \frac{(1-\delta)\left(1-\pi_\lambda^r\right)}{1-\left(1-\pi_\lambda^r\right)\delta} r$$

$$\Leftrightarrow 1 - \sqrt{\pi^r} > (1 - \pi^r)\delta$$

$$\Leftrightarrow 1 > \left( 1 + \sqrt{\frac{G+F}{2F}} \right) \delta$$

I thank Dirk Van de Gaer, Jean-Philippe Platteau, Frédéric Gaspart, Jean-Marie Baland, Filippo Gregorini, Joan Esteban, Fabrice Valognes and Indraneel Dasgupta for their valuable comments and express my gratitude to participants in various conferences in which the paper was presented.

# References

Acemoglu, Daron, Georgy Egorov, and Konstantin Sonin, 2008, Coalition formation in non-democracies, *Review of Economic Studies* 75, 987–1009.

Acemoglu, Daron, Simon Johnson, and James Robinson, 2001, The colonial origins of comparative development: An empirical investigation, *American Economic Review* 91 (5), 1369–1401.

Acemoglu, Daron, and James Robinson, 2000, Why did the west extend the franchise? democracy, inequality, and growth in historical perspective, *The Quarterly Journal of Economics* 115 (4), 1167–1199.

——— , and Thierry Verdier, 2004, Kleptocracy and divide-and-rule: A model of personal rule, *Journal of the European Economic Association Papers and Proceedings* 2, 162–192.

Azam, Jean-Paul, 1995, How to pay for the peace? a theoretical framework with references to african countries, *Public Choice* 83, 173–184.

Bar-El, Ronen, 2009, Dictators, development, and the virtue of political instability, *Public Choice* 138, 29–44.

Belova, Eugenia, and Paul Gregory, 2009, Political economy of crime and punishment under stalin, *Public Choice* 140, 463–478.

Bertocchi, Graziella, and Michael Spagat, 2001, The politics of co-optation, *Journal of Comparative Economics* 29 (4), 591–607.

Blau, Peter M., 1964, *Exchange and Power in Social Life* (John Wiley and Sons).

Bueno De Mesquita, B., J.D. Morrow, R.M. Siverson, and A. Smith, 2002, Political institutions, policy choice and the survival of leaders, *British Journal of Political Science* 32, 559–590.

——— , 2003, *The Logic of Political Survival* (The MIT Press: Cambridge, Massachussetts).

Cervellati, Matteo, Piergiuseppe Fortunato, and Uwe Sunde, 2008, Hobbes to rousseau: Inequality, institutions, and development, *Economic Journal* 18, 1354–1384.

Cohen, Stephen, 1979, The friends and foes of change: Reformism and conservatism in the soviet union, *Slavic Review* 38 (2), 187–202.

Egorov, Georgy, and Konstantin Sonin, 2006, Dictators and their viziers: Endogenizing the loyalty-competence trade-off, *Available at SSRN: http://ssrn.com/abstract=630503*.

Ekeh, Peter, 2004, *Individuals' Basic Needs & the Limits of Democratization in Africa* (chapter 2, pages 22-37, in *Ethnicity & Democracy in Africa*, B. Berman, D. Eyoh and W. Kymlicka eds, Oxford: James Currey and Athens: Ohio University Press).

Fudenberg, Drew, and Jean Tirole, 1991, *Game Theory* (MIT Press: Cambridge, Massachusetts).

Grossman, Herschel, 1999, Kleptocracy and revolutions, *Oxford Economic Papers* 51 (2), 267 – 283.

Hanley, Erik, Natasha Yershova, and Richard Anderson, 1995, Russia - old wine in new bottle? the circulation and reproduction of russian elites, 1983-1993, *Theory and Society* 24, 639–668.

Homans, George C., 1961, *Social Behavior: Its Elementary Forms* (Harcourt, Brace & World: New York).

Jackson, Robert H., and Carl G. Rosberg, 1984, Personal rule: Theory and practice in africa, *Comparative Politics* 16 (4), 421–442.

Kirstein, Roland, and Stefan Voigt, 2006, The violent and the weak. when dictators care about social contracts, *The American Journal of Economics and Sociology* 65 (4), 863–889.

Konrad, Kai, and Wolfgang Leininger, 2007, Self-enforcing norms and the efficient non-cooperative organization of clans, CEPR Discussion Paper No. DP6333.

Kryshtanovskaya, Olga, and Stephen White, 1996, From soviet nomenklatura to russian elite from soviet nomenklatura to russian élite, *Europe-Asia Studies* 48 (5), 711–733.

Lazarev, Valery, 2003, Promotion contracts and support for the soviet regime, .

North, Douglass, John Wallis, and Barry Weingast, 2009, *Violence and Social Orders: A Conceptual Framework for Interpreting Recorded Human History* (Cambridge University Press: New-York).

North, Douglass, and Barry Weingast, 1989, Constitutions and commitment: Evolution of institutions governing public choice, *Journal of Economic History* 49 (4), 803–32.

Olson, Mancur, 1993, Dictatorship, democracy, and development, *American Political Science Review* 87 (3), 567–76.

Padró-I-Miquel, Gerard, 2007, The control of politicians in divided societies: The politics of fear, *Review of Economic Studies* 74 (4), 1259–1274.

Platteau, Jean-Philippe, 1995, An indian model of aristocratic patronage, *Oxford Economic Papers* 47 (4), 636–662.

——— , and Petros Sekeris, 2007, On the feasibility of power and status ranking in traditional setups, CRED Working Paper 07/05.

Solzhenitsyn, Alexandr, 1973, *The Gulag Archipelago* (Harper and Row: New York).

Wintrobe, Ronald, 1998, *The Political Economy of Dictatorships* (Cambridge University Press: Cambridge).

——— , 2001, How to understand, and deal with dictatorship: an economist's view, *Economics of Goverance* 2, 35–58.