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The Political Economy of Patrons, Brokers, and Voters

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Abstract

Formal models of political clientelism tend to focus on vote buying, the exchange of cash and goods for votes on election day. However, other components of the phenomenon, such as patronage, the exchange of public jobs and contracts for political support, are more important in order to understand the pervasive consequences of clientelism. We develop a game-theoretic model of patronage, in which candidates must decide between broker-mediated electoral strategies versus grassroots campaigns. Our model shows that patronage is more likely when public offices are relatively more valuable for brokers, a condition that is typical of institutional configurations that foster corruption. Moreover, setups that constrain candidates from funding grassroots campaigns and weaken ties between politicians and citizens make broker-mediated campaigns more likely. We show that patronage negatively affects citizens' welfare, as winning brokers end up being appointed to public office, undermining the quality of civil servants and public goods provision.

1. Introduction

For a long time, political clientelism has been recognized as a pervasive problem that poses serious threats to public service delivery, income redistribution, political accountability, and economic growth, especially in developing countries and young democracies (Wantchekon, 2003; Gallego, 2015). It has been documented that clientelism tends to decline as countries develop (Cox, 1987; Mitgang, 2000; Lizzeri and Persico, 2001; Kitschelt and Wilkinson, 2007; Camp, Dixit, and Stokes, 2014), but the phenomenon may persist in different contexts, even in developed countries (Bardhan and Mookerjee, 2017*a*). Theoretical and empirical accounts show that clientelism can result in over-employment in the public sector and under-investment in activities that may increase productivity in the private sector (Robinson and Verdier, 2013), under-provision of public goods (Keefer and Vlaciu, 2008; Bardhan and Mookerjee, 2012; Sarkar, 2014; Khemani, 2015), and reluctance of incumbents to reduce the size of the informal sector (Bardhan and Mookerjee, 2017*b*).

However, clientelism—the exchange of private benefits for political support between a patron and a client—is a multifaceted phenomenon with different forms of expression (Gallego and Wantchekon, 2018). Recent studies have overwhelmingly focused on vote buying, the exchange of cash or other goods for votes around election day (Brusco, Nazareno, and Stokes, 2004; Finan and Schechter, 2012; Stokes, 2005; Stokes et al., 2013; Nichter, 2008), but the effectiveness and relevance of this form of clientelism is a subject of heated debate (Lindberg and Morrison, 2008; Bratton, 2008; Conroy-Krutz and Logan, 2012; Chauchard, 2016; Guardado and Wantchekon, 2018). In the light of the pervasive consequences that clientelism has on several political and economic dimensions in developing countries, it becomes important to understand patronage—the allocation of public resources such as jobs and contracts in exchange of political support. There exist few theoretical accounts of this phenomenon, but studies such as Robinson and Verdier (2013), already recognize that the political and economic effects of patronage may be large. Empirical accounts, such as Colonnelli, Teso, and Prem (2017), show that patronage may be linked to lower levels of quality of public servants.

Moreover, clientelism in general, and patronage in particular, are multi-actor phenomena in which politicians and voters are often linked through brokers and different types of intermediaries. Brokers play a crucial role, especially in more urban and developed contexts, in which face-to-face interactions between candidates and voters may be scarce and where monitoring is harder because the secrecy of the ballot is the norm and tacit agreements are harder to enforce. Despite some recent efforts to incorporate brokers into theoretical models (Stokes et al., 2013; Gingerich and Medina, 2013; Rueda, 2014; Camp, 2015; Larreguy, Marshall, and Querubin, 2016; Marcolongo, 2017), most of these accounts keep on focusing on the electoral component of the phenomenon. Some of these models underscore the relationship between politicians and brokers, while others study the connection between intermediaries and voters, usually exploring the information asymmetries that exist between these actors.

However, these studies have modeled brokers as mere cash machines that serve the purpose of transferring money or private goods from candidates to voters, and fail to show that usually these intermediaries are rewarded through access to public resources, such as government positions or public procurement contracts. Hence, broker-mediated theories of clientelism and models of patronage seem to be disconnected. We claim that it is crucial to bring them together, in order to understand why patronage leads societies to public sectors filled with bureaucrats of lower quality (Colonnelli, Teso, and Prem, 2017), under provision of public goods (Khemani, 2015), and higher levels of corruption and prebendalism (van de Walle, 2007). Broker-mediated campaigns often result into governments that allocate public offices and procurement contracts to individual- or group-level intermediaries that are more efficient at delivering votes, but not necessarily to those that have the skills and merits required to occupy a public position. Consequently, under these circumstances, and in contexts of low institutional quality, prebendalism and corruption become the payment scheme used by those who invested in a campaign. As a result, public goods are delivered inefficiently or not delivered at all, perpetuating the cycle in which clientelism becomes more likely in poor and unequal societies.

In this paper, we develop a game-theoretic model of patronage-based electoral competition, in which brokers play a crucial role in linking politicians and citizens. The model considers that candidates to public office have to decide between two forms of conducting an electoral campaign: they can either rely on grassroots campaigns, in which agents (e.g. foot soldiers) are hired to increase the likelihood of winning the election and are payed a fixed amount of money in exchange of this effort; or they can base their campaign on patronage, whereby brokers are enlisted to act as intermediaries with agents, in a clear delegation of the contractual relationship, in exchange of appointment to a government position in the government in case of victory. The model shows that candidates' main tradeoff between both strategies rests on the fact that while brokers can perfectly monitor agents and consequently extract higher levels of effort from them, it is not necessarily the case that brokers and candidates' incentives to spend resources are completely aligned.

The model shows under what conditions candidates will prefer to use a patronage-based political campaign, as opposed to a grassroots strategy. Four main results are driven from our theoretical analysis: First, when public offices are more valuable, candidates face higher incentives to hire brokers. This result is important, as it reveals that institutions and state capacity matter, and that in contexts in which corruption and prebendalism are more likely, employment in the public sector may be relatively more attractive and brokers will face higher incentives to act in favor of politicians. This result helps us understand the stark connection that exists between clientelism and corruption in developing countries. Second, whenever candidates are highly budget-constrained, in the sense that they have relatively fewer resources to run their campaign, incentives to hire brokers are higher. This result establishes a direct connection between electoral rules on campaign financing and clientelism. In particular, it suggests that pieces of legislation aimed at limiting campaign expenses may have the unintended effect of increasing patronage incentives. It also suggests that the proliferation of crowdfunding strategies may reduce the incentives to hire brokers during a campaign.

Third, the model predicts that the lower the connection between candidates and voters, the higher the incentives to hire brokers and base campaigns on clientelism. This result is quite intuitive: in contexts in which it is harder for candidates to monitor the behavior of agents, perhaps as a consequence of urbanization or electoral rules such as the secrecy of the ballot, intermediaries become more important and decisive. Finally, our fourth result concerns the relationship between patronage, the quality of public servants, and citizens' welfare. Our model shows that if voters are forward-looking and care about the skills and abilities of bureaucrats, higher discrepancies between brokers and merit-based public servants will reduce the incentives to use intermediaries. However, the level of importance that voters assign to this dimension of governance is an endogenous variable, as it might be affected by structural conditions such as income, education, or political engagement, or by political actions such as vote buying. Hence, all else equal, in places where voters are less engaged and care less about the quality of bureaucrats, huge differences in skills and abilities between brokers and merit-based public servants will not be enough to deter candidates from relying on patronage-based campaigns.

The paper is composed of six sections, including this introduction. Section 2 relates our argument to the existing literature, emphasizing how it improves our knowledge of the role of brokers and the effects that patronage has on economic and political outcomes. In section 3 we lay down a theoretical model of patronage, by defining the strategies and payoffs of candidates, brokers, and voters. In section 4 we present the main results of the model, establishing the conditions under which it is more likely that candidates rely on patronage instead of using grassroots campaigns. Section 5 describes the welfare implications of patronage, establishing the connection between broker-mediated campaigns and the quality of public servants. We conclude in section 6 of the paper.

2. Relationship to the Literature

Early models of political clientelism have approached this phenomenon in extremely various ways. Some theories seek to explain why the relationship between politicians and voters is stable and why it can be sustained in equilibrium, despite it being informal and impossible to enforce through formal contracts or other legal mechanisms (Stokes, 2005; Gallego, 2015). One feature of these theories is that the prevalence of clientelism is explained in terms of structural factors, such as political polarization, party identification, monitoring capabilities of machines, marginal utility of income, among other psychological, political, and economic traits. In addition, these models, inspired by related theories of special interest groups (Cox and McCubbins, 1986; Lindbeck and Weibull, 1987; Dixit and Londregan, 1986), try to solve the puzzle concerning the target audience of clientelist practices, balancing between core or swing voters.

In line with this question, other frameworks try to understand what type of transaction prevails, in terms of the form of behavior that clientelist candidates seek to encourage: vote buying or turnout buying (Nichter, 2008; Gans-Morse, Mazzuca, and Nichter, 2014). In the end, whether machines buy vote choices or turnout has implications on the type of voters—weak opposers or strong supporters—that end up being bought. Additionally, the importance and the role of intermediaries may be different in one case or the other. While these models mainly focus on the problem of enforceability of *electoral clientelism*, other theories seek to understand more structural aspects of the phenomenon and some of its negative consequences, from a policy perspective (Robinson and Verdier, 2013; Bardhan and Mookerjee, 2012; Sarkar, 2014).

A common trait of existing models is that they understand clientelism as a *dyadic* relationship between a patron and client (Lande, 1977; Stokes, 2002). Consequently, the aforementioned studies leave brokers aside and assume that there exist direct connections between candidates and voters. In recent years, both theoretical and empirical articles have started to study in greater detail the role played by intermediaries and brokers, disentangling the structure of clientelist networks, Keefer and Vlaciu (2008) and Baland and Robinson (2007) being interesting early accounts. It may be the case that in agrarian and less industrialized societies, thinking in terms of dyads is reasonable, as face-to-face interactions between patrons and clients are frequent in such contexts. However in modern cities, after the consolidation of processes of industrialization, urbanization, and population growth, direct connections between candidates and citizens are definitely not common practice in politics.[1] Hence, in the context of contemporaneous developing countries and young democracies, in which important fractions of votes are obtained in urban settlements, thinking of clientelism without taking into account the role of brokers is, at best, misguided.

Early empirical accounts, like Brusco, Nazareno, and Stokes (2004), Chandra (2007), and Calvo and Murillo (2004), have documented, in a descriptive way, the role that brokers play and how they tend to condition the allocation of private goods to observable characteristics of voters. It is clear from these studies that brokers reduce the information asymmetries that exist between parties and citizens, as their ability to infer voting behavior is much higher given their capacity to establish a more direct connection with their constituency. Another span of the literature focuses on an equally important relationship, i.e. the connection between parties and their (potential) intermediaries. Exploring this connection, and in the context of Mexican elections, Larreguy (2013) shoes how the *Partido Revolucionario Institucional*—PRI—uses aggregate electoral results data to monitor brokers, suggesting that intermediaries are easier to discipline in comparison to voters. Similarly, Larreguy, Montiel, and Querubin (2017) underscore the role that partisan attachment plays in disciplining brokers. The authors show that monetary rewards or sanctions (positive and negative incentives) may not be enough to encourage brokers to comply with parties, and that, conversely, political alignment, under certain circumstances, may be sufficient.

[1] Although the issue of whether brokers are more important in agrarian versus industrial societies, or urban versus countryside settings, remain as open questions. For an interesting discussion, see Gingerich and Medina (2013).

Brokers have been found to be crucial not only in Latin America. In the context of Subsaharan Africa, these actors are of particular transcendency as it has become more accepted that there are other mobilization strategies available for political leaders besides ethnic appeal (Gallego and Wantchekon, 2018). In diverse settings, like Benin, Senegal, Mali, Guinea, Kenya, and Botswana, albeit at varying levels (Koter, 2016), it has been documented that traditional and religious leaders act as intermediaries and play a crucial role in mobilizing voters from different ethnic groups. Evidence from 180 regions in eighteen African countries reveals that African political leaders may prefer to concede power over the allocation of land to community leaders, in exchange of support from non-coethnics (Baldwin, 2014). Similarly, empirical evidence from Zambia shows that when voters anticipate that supporting certain candidates will improve the provision of public goods for their communities, they will have incentives to follow intermediaries and support their candidates (Baldwin, 2013). In a similar vein, Kadt and Larreguy (2018) find that alignment between traditional chiefs and the incumbent African National Congress, in the former Bantustans of South Africa, increased electoral support for that party. In sum, all these empirical studies reveal that brokers matter as they are capable of mobilizing important groups of voters, solving in some way the enforceability problem of clientelism that intrigued early scholars.

Theoretical accounts of broker-mediated relationships have not advanced at the same pace, and yet, some important puzzles remain unsolved. In a canonical model, Stokes et al. (2013) analyze the relationship between brokers and parties around election day, and in their account, the relevant informational problem is adverse selection: political alignment between intermediaries and candidates is taken for granted, and consequently the party's problem is to select the best available broker. However, in their model, it is unclear in which way machines reward brokers for their intermediation with voters, and consequently, the pervasive effects of broker-mediated politics are not taken into account. In a related model, Camp (2015) focuses on the collective action problem inherent to the relationship between parties and brokers. The model shows that intermediaries can only cultivate small groups of voters, and as a consequence their individual efforts only marginally affect the probability of victory of their candidates. Then, the challenge for parties is to solve the collective action problem of motivating enough brokers to mobilize voters. They solve it by offering brokers private rewards, in exchange of blocks of votes. But these incentives can backfire against parties, because more successful brokers—i.e. those with more followers—will have more bargaining power and may threaten the machine to take their votes elsewhere.

Larreguy, Marshall, and Querubin (2016), study voter mobilization through hired brokers, emphasizing instead the moral hazard problem faced by politicians when relating with intermediaries. Brokers have incentives to shirk, and in their theory, parties obtain higher benefits from this relationship when monitoring capabilities are higher and when intermediaries are able to mobilize citizens that otherwise would not vote. Other authors have focused instead on the relationship between brokers and voters. Rueda (2014) shows that brokers make voters comply by conditioning future bribes on candidates achieving an optimal threshold of votes. In Gingerich and Medina (2013) discipline is achieved through the promise of a fixed benefit to a group of individuals sharing a common trait, being contingent on the candidate being elected. Albeit insightful, all these models fail to trace the connection between broker-mediated campaigns and the quality of civil service, a crucial element in order to understand the pervasive consequences of patronage. We aim to fill this gap with our model.

Part of the problem, as it is clear from this account, is that recent theoretical and empirical studies have focused almost exclusively on the role of brokers in the context of electoral clientelism—i.e. vote buying—while ignoring or taking for granted their connection to patronage and its consequences on economic development. In other words, intermediaries have been studied in relation to their capacity to increase the probability of victory of candidates around election day, as they solve informational problems and the enforceability puzzle, while ignoring that after the elections they usually become civil servants, thus affecting the provision of public goods, and ultimately, citizens' welfare.

One final strand of the literature on clientelist brokers studies the connection between illegal armed groups and political parties. Armed clientelism (Gallego, 2017) is a particular form of patronage in which violent organizations, such as cartels, mafias, guerrilla groups, paramilitaries, etc., act as brokers between candidates and voters. This particular form of clientelism has been reported in diverse settings, such as U.S. cities in the late 19th century and the first half of the 20th (Gosnell, 1937) or even today,[2] favelas of Rio de Janeiro in Brazil (Hidalgo and Lessing, 2015), districts in Jamaica (Haid, 2010), or Colombian municipalities (Acemoglu, Robinson, and Santos, 2013; Gallego, 2018). The main feature of armed clientelism is that when illegal organizations control entire regions of a country, they can mobilize votes in favor of candidates in exchange of favorable legislation, lower levels of prosecution, or more economic opportunities on legal and illegal markets. With our model,

[2]See, for instance: http://www.chicagomag.com/Chicago-Magazine/January-2012/Gangs-and-Politicians-An-Unholy-Alliance/

we extend the study of the effects of brokers on economic and political outcomes, to cases in which intermediaries are legal agents.

3. The Model

In this section, we describe the basic setup in which we develop our model of patronage. Consider two candidates $i \in \{1, 2\}$ who compete in an election. A candidate's campaign requires effort by an agent (e.g., footsoldiers). The election outcome depends on the amount of campaign effort $x \in [0, 1]$ that the agent exerts. Let x_1 and x_2 be the campaign effort exerted by agents of candidate 1 and 2, respectively. Define $\rho(x_1, x_2)$ to be the probability that candidate 1 wins (thus $1 - \rho(x_1, x_2)$ is the probability that candidate 2 wins). Assume $\rho(x, y) = 1 - \rho(y, x)$, $\frac{\partial \rho}{\partial x_1} > 0$, $\frac{\partial \rho}{\partial x_2} < 0$, $\frac{\partial^2 \rho}{\partial x_1^2} \leq 0$, $\frac{\partial^2 \rho}{\partial x_2^2} \geq 0$. For example, the Tullock contest function, $\rho(x_1, x_2) \equiv \frac{x_1}{x_1 + x_2}$, satisfies these properties. In words, the probability of victory is increasing in the campaign and there is a decreasing marginal return to campaign effort. The objective of the candidate is to maximize the probability of winning the election.

Each candidate has a campaign fund $K > 0$. The candidate can use this campaign fund to pay the agent directly. Let us assume that a wage contract can be enforced, but that there exists imperfect monitoring by the candidate. The candidate does not observe the level of true effort x, but instead observes a noisy signal of this effort. Specifically, let $s \in \{h, l\}$ be a random variable, where $P(h|x) = x$ and $P(l|x) = 1 - x$. In other words, the probability of a high signal h is increasing in effort. The wage contract can be contingent on the signal. Let (w_h, w_l) denote a contract which specifies the wage conditional on signals h and l, respectively. Note that the budget constraint implies the restriction $\max\{w_h, w_l\} \leq K$. The agent incurs a private cost of effort, $c(x)$, which is increasing, strictly convex, with $c'(0) = 0$ and $\lim_{x \to 1} c'(x) = \infty$. Given contract (w_h, w_l), the agent maximizes the expected wage minus the cost of effort:

$$\max_x w_h x + w_l(1 - x) - c(x)$$

It should be clear from the agent's objective function that it is always optimal for the candidate to set $w_l = 0$ and $w_h = K$. Let x_K be the agent's effort under this optimal contract, that is, x_K satisfies the equation $K = c'(x_K)$.

Instead of directly contracting with the agent, the candidate can enlist a broker to act as an intermediary with the agent. If the candidate chooses to enlist the broker, then she fully delegates any contractual relationship with the agent to the broker. The broker has his own resources (with no exogenous budget constraint) and can monitor the agent's effort perfectly. In particular, the broker can design a contract that is a function of the agent's actual effort, $\pi : [0,1] \to \mathbb{R}_+$ where $\pi(x)$ specifies the wage payment the broker makes to the agent conditional on the effort x. Note that the broker can induce any effort level $\hat{x}$ by offering the contract: $\pi(\hat{x}) = c(\hat{x})$ and zero otherwise.

While a candidate can delegate the organization of his campaign to a broker, she cannot directly contract with the broker. More specifically, effort by the agent and resources spent by the broker are not contractable. This captures the idea that once the candidate decides to delegate, information becomes harder to verify. However, candidates can make the credible promise to appoint the broker to a position in the government upon victory. This promise would provide incentives for the broker to spend resources on the candidate's behalf because essentially this promise gives the broker "equity". We assume that the broker's value of the government position is T. Conditional on the candidate's delegation, the broker will offer a contract to the agent to maximize the probability of the candidate's victory scaled by T minus the cost of wage. It is straightforward to see that the optimal contract extracts all surplus from the agent. That is, in equilibrium, the broker pays the agent $c(x)$ for effort x. Therefore, we can rewrite the broker's objective function in terms of effort by the agent (for simplicity we show the objective function of candidate 1's broker):

$$\max_{x} \rho(x, x_2) \cdot T - c(x)$$

Note that we do not explicitly consider the possibility that the candidate uses K as part of the informal contract with the broker. This can be implicitly assumed to be part of the value of office: T.

The timeline of the game is summarized below:

1. The candidates decide simultaneously whether to work directly with the agent (i.e., grassroots campaign) or enlist a broker (i.e., patronage).

2. The broker(s) contract with the agent(s).

3. Agents exert their effort, subject to a contract with the candidate or the broker.

4. The election outcome is realized and the winner fulfills the promise to the broker, if applicable.

It is worth commenting on a final aspect of this basic setup. The function $\rho(\cdot, \cdot)$ can be endogenized as follows: Let there be a measure 1 of voters, who have ideal policy preferences ω on the interval $[-\frac{1}{2}, \frac{1}{2}]$. Let the end point $-\frac{1}{2}$ be the position of candidate 1 and the end point $\frac{1}{2}$ be the position of candidate 2. The preference of the voter depends on her ideal points and the campaign efforts of the two candidates. For simplicity, let the difference between the utilities for candidate 1 and 2 be the following function: $\triangle(x_1, x_2, \omega) = \phi(x_1, x_2) - \omega$. We assume that given efforts x_1 and x_2, voter ω votes for candidate 1 iff $\triangle(x_1, x_2, \omega) \geq 0$. We normalize $\phi(\cdot, \cdot)$ so that $\phi(x_1, x_2) = 0$ if $x_1 = x_2$ and $\phi(x_1, x_2) \in (-\frac{1}{2}, \frac{1}{2})$. Finally, assume there is uncertainty about the location of the median voter ω_m, which is equivalent to uncertainty about the distribution of ideal points. We will assume that the common prior of ω_m is the uniform distribution over the interval $[-\frac{1}{2}, \frac{1}{2}]$. Given this, for any x_1, x_2, the probability that candidate 1 wins is $Pr\left(\omega_m \leq \phi(x_1, x_2)\right) = \phi(x_1, x_2) + \frac{1}{2}$. It follows that $\rho(x_1, x_2) = \phi(x_1, x_2) + \frac{1}{2}$ and it inherits all the property of ϕ (e.g., monotonicity/concavity).

4. Analysis

The main tradeoff faced by the candidate can be described in the following terms. The broker can better monitor the agent, which means that the broker is more efficient at extracting effort from the agents. On the other hand, the incentive for the broker to spend resources is not necessarily aligned with that of the candidates. The candidate wants to maximize the probability of victory and therefore resources spent. The broker, however, balances the benefits of contributing resources (i.e., higher probability of victory and appointment) versus the costs of doing so. Thus, there could be situations where the broker underinvests, inducing less effort from the agent than what the candidate could have achieved by directly contracting with the agent.

Note that given the symmetry of the problem, whenever the candidates make the same decision (i.e., both choose to delegate to brokers or both do not), the probability of victory of each candidate is $\frac{1}{2}$. Therefore, to check whether the grassroots campaign (where both refrain from delegation) or patronage (both delegate) are part of an equilibrium, we need to examine the winning probabilities of the candidates when they make different decisions (i.e., when one of them deviates). Without loss of generality, we shall examine the equilibrium payoff of the subgame following candidate 1 delegating to the broker and candidate 2 working directly with the agent.

Recall that when a candidate deals with an agent directly, the optimal contract is to pay the agent the entire budget K whenever the signal h is realized, and 0 otherwise. Let x_K be the agent's effort under this contract (i.e., x_k satisfies $K = c'(x_K)$). Thus, the agent of candidate 2 will exert effort x_K in this subgame. Candidate 1's broker best responds to this by solving the following maximization problem:

$$\max_x \rho(x, x_K) \cdot T - c(x)$$

Given the concavity of ρ, there exists a solution to the maximization problem. Denote this solution as $BR(x_K)$. The candidates' probabilities of victory depend directly on the difference between $BR(x_K)$ and x_K. Specifically, if $BR(x_K) > x_K$, then it pays for candidate 1 to delegate to the broker when candidate 2 runs a grassroots campaign. If $BR(x_K) < x_K$, then candidate 1 is better off running a grassroots campaign instead of delegating to a broker.

Lemma 1. *If $BR(x_K) < x_K$, then both candidates run a grassroots campaign in equilibrium. If $BR(x_K) > x_K$, then both candidates delegate to brokers in equilibrium (i.e., patronage). A sufficient and necessary condition for $BR(x_K) < (>) x_K$ is*

$$T \cdot \frac{\partial \rho}{\partial x_1}(x_K, x_K) < (>) c'(x_K) \tag{1}$$

and moreover, the optimality condition for the agent's optimization is $c'(x_K) = K$.

Proof. Clearly if $y(x_K) < x_K$, then candidate 1 has less than $\frac{1}{2}$ probability of victory. She is better off not working with the broker. If $y(x_K) > x_K$, then candidate 1 has more than $\frac{1}{2}$ probability of victory, this means candidate 2 has less than $\frac{1}{2}$ probability of victory. Candidate 2 then has an incentive to deviate and enlist the broker. The equivalent condition is derived from the fact that $BR(x_K) \equiv x'$ is determined by the equality: $T \cdot \frac{\partial \rho}{\partial x_1}(x', x_K) = c'(x')$. Thus if $T \cdot \frac{\partial \rho}{\partial x_1}(x_K, x_K) < (>) c'(x_K)$, by concavity of ρ, it has to be that $x' < (>) x_K$. $\square$

Lemma 1 immediately implies the following result:

Proposition 1. *Both candidates delegate to their brokers when T is high, and both candidates run grassroots campaigns when T is low.*

Proof. LHS of the inequality $T \cdot \frac{\partial \rho}{\partial x_1}(x_K, x_K) < (>) K$ is strictly increasing in T. The result follows from Lemma 1. $\square$

Intuitively, greater T means greater incentive for the broker to contribute resources to the campaign (because a victory of his candidate is more valuable to the broker now). It follows that higher T makes the candidate more willing to enlist the broker. Remember that T is defined as the broker's value of the government position. Hence, in institutional settings in which brokers can extract additional rents from public positions, in such a way that the wage paid by the job is just another source of income, patronage becomes a more interesting strategy for intermediaries and candidates. This result helps us understand why, in developing countries, corruption and clientelism tend to go together and why judicial state capacity matters. Moreover, as it has been documented in recent studies (Bussell, 2018), brokers play an important role in corrupt acts.

To obtain more comparative statics, we need more structure on ρ (e.g., its cross partials). From now on: we will take ρ to be the **Tullock contest function:** $\rho(x_1, x_2) \equiv \frac{x_1}{x_1 + x_2}$.

Proposition 2. *Both candidates delegate to their brokers when K is low and both candidates run grassroots campaigns when K is high.*

Proof. Note that a under the Tullock function specification, we have $\frac{\partial \rho}{\partial x_1}(x_1, x_2) = \frac{x_2}{(x_1+x_2)^2}$ and therefore $\frac{\partial \rho}{\partial x_1}(y, y) = \frac{1}{4y}$ is decreasing in y. Note that x_K is increasing in K. It follows that the RHS of inequality (1) is increasing in K and the LHS of inequality (1) is decreasing in K. Result follows from Lemma 1. $\square$

Intuitively, if a candidate has more funds to spend on a grassroots campaign, he can extract more effort from the agents themselves. More effort in turn decreases the incentive of the broker from the other side to contribute resources to the campaign. This reduces the incentive of the opposing candidates to enlist the broker. This result can be interpreted in various interesting ways. First, it is clear that any legislation aimed to regulate the way in which campaigns raise and spend resources, such as public financing of political campaigns, may have deep implications in terms of patronage and clientelism. Highly budget-constrained candidates will rely more often on private intermediaries capable of alleviating these restrictions and, as it will become clear below, this will have implications in terms of the provision of public good. Second, as technological improvements enable candidates to rely more on new methods for money, e.g. crowdfunding campaigns, all else equal in equilibrium patronage should weaken and grassroots strategies should prevail.

Now, we will consider the effect of increasing monitoring on the part of the candidate, in equilibrium. To do this comparative statics, we consider the following generalized signal structure faced by the candidate with regard to the agent's effort. Let S_N denote the following signal structure: Under S_N, the signal is drawn from $\{s_0, s_2, \dots s_N\}$ according to the following distribution:

$$Pr(s_n|x) = \begin{cases} N \cdot (x - \frac{n-1}{N}) & \text{if } x \in [\frac{n-1}{N}, \frac{n}{N}] \\ 1 - N \cdot (x - \frac{n}{N}) & \text{if } x \in [\frac{n}{N}, \frac{n+1}{N}] \\ 0 & \text{otherwise} \end{cases}$$

Intuitively, the signal structure S_N corresponds to a partition of the interval $[0, 1]$ with N equal size intervals. If effort x falls within a given interval $[\frac{n-1}{N}, \frac{n}{N}]$, then the candidate will observe either signals s_{n-1} or s_n, the former with probability $1 - N \cdot (x - \frac{n-1}{N})$ and the latter with probability $N \cdot (x - \frac{n-1}{N})$. In other words, the signal structure identifies a range of effort but there is some noise about the effort within the range.

For a fixed N, let x_K^N be the maximal effort that a candidate can extract from the agent directly when her monitoring technology is S_N.

Lemma 2. *As $N \to \infty$, then $x_K^N \uparrow x_K^*$, where x_K^* satisfies $c(x_K^*) = K$.*

Proof. First, notice that for any S_N, $x_K^N \leq x_K^*$ since at most the agent obtains zero utility under effort x_K^*. Next, we argue that x_K^N is bounded from below by $\underline{x}^N = \max\left[\frac{n-1}{N} : \frac{n}{N} < x_K^*\right]$. In particular, consider the contract where candidate 1 pays the agent K if and only if $s_{\hat{n}}$, where $\hat{n} = \max\left[n : \frac{n}{N} < x_K^*\right]$, is observed. Since $s_{\hat{n}}$ can be observed if $x \geq \frac{\hat{n}-1}{N}$, and it is observed with probability 1 if effort is $x = \frac{\hat{n}}{N}$, the agent's utility under the optimal effort choice must satisfy

$$\max_{x \in [\frac{\hat{n}-1}{N}, \frac{\hat{n}}{N}]} Pr(s_{\hat{n}}|x)K - c(x) \geq K - c(\frac{\hat{n}}{N}) > 0$$

Thus, the proposed contract satisfies the IR constraint and under this proposed contract, the agent exerts an effort at least greater than $\frac{\hat{n}-1}{N}$. This means that the agent's effort under the optimal contract is also greater than $\underline{x}^N$. Now, it is straightforward to see that $\underline{x}^N \to x_K^*$ as $N \to \infty$, which drives the result that $x_K^N \uparrow x_K^*$. $\square$

Intuitively, as N increases, the candidate receives more accurate information about the agent's effort (i.e., better monitoring). This means that the candidate can design contracts that are more effective in extracting effort from the agent. As N converges to infinity, the candidate's monitoring of the agent's effort becomes perfectly accurate. Therefore, the effort that the candidate can extract from the agent directly converges to x_K^∞, which is the effort that the candidate can extract from the agent when she observes the effort perfectly.

Using Lemma 2, we can show that better monitoring increases the candidates incentives to run a grassroots campaign, in equilibrium.

Proposition 3. *If $T \cdot \frac{\partial \rho}{\partial x_1}(x_K^*, x_K^*) < c'(x_K^*)$, then there exists $\bar{N}$ such that for all $N \geq \bar{N}$, the equilibrium under the information structure S_N features a grassroots campaign. If $T \cdot \frac{\partial \rho}{\partial x_1}(x_K^*, x_K^*) > c'(x_K^*)$, then patronage results in equilibrium even under perfect monitoring by the candidate.*

The condition $T \cdot \frac{\partial \rho}{\partial x_1}(x_K^*, x_K^*) < c'(x_K^*)$ ensures that the candidates prefer to run grassroots campaigns when they have perfect monitoring. This result suggests that as societies evolve from agrarian to urban and industrialized setups, brokers salience increases because it becomes more difficult for politicians to engage directly with citizens. Monitoring is harder in urban settings and intermediaries play a more active role because of their ability to solve the agency problems that arise.

5. Welfare Implications

One of the inefficiencies of patronage is that the quality of governance is undermined when politicians appoint brokers over more qualified civil servants. Brokers who help with campaign effort in exchange for positions in the government are likely to exploit these positions for their own gain. This may result in greater corruption in the government, and this is a natural way to interpret the "prize" T associated with government office. In this section, we expand our model to take this scenario into account. Suppose that after the election, the winner makes appointments to various bureaucratic positions. We assume that bureaucrats control a budget B for public goods spending. They can be sincere, in which case they spend all the budget on public goods. Or they can be corrupt, in which case they attempt to consume the budget for personal utility, succeeding with certain probability. This probability depends on factors such as the degree of transparency and the strength of the judicial system.

If the winner of the election (incumbent) relied on brokers for campaigning, then he is bound to appoint the broker to the position. For simplicity, we assume that the broker is corrupt for sure. If the incumbent ran a grassroots campaign, then he can appoint someone who is sincere, say a civil servant selected through the merit system.[3] The probability that a corrupt bureaucrat successfully moves public funds for personal use is $1-\psi$. Presumably, the voter cares about the quality of governance. We incorporate this assumption based on the discussion about endogenizing $\rho(x_1, x_2)$ at the end of Section 3. Slightly abusing of the notation, let $\sigma_i \in \{1, \psi\}$ denote the type of campaign that candidate i chooses to run, where 1 stands for grassroots campaign and ψ stands for patronage. Let $\sigma_i \kappa B$ be the voter's (expected) utility derived from public goods if candidate i is elected, where $\kappa \geq 0$ reflects how much weight the voters attach to public goods. Defining $v(\sigma_1, \sigma_2) = (\sigma_1 - \sigma_2)\,\kappa B$, we assume that the difference in utility between electing candidate 1 and 2 for the voter with ideal point ω is

$$\triangle(x_1, x_2, \sigma_1, \sigma_2) = \phi(x_1, x_2) - \omega + v(\sigma_1, \sigma_2)$$

The probability that candidate 1 wins is then $\rho(x_1, x_2) = \Pr(\omega_m \leq \phi(x_1, x_2) + v(\sigma_1, \sigma_2))$ where ω_m is the ideal point of the median voter (recall that ω_m is distributed uniformly on $\left(-\frac{1}{2}, \frac{1}{2}\right)$). Note that because voters care about public goods, they are less inclined to vote for a candidate who uses a broker during the campaign, holding all else equal.

The setup in this Section allows us to make normative statements about the welfare consequences of patronage. In particular, candidates cannot gain an electoral edge over each other by relying on patronage. Doing so would only hurt the quality of governance.

Proposition 4. *The probability of each candidate winning is always $\frac{1}{2}$ in equilibrium. There are less public goods in expectation if one or both candidates choose patronage.*

Proof. As in the case of the benchmark setting, the game is symmetric and zero sum and therefore in equilibrium the candidates can ensure a $\frac{1}{2}$ probability of winning. Consequently,

[3]Results would hold qualitatively so long as a broker is more likely to be corrupt than a civil servant.

even if only one candidate chooses patronage in equilibrium, voters would receive less public goods in expectation. $\square$

We now consider how the candidates' strategic incentives change when voters have concerns about governance quality. Recall that x_K is the effort that a candidate obtains under a grassroots campaign, and $BR(x_K)$ is the optimal effort by candidate j's broker when candidate i's effort level is x_K. In other terms,

$$BR(x_K) = \text{argmax}_x T \cdot \rho(x, x_K) - c(x).$$

Lemma 3. *If $\phi\left(BR(x_K), x_K\right) > (1-\psi)\kappa B$, then both candidates choose patronage in equilibrium. If $\phi\left(BR(x_K), x_K\right) < (1-\psi)\kappa B$, then both candidates choose grassroots campaigns in equilibrium.*

Proof. WLOG, suppose that candidate 2 chooses a grassroots campaign. Patronage is the unique equilibrium if candidate 1 wins with probability more than $\frac{1}{2}$ by relying on brokers, assuming that candidate 2 chooses a grassroots campaign. This is the case if $\phi\left(BR(x_K), x_K\right) + v(\psi, 1) > 0$, given that ω_m is distributed uniformly on $(-\frac{1}{2}, \frac{1}{2})$. On the other hand, grassroots campaign is the unique equilibrium if candidate 1 wins with probability less than $\frac{1}{2}$ by relying on brokers, assuming candidate 2 chooses a grassroots campaign. This is the case if $\phi\left(BR(x_K), x_K\right) + v(\psi, 1) < 0$. $\square$

Lemma 3 captures the trade-off that candidates face when choosing whether to rely on brokers. On the one hand, delegating to a broker may improve the campaign effort. On the other hand, hiring brokers is detrimental to governance, and thus forward-looking voters are less willing to elect candidate j, holding all else equal. This trade-off is binding in the case of $BR(x_K) > x_K$, since if $BR(x_K) < x_K$, then the candidates cannot gain effort by relying on brokers and therefore both candidates choose a grassroots campaign in equilibrium.

The first observation is that higher values of κ make the voter less willing to vote for candidates who hire brokers. This follows from the fact that the parameter κ does not influence the broker's incentive for effort, and therefore a large value of κ implies that the voter will be very sensitive to the quality of governance and therefore punish candidates for choosing patronage.

Proposition 5. *There exists a threshold $r < \frac{1}{2B(1-\psi)}$ such that for $\kappa \geq r$, both candidates choose grassroots campaign in equilibrium.*

Proof. Recall that the range of the function $\phi(x_1, x_2)$ is $(-\frac{1}{2}, \frac{1}{2})$. Note that $(1-\psi)\kappa B$ is increasing in κ, with $(1-\psi)\kappa B = 0$ for $\kappa 0$ and $(1-\psi)\kappa B = \frac{1}{2}$ for $\kappa = \frac{1}{2B(1-\Psi)}$. Therefore, by the intermediate value theorem, there exists r such that $(1-\psi)\kappa B = \phi\left(BR(x_K), x_K\right)$ for $\kappa = r$. It follows from Lemma 3, that for $\kappa > r$, both candidates choose a grassroots campaign in equilibrium. □

The effects of the budget size B and of government transparency (ψ) on the candidates campaign strategy are not obvious. An increase in B increases the "prize" for the broker, and therefore induces greater spending from the brokers (note that $BR(x_K)$ depends implicitly on B and ψ). However, voters would be more concerned with the bureaucrat's type given the size of the budget they control. Given the utility function, for sufficiently large B, the second effect dominates, and therefore both candidates choose grassroots campaign. The ambiguity, however, remains for moderate values of B. Similar arguments apply for the comparative statics of equilibrium with respect to ψ.

6. Conclusions

For a long time, formal theories of political clientelism understood this phenomenon as a dyadic relationship between patrons and voters, leaving brokers aside of the story. However, recent theoretical and empirical accounts have underscored the important role that intermediaries play. In these studies, brokers tend to be understood as mere cash machines that transfer money from candidates to voters and that are necessary in as much they resolve informational problems and the enforceability dilemma. Brokers understand better citizens' needs and have higher monitoring capabilities and the possibility of learning how citizens vote. However, these stories fail to link brokers to patronage—the allocation of government resources, such as public employment, in exchange for political support. We claim that it is crucial to unify both frameworks in order to understand some of the most salient consequences of clientelism. Brokers are often appointed to public office once the election is over and their candidate wins, something that has deep implications in terms of the quality of bureaucrats, public goods provision, and consequently, citizens' welfare.

In this paper we have developed a model of electoral competition that integrates elements of patronage and broker-mediated campaigns. In our setup, candidates have the possibility of running grassroots campaigns, whereby agents (footsoldiers) are hired to exert certain levels of effort to increase the odds of winning the election; or they can base their campaigns on patronage, whereby they delegate the function of hiring and monitoring agents to brokers, which conduct this task in exchange for the appointment to a public sector job upon victory. Our model shows under what conditions patronage prevails over grassroots campaigning. When public offices are highly valuable, something typical in institutional settings where corruption and prebendalism abound, patronage is the preferred strategy of candidates. This result is important, as it links two related phenomena in developing countries: clientelism and corruption.

Our theory also connects the prevalence of patronage to electoral institutions, and in particular, to rules affecting directly campaign financing. When candidates do not have enough resources to run a grassroots campaign, in the sense that may be restricted to hire agents and to align their incentives through generous contracts, alliances with intermediaries capable of compensating these restrictions become more attractive. Hence, formal institutions that curtail resources available for running clean campaigns may be really harmful. Finally, our model also provides an explanation for the evident connection between monitoring capabilities of candidates and patronage. As societies become more urban and complex, direct connections between politicians and voters become less feasible and brokers' activities enhance.

In sum, our model fills the gap posed at the beginning of this conclusion. We show that patronage is harmful because the quality of the bureaucracy is lower when brokers are appointed to public offices as a way to reward the votes they deliver, and not because of their skills and merits. Forward-looking voters, who value the quality of public servants, may curtail this behavior if they punish candidates that rely on patronage. The problem is that voters' interest in these features is endogenous, and in clientelistic settings, structural factors such as income, education, or political engagement, or electoral strategies, such as vote buying, may diminish the incentives to identify which type of bureaucrats will be appointed by each candidate. Consequently, educational and informational campaigns (Vicente, 2014), or mechanisms for citizen/candidate deliberation (Fujiwara and Wantchekon, 2014), may constitute effective strategies to overcome the vicious cycle that characterizes political clientelism.

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