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Vote Buying Through Public Employment

1. Introduction

Clientelism is a phenomenon that can be found in different parts of the world and can take various forms. For instance, Aspinall et al. (2016) write that “[v]ote buying – the distribution of cash payments to voters – is a long-established part of elections in the Philippines”. Vote buying is not necessarily limited to cash handouts. In Brazil, the politicians offer not only money but also private goods such as food, clothing, building materials etc. (Nichter, 2011). A survey conducted by Bliznakovski, Gjuzelov and Popovikj (2017) showed that, in the Western Balkans, being offered money or favors in exchange for vote was not uncommon. Furthermore, their findings suggest that the extent of such clientelistic practices makes them likely to have an impact on election outcome. Respondents of the survey also perceived employment, both in public and private sector, as tied to political parties (Bliznakovski, Gjuzelov and Popovikj, 2017). Dehnert (2010) notes that in Macedonia “jobs in the public administration or state-controlled companies or public contracts are the currency in which political support is rewarded”. Such arrangements are also not uncommon in Turkey. Günay and Dzhic (2016) write that „[b]usinessmen and corporations close to the government benefited from preferential treatment in calls to tenders, commissioning, privatization and appointments in higher posts“. Meanwhile, those less wealthy had their loyalty to the ruling party rewarded with private goods, but also public employment (Günay and Dzhic, 2016).

Of course, not all parties are able to benefit from clientelism to the same extent. Calvo and Murillo (2004) argue that parties whose base consists of low-skill/income workers may be able to benefit more from clientelism in public employment. Furthermore, it is not obvious that clientelism always increases vote share. Direct contact with voters and offering gifts seem to have been of little help to an incumbent member of parliament seeking re-election in Kenya in 2007 and Zambia in 2006 (Young, 2009). Guardado and Wantchekon (2017), presenting evidence from the 2011 presidential election in Benin, argue that giving cash and other gifts to voters has had little effect on

the election turnout and voting behavior, most likely because many citizens were approached by more than one party. However, even if clientelistic practices do not affect the election turnout and outcome, they still might be undertaken by politicians. Muñoz (2014) argues that they are “a rational solution to the challenges of campaigning without machines, because it helps politicians campaign and signal their electoral viability to their donors”. Thus, clientelism may not benefit all parties equally and does not have an identical effect in every society. It also does not necessarily serve the same purpose. Bustikova and Corduneanu-Huci (2011) discuss some factors that may explain differences in clientelism in across countries. They argue that the two best predictors of clientelism are wealth and historical state capacity.

The aim of this paper is to develop a theoretical model which would look into the effects of the engaging in clientelistic practices on the efficiency of the public sector. In this context, public sector efficiency can be understood as having an administration operating at minimum costs or state owned companies maximizing profits. Although it should not be unusual to consider an efficient operation of the public sector desirable from the perspective of the society, it is however, not necessarily obvious what is in the interest of the politician. Alesina, Danninger and Rostagno (1999) look into one case where politicians opt for an inefficient redistributive policy because it is politically advantageous. Furthermore, politicians may be tempted to use public resources for clientelistic practices.

The literature provides a few examples of theoretical models involving clientelism. Stokes (2005) models clientelism as a repeated game in which cooperation (clientelistic relationship) is sustained by repeated interaction and the (limited) ability of the politician to monitor citizens' voting behavior. She shows that political machines are more likely to target the “weakly opposed” voters, that is – voters who are not loyal to the party, but would consider voting for it if offered a reward. Furthermore, Stokes (2005) argues that such clientelistic relationships will be sustained more easily when the ideological difference between two parties is small, value of the reward is large and when the political machine is able to accurately monitor the voters. Robinson and Verdier (2013) look at clientelism in public employment. Their model involves a two round game in which the offer of post-election public employment is credible as far as the politician, once elected, can somehow benefit from employing a citizen in the public sector. Robinson and Verdier (2013) show that

clientelistic regimes tend to be inefficient when it comes to provision of public goods. Keefer and Vlaicu (2008) model clientelism not as direct relationships between a politician and a citizen, but as relationships which involve intermediaries. They show that forming such indirect relationships with voters, instead of communicating with them directly, may raise social welfare in the short run, but at the cost of slowing down political development in the long term.

My approach resembles Robinson and Verdier (2013) the most as it involves two opportunistic politicians whose offer of employment in the public sector is credible only as long it is optimal for the politician ex-post (i. e. after the election). In the model presented in this paper, the politicians compete for votes by promising a certain level of taxation, public good provision and public employment. Perhaps the main difference in comparison to Robinson and Verdier (2013) is that politicians choose a fraction of a social group which is employed in the public sector instead of making the binary decision of whether or not to employ an entire group. I find that, if the poor voters are mobile enough, the incumbent politician may sway the election in her favor by overemploying citizens in the better paying public sector, making it overstaffed and inefficient.

The next section presents the baseline model of clientelism in public sector. Section 3 discusses the equilibrium solution. In the fourth section, the baseline model is extended to include politicians who have a preference for public good and the fifth section concludes.

2. The Model

The setup of the baseline model is as follows. There are two periods – before and after elections, also referred to as the first period and the second period. The candidates $C \in \{I, E\}$ in the elections are two opportunistic politicians. One of them is the incumbent (I), who is in power before the election, and the other is the challenger (E). The two politicians compete in an election in which the winner is decided by plurality voting.

The Citizens

The citizens are divided in two groups $G \in \{R, P\}$ where R stands for rich and P stands for poor. The size of the group R is $\delta < \frac{1}{2}$, while the rest of the citizens, i. e. $1 - \delta$ are poor. In each period, the citizen i from group G gets utility from consumption and public good $g \geq 0$, i. e. $U_i^G = c_i^G + f(g)$ in both periods, where c_i^G stands for the consumption of member i of group G ¹. The function $f(g)$ is increasing and concave. The consumption in each period is equal to the disposable income, that is the income which hasn't been taxed. The poor citizens earn their income by working for the rich, who own capital. Each poor citizen has one unit of labor supply and may be employed in either the public or the private sector. If employed at the public sector, the citizen earns $w^g \geq 0$, while a private sector employee earns $w^p \geq 0$. Furthermore, public sector wages are higher than wages in the private sector, i. e. $w^g > w^p$. The poor citizens pay no taxes. One can think of this as labor income being too low to tax. Therefore, a poor citizen employed in the public sector consumes:

$$c_i^P = w^g$$

while a poor citizen who works in the private sector consumes:

$$c_i^P = w^p$$

The rich appropriate the entire private sector output net of wages and taxation. Each citizen who is active in the private sector produces one unit of output. Therefore, private sector output equals the number of citizens who are in the private sector, so that total private sector output equals $1 - n$, where $n \in [0, 1]$ is public sector employment. The share of the rich is distributed equally among all members of that group, meaning that the individual (pre-tax) income of a rich citizen y^R is:

$$y^R = \frac{1 - n - (1 - \delta - n)w^p}{\delta}$$

¹ For the time being, I suppress the notation for the period in order to simplify the exposition.

Also, the rich have an option to hide their income by moving into the informal sector in order to avoid taxation. But this comes at a cost κ . I make the following assumptions about κ :

$$\kappa > 0 \quad \text{and} \quad \kappa < 1 - w^g$$

Assuming $\kappa < 1 - w^g$, or expressed differently as $1 - \kappa > w^g$, ensures that the rich never accept public employment. To see why this is so, note that, when all poor citizens are in the public sector, i. e. when $n = 1 - \delta$, we have

$$y^R = \frac{1 - (1 - \delta) - (1 - \delta - (1 - \delta))w^p}{\delta} = 1$$

At this point, a rich citizen is better off moving into the informal sector and bearing the cost κ than accepting a job in the public sector. Therefore, public employment n is never higher than $1 - \delta$ and y^R never falls below one. Clearly, the rich will not find it profitable to accept public employment at higher values of y^R either.

Furthermore, the two assumptions on κ imply $w^g < 1$. This condition is also necessary to justify the poor citizens not paying taxes. Since the poor do not pay taxes due to their earnings being low, their wages must always be below the (pre-tax) income of the rich, that is $w^g < y^R$ and the lowest value of y^R is one.

If a rich citizen decides to stay in the formal sector, she has to pay a fraction $\tau \in [0, 1]$ of her income to the government as a tax so her consumption is given by:

$$c_i^R = y^R(1 - \tau)$$

while if she decides to move into the informal sector in she consumes

$$c_i^R = y^R - \kappa > 1 - \kappa > w^g$$

In line with the probabilistic model of Lindbeck and Weibull (1987), the vote of citizen i from group G is determined by her utility from the two candidates' platforms, group-specific idiosyncratic shock σ_i^G and an aggregate shock θ . Both are uniformly distributed and centered around zero, i. e. $\sigma_i^G \sim \left[-\frac{1}{2\varphi^G}, \frac{1}{2\varphi^G}\right]$ $\theta \sim U\left[-\frac{1}{2\psi}, \frac{1}{2\psi}\right]$, where $\varphi^G, \psi > 0$. Accordingly, the citizen i from group G will vote for the incumbent if:

$$U_{i,2}^{G,I} + \sigma_i^G + \theta \geq U_{i,2}^{G,E}$$

where superscripts I and E denote the utility of the citizen in case either incumbent or the challenger wins. The time subscript is added to emphasize that when deciding who to vote for, the citizens only take post-election utility into account.

The Politicians

The objective of politicians is to maximize their rents. There are two types of rents – exogenous “ego” rents $R > 0$ from holding office and monetary rents $r \geq 0$ that the politician may extract from the budget. In a given period, a politician's utility is

$$U^C = R + (1 - \gamma)r$$

if she is in power and zero otherwise. The monetary rents are multiplied with $1 - \gamma$, where $\gamma \in (0, 1)$ reflects the fact that extracting rents from the budget is wasteful. The politicians not able to commit to implementing an arbitrary policy after the election. In other words, once they are in power, they do what is optimal for them. In each period, the politician in power chooses a policy vector $\{\tau, g, n\}$ which consists of a tax rate τ , public good spending g and public sector employment

n . Before the elections, these decisions are made by the incumbent. After the vote, they are made by the winner of the election.

In the context of the model, it is best to think of the public sector as a collection of state owned companies which generate output according to some function $h(n)$ with $h'(n) > 0$ and $h''(n) < 0$. The resources generated by the public sector and tax revenue that are not spent on the public good or wages of public employees are allocated to the monetary rents r to the politician. Thus, the ruling politician faces the following budget constraint in a given period:

$$h(n) + \tau\delta y^R = nw^g + r + g$$

The left hand side shows the total resources that are at the disposal of the politician in power, i. e. the output of the public sector $h(n)$ and the total tax revenue $\tau\delta y^R$. These resources are either spent on public employees' wages nw^g , monetary rents r or spending on the public good g .

As it was mentioned in the introduction, rewarding political support with a job in the public sector is not uncommon in countries with clientelistic political parties². But this support can be lost in case party members are fired after the election. To model this, I add the risk of the incumbent politician losing support of her own party after the election in case she is re-elected if she sets a lower level of public employment in the second period, i. e. if she chooses an $n_2 < n_1$. The incumbent risks losing power with probability $q(n_1 - n_2)$, with $q(0) = 0$ and $q'(\cdot) > 0$. The first derivative of $q(\cdot)$ is positive as firing more party members would make the incumbent less popular among her own party, thus making the loss of the party's support more likely. Setting $n_2 < n_1$ carries no risks for the challenger since she only has the chance to hire her supporters after the election, provided she wins.

² Bliznakovski, Gjuzelov and Popovikj (2017), Dehnert (2010) and Günay and Dzhic (2016)

Timing

The timing is as follows: at $t = 1$, the incumbent I chooses the policy vector $\{\tau_1, g_1, n_1\}$, after which production takes place. Both politicians announce a policy platform $\{\tau_2^C, g_2^C, n_2^C\}$, $C \in \{I, E\}$. The citizens take a vote based on the policy platform of each politician. At $t = 2$, the winner of the election implements her policy platform.

Social Planner Solution

The social planner solution is the first benchmark of the model. Since the social planner's problem is the same in every period, I once again omit the period notation. The social planner maximizes the utility of all agents subject to the budget constraint:

$$\begin{aligned} \max_{\{\tau, g, n\}} & \delta U_i^R + (1 - \delta)U_i^P + (1 - \gamma)r \\ \text{s. t. } & h(n) + \tau \delta y^R = n w^g + r + g \end{aligned}$$

First, it should be noted that the social planner always chooses $\{\tau^{SP}, n^{SP}, g^{SP}\}$ so that $r = 0$, since rents are wasteful. Once we plug in the budget constraint into the objective function, the problem simply amounts to maximizing the total output of both sectors plus the total utility derived from the consumption of the public good g net of its costs with respect to g and n :

$$\max_{\{g, n\}} h(n) + 1 - n + f(g) - g$$

Then, from the first order conditions with respect to n and g we get:

$$\begin{aligned} h'(n^{SP}) &= 1 \\ f'(g^{SP}) &= 1 \end{aligned}$$

and the tax rate is determined residually from the budget constraint:

$$\tau^{SP} = \frac{n^{SP} w^g + g^{SP} - h(n^{SP})}{\delta y^{R,SP}}$$

where $y^{R,SP}$ is the rich citizen income when public employment equals n^{SP} .

The focus here will be on the case where $0 < \frac{n^{SP} w^g + g^{SP} - h(n^{SP})}{\delta} < \kappa$ so that, given the social planner's level of government spending and public employment, the resulting tax rate is positive and does not force the rich into the informal sector. A tax rate τ^{SP} such that

$$y^{R,SP} \tau^{SP} > \kappa$$

or equivalently

$$\frac{n^{SP} w^g + g^{SP} - h(n^{SP})}{\delta} > \kappa$$

would make moving into the informal sector more profitable for the rich citizens as the costs of doing so are less than paying the tax.

The Dictator's Solution

Another benchmark used here is the policy vector chosen by an opportunistic politician who does not have to face election and does not risk losing support of her own party, which is why it is referred to as the Dictator's solution. As opposed to the social planner, the Dictator will maximize her own utility instead of the citizens' utility. This policy vector denoted with $\{\tau^*, g^*, n^*\}$ is derived by solving the following problem:

$$\max_{\{\tau, g, n\}} R + (1 - \gamma)r$$

$$\text{s. t. } h(n) + \tau \delta y^R = n w^g + r + g$$

Since public good spending is pure waste from the Dictator's perspective, $g^* = 0$. Then, the Dictator, wishing to maximize rents, would set $\tau^* = \frac{\kappa}{y^{R*}}$ in order to collect as much money in taxes without the rich having to move in the informal sector, where y^{R*} is the income of a rich citizen given n^* , which is the level of public employment set by the Dictator. Finally, the first order conditions with respect to n is

$$h'(n^*) = w^g$$

Note that because $w^g < 1$, it holds that $n^* > n^{SP}$. The reason why the Dictator chooses a higher public employment is that costs of public employment are different from social planner's and politician's perspective. From the social planner's perspective, the cost of one public employee is equal to one, which is the output that this employee would generate if she were active in the private sector. But for the Dictator, the cost of having an additional public employee is only the public wage $w^g < 1$.

3. Equilibrium Analysis

Credible policies

Solving for equilibrium requires the use of backward induction. The first step is to look into the actions of the winner of the election. Since politicians are not credible, once they are elected, they choose their preferred policy vector. This policy vector maximizes the politician's rents multiplied by the probability of staying in power after having implemented the policy.

$$\max_{\{\tau_2, g_2, n_2\}} (1 - q(m))[R + (1 - \gamma)r_2]$$

$$\text{s. t. } h(n_2) + \tau_2 \delta y_2^R = n_2 w^g + r_2 + g_2$$

$$\text{and } m = \begin{cases} \max\{n_1 - n_2, 0\} & \text{if } C = I \\ 0 & \text{if } C = E \end{cases}$$

Since the challenger does not run the risk of losing support of her own party regardless of the chosen level of public employment if she wins the election, she simply maximizes her rents by setting $\{\tau_2^E, g_2^E, n_2^E\} = \{\tau^*, g^*, n^*\}$, which is the policy vector from the Dictator's solution.

Now consider the incumbent. First, she sets the maximum possible tax rate which does not force the rich to move into the informal sector:

$$\tau_2^I = \frac{\kappa}{y_2^{R,I}}$$

where $y_2^{R,I}$ is the post-election income of a rich citizen given that the public employment is equal to n_2^I . Since spending on public good is a pure waste to the politician, $g_2^I = 0$. Finally, the first order conditions with respect to n_2 are:

$$\begin{aligned} h'(n_2^I) &= w^g - \frac{q'(n_1 - n_2^I)[R + (1 - \gamma)r_2^I]}{(1 - q(n_1 - n_2^I))(1 - \gamma)} & \text{if } n_2^I < n_1 \\ h'(n_1) &\geq w^g - \frac{q'(0)[R + (1 - \gamma)r_2^I]}{1 - \gamma} & \text{if } n_2^I = n_1 \\ h'(n_2^I) &= w^g & \text{if } n_2^I > n_1 \end{aligned}$$

Note that, in case $n_2^I < n_1$, n_2^I is always greater than n^* , since

$$h'(n^*) = w^g > h'(n_2^I) = w^g - \frac{q'(n_1 - n_2^I)[R + (1 - \gamma)r_2^I]}{(1 - q(n_1 - n_2^I))(1 - \gamma)}$$

because $\frac{q'(n_1 - n_2^I)[R + (1 - \gamma)r_2^I]}{(1 - q(n_1 - n_2^I))(1 - \gamma)} > 0$.

Furthermore, in the case where $n_2^I > n_1$, the incumbent's second period public employment level n_2^I will be equal to the public employment chosen by the Dictator, i. e. n^* .

Pre-election Period

Denote by r_2^I the incumbent's second period rents, determined by the incumbent's preferred second period employment n_2^I , public good spending g_2^I and tax rate, τ_2^I . Also, let P^I be the incumbent's winning probability. Now we may formulate the problem that the incumbent faces in the pre-election period³:

$$\begin{aligned} & \max_{\{\tau_1, g_1, n_1\}} R + (1 - \gamma)r_1 + P^I(1 - q(m))[R + (1 - \gamma)r_2^I] \\ \text{s. t. } & h(n_1) + \tau_1 \delta y_1^R = n_1 w^g + r_1 + g_1 \\ & \text{and } m = \max \{n_1 - n_2^I, 0\} \end{aligned}$$

Note that there is no budget constraint for the second period. This is due to the fact that the incumbent has no control over second period variables before the election due to her inability to commit to any policy⁴.

First, since the government spending benefits the incumbent in no way, she sets:

$$g_1 = g^* = 0$$

Then, the incumbent chooses the highest tax rate that does not force the rich into the informal sector:

$$\tau_1 = \frac{\kappa}{y_1^{R,I}}$$

³ Here I neglect the possibility that the incumbent might not run for re-election and implicitly assume she always does.

⁴ Although it should be noted that the pre-election employment level may influence the incumbent's optimal public employment after the election. This can be seen from the first order conditions with respect to n_2 for the incumbent's credible policy problem.

The next step is to compute the winning probability of the incumbent P^I . Consider first a citizen i from group P . If she is among those n_2^I citizens who are employed by the incumbent in the second period, the citizen votes for I if:

$$w^g + \sigma_i^P + \theta \geq w^p$$

or

$$\sigma_i^P \geq w^p - w^g - \theta$$

Denote the incumbent's vote share among this subgroup of P by π_I^P . Then

$$\begin{aligned} \pi_I^P &= \int_{w^p - w^g - \theta}^{\frac{1}{2\varphi^P}} \varphi^P di \\ \pi_I^P &= \frac{1}{2} + \varphi^P (w^g - w^p + \theta) \end{aligned}$$

Now consider a citizen from P who is among the n^* citizens who are employed by the challenger in the second period⁵. She votes for the incumbent if

$$w^p + \sigma_i^P + \theta \geq w^g$$

or

$$\sigma_i^P \geq w^g - w^p - \theta$$

Denote the incumbent's vote share among those from P who are employed by the challenger after the election by π_E^P . Then

⁵ Recall that $n_2^E = n^*$.

$$\pi_E^P = \int_{w^g - w^p - \theta}^{\frac{1}{2\varphi^P}} \varphi^P di$$

$$\pi_E^P = \frac{1}{2} - \varphi^P (w^g - w^p - \theta)$$

Those who are not offered public employment by either candidate vote for the incumbent if:

$$w^p + \sigma_i^P + \theta \geq w^p$$

That is

$$\sigma_i^P \geq -\theta$$

Denote the incumbent's vote share among those from P who are not employed in the public sector in the second period by π_N^P . Then

$$\pi_N^P = \int_{-\theta}^{\frac{1}{2\varphi^P}} \varphi^P di$$

$$\pi_N^P = \frac{1}{2} + \varphi^P \theta$$

The incumbent's total vote share in group P is then given by π^P

$$\pi^P = n_2^I \pi_I^P + n^* \pi_E^P + (1 - n_2^I - n^*) \pi_N^P$$

or

$$\pi^P = \frac{1}{2} + \varphi^P [(n_2^I - n^*)(w^g - w^p) + \theta]$$

The vote share of the incumbent among the rich is obtained in a similar way. Denote by $y_2^{R,I}$ the post-election income of the rich citizen if the incumbent wins and by $y_2^{R,E}$ if the challenger wins so that:

$$y_2^{R,I} = \frac{1 - n_2^I - (1 - \delta - n_2^I)w^p}{\delta}$$

$$y_2^{R,E} = \frac{1 - n^* - (1 - \delta - n^*)w^p}{\delta}$$

A rich citizen votes for the incumbent if:

$$y_2^{R,I} - \kappa + \sigma_i^G + \theta \geq y_2^{R,E} - \kappa$$

That is if:

$$\sigma_i^G \geq y_2^{R,E} - y_2^{R,I} - \theta$$

The incumbent's total vote share in group R , denoted by π^R is then given by

$$\pi^R = \int_{y_2^{R,E} - y_2^{R,I} - \theta}^{\frac{1}{2\varphi^R}} \varphi^P di$$

$$\pi^R = \frac{1}{2} + \varphi^R [y_2^{R,I} - y_2^{R,E} + \theta]$$

The incumbent wins the election if she gets more than one half of all the votes. So the winning probability of the incumbent P^I is:

$$P^I = P \left[(1 - \delta)\pi^P + \delta\pi^R \geq \frac{1}{2} \right]$$

Setting $\bar{\varphi} = (1 - \delta)\varphi^P + \delta\varphi^R$, we get:

$$P^I = P \left[\theta \geq -\frac{1}{\bar{\varphi}} [(1 - \delta)\varphi^P(n_2^I - n^*)(w^g - w^p) + \delta\varphi^R(y_2^{R,I} - y_2^{R,E})] \right]$$

$$= P \left[\theta \geq -\frac{1}{\bar{\varphi}} (n_2^I - n^*)[\varphi^P(1 - \delta)(w^g - w^p) - \varphi^R(1 - w^p)] \right]$$

$$= \int_{\theta^*}^{\frac{1}{2\psi}} \psi di$$

where $\theta^* = -\frac{1}{\bar{\varphi}} (n_2^I - n^*)[\varphi^P(1 - \delta)(w^g - w^p) - \varphi^R(1 - w^p)]$.

$$P^I = \frac{1}{2} - \psi\theta^*$$

$$P^I = \frac{1}{2} + \frac{\psi}{\bar{\varphi}} (n_2^I - n^*)(\varphi^P(1 - \delta)(w^g - w^p) - \varphi^R(1 - w^p))$$

Note that, if the poor voters are mobile enough ($\frac{\varphi^P}{\varphi^R}$ sufficiently large), i. e. if

$$\frac{\varphi^P}{\varphi^R} > \frac{(1 - w^p)}{(1 - \delta)(w^g - w^p)}$$

then

$$\frac{\partial P^I}{\partial n_2^I} > 0$$

In this case, by employing more citizens in the public sector after the election the incumbent can increase her probability of winning. Since the poor are sufficiently mobile, the votes gained from the poor offset the loss of votes of rich citizens who lose profits by workers moving into the public sector. Of course, prior to the election the incumbent cannot commit to an arbitrary level of post-election public employment. However the incumbent's preferred post-election public employment depends on the level of public employment before the election. This means that by setting an appropriate n_1 , the incumbent may be able to increase n_2^I and by doing so, improve her winning probability.

Note first that the incumbent will never set n_1 so that $n_2^I > n_1$. To see this, recall that in this case, n_2^I is given by

$$h'(n_2^I) = w^g = h'(n^*)$$

So the only credible level of post-election employment is $n_2^I = n^*$. But the incumbent can still do better. At the very least she could set $n_1 = n_2^I = n_2^E = n^*$. This way the incumbent would have the same winning probability, but would increase her first period rents. Though, as it will be shown below, such n_1 is also not optimal because in the case where the incumbent keeps public employment constant over the two periods we have $n_1 = n_2^I > n^*$.

Thus, the incumbent is left with two possible types of credible policy - she can either set n_1 so that her preferred second period level of the employment is $n_2^I < n_1$ or $n_2^I = n_1$. Consider first the case where $n_2^I < n_1$. Recall that, when $n_2^I < n_1$, we have that:

$$h'(n_2^I) = w^g - \frac{q'(n_1 - n_2^I)[R + (1 - \gamma)r_2^I]}{(1 - q(n_1 - n_2^I))(1 - \gamma)} < h'(n^*) = w^g$$

Since n_2^I is already higher than n^* , the incumbent's preferred pre-election public employment n_1 will also be higher than n^* .

Next, consider the case where $n_2^I = n_1$. Recall that, in order for such level of public employment to be credible, n_1 must satisfy:

$$h'(n_1) \geq w^g - \frac{q'(0)[R + (1 - \gamma)r_2]}{1 - \gamma}$$

The first order conditions with respect to n_1 yield:

$$h'(n_1) = w^g - \frac{\frac{\partial P^I}{\partial n_1}[R + (1 - \gamma)r_2^I]}{(1 + P^I)(1 - \gamma)}$$

meaning that

$$h'(n_1) = \max \left\{ w^g - \frac{q'(0)[R + (1 - \gamma)r_2]}{1 - \gamma}, w^g - \frac{\frac{\partial P^I}{\partial n_1}[R + (1 - \gamma)r_2^I]}{(1 + P^I)(1 - \gamma)} \right\}$$

meaning that $n_1 \geq n_2^I > n^* > n^{SP}$. Note that $n_2^I > n^*$ implies $P^I > \frac{1}{2}$. This means that, when the poor voters are sufficiently mobile, the incumbent is ready to sacrifice rents in order to gain electoral advantage. This is why the incumbent's level of public employment is higher than public employment set by the Dictator, implying that the incumbent will employ more citizens in the public sector than the social planner would.

In the case where poor voters are not sufficiently mobile, that is when

$$\frac{\varphi^P}{\varphi^R} \leq \frac{(1 - w^p)}{(1 - \delta)(w^g - w^p)}$$

the incumbent has nothing to gain from overemploying in the public sector. Now, the loss of votes from the rich outweighs the votes gained from the poor citizens being employed in the better paying public sector. So the incumbent might actually lose votes by overemploying. Therefore, she simply sets $n_1 = n_2^I = n^* > n^{SP}$.

Note that an $n_2^I < n^*$ when the poor are not sufficiently mobile would increase the incumbent's chances of winning. However, regardless of the pre-election public employment she chooses, such n_2^I is never credible. So the best thing the incumbent can do is set n_1 so that $n_2^I = n^*$. Such n_2^I is feasible for any $n_1 \leq n^*$. The incumbent sets $n_1 = n^*$ since this maximizes the incumbent's first period rents without compromising her winning probability.

The main results of this section are summarized in

Proposition 1. If the poor voters are sufficiently mobile, i. e. if $\frac{\varphi^P}{\varphi^R} > \frac{(1-w^P)}{(1-\delta)(w^g-w^P)}$, then the incumbent has an incentive to set public employment higher than the Dictator would and higher than the level that maximizes social welfare in order to increase her chances of winning, so that:

$$n_1 \geq n_2^I > n^* > n^{SP}$$

If $\frac{\varphi^P}{\varphi^R} \leq \frac{(1-w^P)}{(1-\delta)(w^g-w^P)}$, increasing public employment decreases the incumbent's vote share so she sets the level of employment equal to the public employment set by the Dictator, i. e.

$$n_1 = n_2^I = n^* > n^{SP}$$

Note that there are two potential sources of overemployment in the public sector. The first one comes from the fact that the politician is interested in rents and not social welfare. This accounts for $n^* - n^{SP}$ surplus public sector employees. However, the incumbent may, given that it is possible,

use overemployment in the public sector as a means to gain votes. This accounts for $n_2^I - n^*$ surplus public sector employees in the post-election period⁶ and $n_1 - n^*$ before the election.

4. Politicians With Preference for Public Goods

This section is an extension of the baseline model. The only thing changed here is that both the incumbent and the challenger now value public goods. So the utility of the politician in power is given by:

$$R + r + f(g)$$

while the politician who is not in power gets the utility equal to

$$f(g)$$

As in the baseline model, if a politician loses the support of her own party, she is replaced with an identical politician who keeps the same level of public employees.

Since politicians now have a preference for public goods, it is necessary to derive new benchmarks.

Social Planner Solution

As in the baseline model, the goal of the social planner is to maximize social welfare given the budget constraint. The only difference here will be that the social planner will need to account for the fact that the two politicians also value public goods.

⁶ Of course, this surplus public employment is only realized provided that the incumbent wins the election.

$$\begin{aligned} \max_{\{\tau, g, n\}} & \delta U_i^R + (1 - \delta)U_i^P + (1 - \gamma)r + 2f(g) \\ \text{s. t. } & h(n) + \tau \delta y^R = n w^g + r + g \end{aligned}$$

As before, the social planner sets rents r equal to zero since they are a pure waste for the society. Analogously to the baseline model, after plugging in the budget constraint into the objective function, we can re-write the social planner's problem as follows:

$$\max_{\{g, n\}} h(n) + 1 - n + 3f(g) - g$$

The optimal level of public employment and government spending are given by the first order conditions:

$$\begin{aligned} h'(n^{SP}) &= 1 \\ f'(g^{SP}) &= \frac{1}{3} \end{aligned}$$

The tax rate is determined residually from the budget constraint as before:

$$\tau^{SP} = \frac{n^{SP} w^g + g^{SP} - h(n^{SP})}{\delta y^{R, SP}}$$

The Dictator's Solution

Since public goods also enter the politicians' utility function, the Dictator's problem is now given by:

$$\begin{aligned} \max_{\{\tau, g, n\}} & R + (1 - \gamma)r + f(g) \\ \text{s. t. } & h(n) + \tau \delta y^R = n w^g + r + g \end{aligned}$$

Since public good spending is no longer pure waste from the Dictator's perspective, we have that

$$f'(g^*) = 1 - \gamma$$

Note that we no longer have that $g^* < g^{SP}$ necessarily holds. In fact, if extracting rents is sufficiently wasteful, the politician may choose the optimal or an even higher level of government spending:

$$\gamma < \frac{2}{3} \Rightarrow g^* < g^{SP}$$

$$\gamma = \frac{2}{3} \Rightarrow g^* = g^{SP}$$

$$\gamma > \frac{2}{3} \Rightarrow g^* > g^{SP}$$

Next, as in the previous case, the Dictator will set $\tau^* = \frac{\kappa}{y^{R*}}$ so as to collect as much money in taxes without the rich moving in the informal sector. Finally, the Dictator's level of public employment is the same as before since the first order condition with respect to n is still given by:

$$h'(n^*) = w^g$$

Credible policies

After being elected, the politician chooses her preferred policy vector $\{\tau_2, g_2, n_2\}$ which is the solution to the following problem:

$$\max_{\{\tau_2, n_2, g_2\}} (1 - q(m))[R + (1 - \gamma)r_2 + f(g_2)] + q(m)f(g^*)$$

$$\text{s. t. } h(n_2) + \tau_2 \delta y_2^R = n_2 w^g + r_2 + g_2$$

$$\text{and } m = \begin{cases} \max\{n_1 - n_2, 0\} & \text{if } C = I \\ 0 & \text{if } C = E \end{cases}$$

Analogously to the version of the model with no preferences for public goods, the challenger simply maximizes her rents and sets $\{\tau_2^E, n_2^E, g_2^E\} = \{\tau^*, n^*, g^*\}$ if she wins.

As before, the incumbent sets the highest possible tax rate $\tau_2^I = \frac{\kappa}{y_2^R}$. The first order condition with respect to g_2 is:

$$f'(g_2^I) = 1 - \gamma$$

meaning that $g_2^I = g_2^C = g^*$.

The first order conditions with respect to n_2 :

$$\begin{aligned} h'(n_2^I) &= w^g - \frac{q'(n_1 - n_2^I)[R + (1 - \gamma)r_2^I]}{(1 - q(n_1 - n_2^I))(1 - \gamma)} & \text{if } n_2^I < n_1 \\ h'(n_1) &\geq w^g - \frac{q'(0)[R + (1 - \gamma)r_2^I]}{1 - \gamma} & \text{if } n_2^I = n_1 \\ h'(n_2^I) &= w^g & \text{if } n_2^I > n_1 \end{aligned}$$

These expressions look the same as in section three. However, the incumbent's post-election rents r_2^I will be lower for each n_2^I because she will allocate some of the expenditure towards the public good. This will affect the incentive to overemploy in the public sector.

Equilibrium Analysis

In the pre-election period, the incumbent solves the following problem:

$$\begin{aligned} \max_{\{\tau_1, g_1, n_1\}} & R + (1 - \gamma)r_1 + P^I[(1 - q(m))[R + (1 - \gamma)r_2^I + f(g_2^I)] + q(m)f(g^*)] + \\ & + (1 - P^I)f(g_2^I) \end{aligned}$$

$$\text{s. t. } h(n_1) + \tau \delta y_1^R = n_1 w^g + r_1 + g_1$$

$$\text{and } m = \max \{n_1 - n_2^I, 0\}$$

Since $g_2^I = g_2^C = g^*$, this problem can be re-written in the following way:

$$\begin{aligned} & \max_{\{\tau_1, g_1, n_1\}} R + (1 - \gamma)r_1 + P^I(1 - q(m))[R + (1 - \gamma)r_2^I] \\ \text{s. t. } & h(n_1) + \tau\delta y_1^R = n_1 w^g + r_1 + g_1 \\ & \text{and } m = \max \{n_2^I - n_1, 0\} \end{aligned}$$

The main difference between results with politicians with preference for public goods and section three is that, for any given level of post-election employment n_2^I , the monetary rents r_2^I are smaller because the politician in power also allocates some resources towards public good spending. This will have an effect on the incentive of the incumbent to overemploy, either before or after the election.

The pre-election tax rate and level of government spending are given by:

$$\begin{aligned} \tau_1 &= \frac{\kappa}{y_1^R} \\ f'(g_1) &= 1 - \gamma \end{aligned}$$

As in the previous section, if the poor voters are sufficiently mobile, i. e. if $\frac{\varphi^P}{\varphi^R} > \frac{(1-w^p)}{(1-\delta)(w^g-w^p)}$, then the incumbent has an incentive to set public employment higher than the Dictator would and higher than the level that maximizes social welfare in order to increase her chances of winning, i. e. $n_2^I \geq n_1 > n^* > n^{SP}$.

If $\frac{\varphi^P}{\varphi^R} \leq \frac{(1-w^p)}{(1-\delta)(w^g-w^p)}$, increasing public employment decreases the incumbent's vote share so she sets the level of employment equal to the public employment set by the Dictator, i. e. $n_2^I = n_1 = n^* > n^{SP}$

5. Concluding Remarks

The two versions of the model presented above leave a lot to be desired. For one, a more complete account of clientelist politics would include an opposition which is at least to some extent able to keep up with the incumbent in terms of vote buying. However, the focus of this thesis was on examining the consequences of clientelism on the efficiency with which the public sector is operated. The results are in line with research claiming that clientelism is likely to lead to socially inefficient outcomes (Keefer and Vlaicu, 2008; Robinson and Verdier, 2013). Further extensions might be concerned with polities consisting of different ethnicities or polities with electoral rules other than plurality voting. Or perhaps, they may involve a more active role for citizens. In Brazil, a popular initiative in the late 1990's led to a passing of a law against vote buying (Nichter, 2011). This would lead to a conclusion that the range of the citizens' options is wider than merely who to vote for and whether to accept a job in the public sector.

Appendix

Abstract

The aim of this paper is to develop a theoretical model which would allow for the assessment of the effect that clientelism has on public sector efficiency. In short, the model shows that if the poorer citizens are ideologically mobile enough, opportunistic politicians can offer them better paying public employment in an attempt to sway their vote. The result is an overstaffed and inefficient public sector. The reason politicians might choose such a strategy for attracting voters is that they find themselves in a setting in which they are unable to commit to any other policy that would please citizens, like lower taxes or higher provision of public goods. These results hold even in the extended case where the politicians value public goods.

Zusammenfassung

Das Ziel dieser Arbeit ist es, ein theoretisches Model zu entwickeln, welches eine Beurteilung des Effekts vom Klientelismus auf die Effizienz des öffentlichen Sektors ermöglichen würde. Kurz gesagt, das Model zeigt dass, wenn die ärmeren Bürger ideologisch genug mobil sind, die opportunistischen Politiker ihnen die besser bezahlte Beschäftigung im öffentlichen Dienst anbieten können, um ihre Stimmen zu gewinnen. Das Resultat ist ein überbesetzter und ineffizienter öffentlicher Sektor. Der Grund, warum sich die Politiker für so eine Strategie zur Anziehung der Wähler entscheiden, ist, dass sie sich in einer Umgebung finden, in welcher sie nicht in der Lage sind, sich zu irgendeiner anderen Politik zu verpflichten, die die Bürger zufriedenstellen würde, wie z. B. niedrigere Steuern oder höhere Bereitstellung von öffentlichen Gütern. Diese Ergebnisse halten sogar im erweiterten Fall, in welchem die Politiker die öffentlichen Güter wertschätzen.

References

Alesina, A., Danninger, S., & Rostagno, M. (1999). *Redistribution Through Public Employment: The Case of Italy* (No. w7387). National Bureau of Economic Research.

Aspinall, E., Davidson, M. W., Hicken, A., & Weiss, M. L. (2016). Local machines and vote brokerage in the Philippines. *Contemporary Southeast Asia: A Journal of International and Strategic Affairs*, 38(2), 191-196.

Bliznakovski, J., Gjuzelov, B. & Popovikj, M. (2017). The informal life of political parties in the Western Balkan societies. Retrieved from <http://www.formal-informal.eu/research-papers.html>

Bustikova, L. & Corduneanu-Huci, C. (2011), Clientelism, State Capacity and Economic Development: A Cross-National Study. APSA 2009 Toronto Meeting Paper (revised and presented at: MPSA 2011, Duke 2011). Available at SSRN: <https://ssrn.com/abstract=1449000>

Calvo, E., & Murillo, M. V. (2004). Who delivers? Partisan clients in the Argentine electoral market. *American journal of political science*, 48(4), 742-757.

Dehnert, S. (2010). Elections and conflict in Macedonia. *Country Analysis*.

Guardado, J., & Wantchekon, L. (2017). *Do Electoral Handouts Affect Voting Behaviour?* Afrobarometer Working Papers (No. 171).

Günay, C., & Dzihic, V. (2016). Decoding the authoritarian code: exercising 'legitimate' power politics through the ruling parties in Turkey, Macedonia and Serbia. *Southeast European and Black Sea Studies*, 16(4), 529-549.

Keefer, P., & Vlaicu, R. (2008). Democracy, credibility and clientelism. *Journal of Law, Economics and Organization*, 24(2), 371-406.

Lindbeck, A., & Weibull, J. W. (1987). Balanced-budget redistribution as the outcome of political competition. *Public choice*, 52(3), 273-297.

Muñoz, P. (2014). An informational theory of campaign clientelism: The case of Peru. *Comparative Politics*, 47(1), 79-98.

Nichter, S. (2011). Vote Buying in Brazil: From Impunity to Prosecution. In *Conference, "Ruling Politics: The Formal and Informal Foundations of Power in New Democracies," Harvard University*.

Robinson, J. A., & Verdier, T. (2013). The political economy of clientelism. *The Scandinavian Journal of Economics*, 115(2), 260-291.

Stokes, S. C. (2005). Perverse accountability: A formal model of machine politics with evidence from Argentina. *American Political Science Review*, 99(3), 315-325.

Young, D. J. (2009). *Is clientelism at work in African elections? A study of voting behavior in Kenya and Zambia*. Afrobarometer Working Papers (No. 106).