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REWARD FROM PUBLIC OFFICE AND THE SELECTION OF POLITICIANS BY PARTIES

Fabio Cerina
Luca G. Deidda

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CRENOS – CAGLIARI
VIA SAN GIORGIO 12, I-09100 CAGLIARI, ITALIA
TEL. +39-070-6756406; FAX +39-070- 6756402

CRENOS - SASSARI
VIA MURONI 23, I-07100 SASSARI, ITALIA
TEL. +39-079-213511

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Rewards from public office and the selection of politicians by parties*

Fabio Cerina† Luca G. Deidda‡

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Abstract

We investigate the relationship between the quality of politicians, defined in terms of their competence (skills), and rewards from public office in a game between parties and citizens in which parties play a crucial role in the selection of politicians. Parties shape the selection of politicians by manipulating information about the quality of their candidates. An increase in the rewards from public offices leads to two opposing effects on the average quality of politicians. The first is a selection effect, whereby more skilled citizens enter politics, leading to an increase in average quality. The second is a manipulation effect, as parties have the incentive to further manipulate information ~~so~~ to increase the probability of election for their unskilled candidates, from whom they can extract higher rents in the form of service duties. We find that the second effect dominates when i. parties' costs of manipulating information are sufficiently low; ii. even in the absence of manipulation, the quality of information available to citizens about candidates is sufficiently poor; and iii. the net gains from becoming a politician for unskilled citizens are sufficiently larger than those for skilled citizens. These findings provide a rationale for the ambiguous sign of the empirical relationship between the quality and pay of politicians.

f JEL Classification: D72, H70, J33.

Keywords: Selection, Public office rewards, Political parties, Quality of politicians, Information manipulation.

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†E-mail: fcerina@unica.it. Address: Università di Cagliari, Dipartimento di Scienze Economiche ed Aziendali and CRENoS, Viale Fra Ignazio 78, 09123 - Cagliari (Italy).

‡Corresponding author. Email: deidda@uniss.it. Address: Università di Sassari, DISEA and CRENoS, Via Muroni 21, 07100, Sassari (Italy).

1 Introduction

The traditional view in political economy has long been that good politics and good policy are the result of well-designed institutional incentives (see Besley, 2005, for a general discussion). More recently, there has been growing attention in the literature on the notion that – aside from incentives – the intrinsic qualities of politicians such as honesty and competence could well matter for quality policies and quality government, which could have a significant impact on socio-economic outcomes[1]. If so, the role of institutions, including political parties, in selecting politicians becomes crucial.

The focus of the present paper is on the relationship between politicians' quality, defined in terms of competence, i.e., skills, and the rewards from public office. In particular, in a model in which parties play a role in the selection of politicians, we ask whether raising the pay of politicians leads necessarily to politicians of higher quality. As figures 1 and 2 show, prima facie evidence regarding trends in the pay of Italian Members of Parliament (MPs) and US Members of Congress (MCs) and their educational attainment – a measure of skills widely used in the empirical literature – suggests that paying politicians more is not necessarily associated with higher quality.[2]

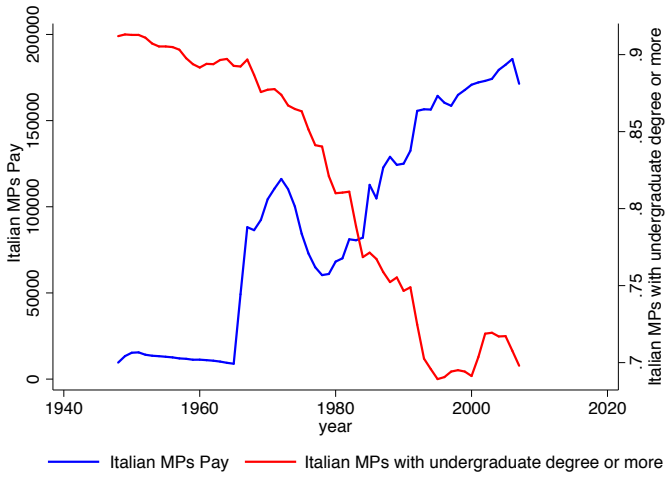

Figure 1: MP compensation in real terms (2005 dollars) and the percentage of MPs with undergraduate degrees in Italy 1948-2007. Source: Fondazione De Benedetti (FRDB), "Italian Members of Parliament" dataset. Data originally collected by Merlo et al, 2008, with support of FRDB.

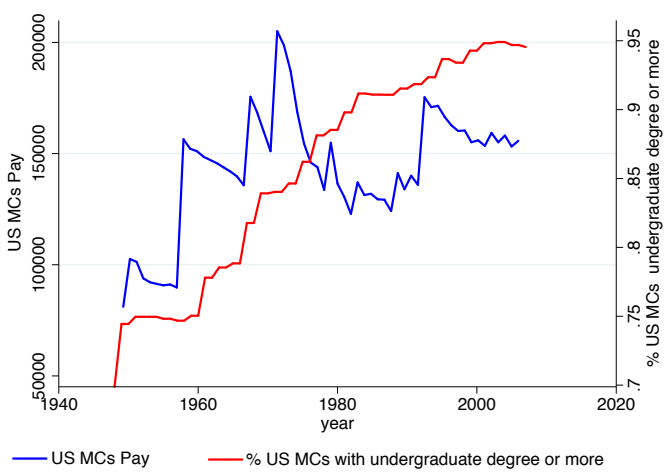

Figure 2: MC compensation in real terms (2005 dollars) and the percentage of MCs with undergraduate degrees in the US 1948-2007. Source: Online bibliographical directory of the United States Congress.

While in the US, the percentage of MCs with an undergraduate or higher level of education increases with pay, this is not the case in Italy, where the two phenomena are strongly negatively correlated.[3] A recent strand of the empirical literature addresses the challenging task of identifying the causal effect that politicians' pay could have on the quality of politicians. Using data from local

[1] See Besley, 2005, Besley et al., 2013, and Besley et al., 2005.

[2] Educational attainment is a commonly used proxy for competence/skills in the political economy literature. Notable examples include Besley, 2004, Ferraz and Finan, 2009, Fisman et al., 2015, Gagliarducci and Nannicini, 2013.

[3] The correlation between politicians' pay and education is approximately 31% in the US and −91% in Italy.

Italian municipalities, Gagliarducci and Nannicini, 2013, show that a higher wage attracts better-educated candidates and that better-paid politicians reduce the size of the government bureaucracy by improving efficiency.[4] Similarly, using municipal data from Mexico, Dal Bo, Finan and Rossi, 2013, find that announcing a higher salary results in smarter applicants with better personality traits, higher earnings and a better occupational profile. Finally, Ferraz and Finan, 2009, find that in the case of Brazilian municipalities, higher wages result in better-educated candidates.

These findings support the case for a positive causal relationship between the pay and quality of politicians, at local level. However, the findings change considerably when national politics is considered. Using data on Members of the European Parliament (MEPs), Fisman et al., 2015, find that 'high salaries reduce the quality of elected MEPs (as proxied by the quality of the colleges they attended)", (page 3). Relatedly, Braendle, 2015, finds no significant impact of MEPs' pay on MEPs' quality as proxied by formal education, occupational background and political experience. Kotakorpi and Poutvaara, 2011, study the relationship between politicians' wages and quality in the Finnish National Parliament. They report that the wage increase led to better-educated female candidates but had no effect on the composition of male candidates. Finally, Hoffman and Lyons, 2013, find almost no correlation between salary and politician performance or quality for US governors and state legislators.

We propose a theory of the role of parties in the selection of politicians that helps to explain why the sign of the relationship between the pay and quality of politicians is ambiguous and is more likely to be positive at the local level than at the national level. We model parties' role in determining quality of politicians in a setup related to the theory of quality of elected officials advanced by Caselli and Morelli, 2004. In the model, citizens who wish to be elected politicians must first become party members. If elected, they contribute service duties to their party.[5] Citizens are of two types (i.e., qualities): skilled and unskilled. Unskilled politicians lead to a more costly scheme for the provision of the essential public good than do skilled politicians. Moreover, skilled individuals earn a higher salary than their unskilled counterparts when working in the private sector. Ex ante, an individuals' type is private information. However, citizens observe an informative public signal regarding the candidates' individual types. Parties, which observe the type of each of their members at no cost, shape the selection of politicians by engaging in costly manipulation of information, which reduces the informativeness of the public signal regarding the quality of their candidates. Citizens and parties play the following game. Parties enter the political arena, and citizens decide whether to become members of a party. Then, parties determine the degree of information manipulation regarding the candidates and the rents to be extracted from elected politicians in the form of service duties, while party members decide whether to stay in politics or quit. Then, elections take place, citizens vote, and payoffs are realized.

We show that increasing politicians' pay might actually worsen the average quality of politicians so long as (i) parties face low costs of manipulating information regarding the quality of candidates (*captured society*), and/or (ii) even in the absence of manipulation, citizens would be poorly informed

[4]According to their findings, most of this effect can be attributed to the selection of competent politicians.

[5]These duties can be interpreted both as monetary transfers and in-kind transfers.

(*unaware society*), and/or (iii) the net gains from becoming a politician for unskilled citizens is sufficiently larger than that for skilled citizens.

The intuition behind our main result is as follows. Unskilled citizens have a lower opportunity cost of entering politics than do skilled citizens, as the former earn less in the private sector. Accordingly, unskilled citizens engaging in politics are more subject to rent extraction by their party, in the form of service duties, than are skilled citizens. Therefore, parties might favor the election of unskilled politicians. Under this scenario, increasing the pay of politicians has two opposing effects. On the one hand, it might favor the entry of skilled citizens into politics. Other things being equal, this positive *selection effect* would increase quality of elected politicians. On the other hand, the entry of skilled citizens into politics worsens election prospects for unskilled party members, who would therefore be less willing to contribute service duties to the party if elected. To counteract that effect, parties manipulate information to a greater extent (*manipulation effect*) to reduce the informativeness of the public signal regarding a candidate's type and thereby improve unskilled members' chances to be elected. Such an increase in information manipulation might undo the positive selection effect, thereby resulting in a negative relationship between the pay and quality of politicians.

According to our result, if the quality of politicians and politicians' pay are negatively correlated in the case of Italy and positively correlated in the case of the US – other things being equal – we should expect the cost of manipulating information and/or the level of citizen awareness to be lower in Italy than in the US. Finding proper proxies for these variables is not an easy task. Nevertheless, if one accepts the idea that parties' manipulation technology is more effective and citizens' awareness is lower in countries where (i) the press is not entirely free and independent, and (ii) citizens are less informed about political and social issues, then we could refer to some official measures of these two phenomena and examine how they compare in the two countries. Two important and independent watchdog organizations, Reporters without Borders and Freedom House, provide two indexes of freedom of press according to which they rank countries from 2002 until 2015. According to both indexes, the Italian press lags significantly behind that of the US in terms of freedom. Regarding citizens' awareness, according to the *Index of Ignorance* elaborated by Ipsos-MORI, which "highlights how wrong the public across 14 countries are about the basic make-up of their populations and the scale of key social issues" (taken from Ipsos-MORI website), Italy is the most ignorant country among the 14 considered.[6] The behavior of these proxies for the cost of information manipulation across countries are entirely in agreement with the model. Freedom of the press and social awareness are higher and lower in US than in Italy, respectively, as our theory would predict.

Finally, our model also offers an explanation for the fact that the relationship between the quality and pay of politicians is generally positive only at the local municipal level, namely that information asymmetries, and therefore citizens' awareness, are more of an issue at the national level, where it is less likely that citizens have direct knowledge of the candidates.

The remainder of the paper proceeds as follows. Section 2 contextualizes our contribution within the related literature. Section 3 presents the model. Section 4 describes payoffs and actions. Section

[6]The 14 countries are Australia, Belgium, Canada, France, Germany, Hungary, Italy, Japan, Poland, South Korea, Spain, Sweden, the United Kingdom and the United States of America.

5 develops the equilibrium analysis. Section 6 presents the main result concerning the quality and pay of politicians. Section 7 concludes the paper.

2 Related Literature

We propose a model that delivers an ambiguous relationship between the pay and quality of politicians, based on the idea that parties might not have an incentive to select the best politicians. Therefore, our paper relates directly to two strands of the literature: that on the selection of politicians by parties and that on the relationship between rewards from politics and the quality of politicians.

The main motivation behind the literature on "political selection" - surveyed by Besley, 2005 - is that there is a general concern about the quality of elected politicians. Crucially, "(c)andidates are typically chosen by political parties. This fact raises the question of why a party would ever put a bad candidate up for election", (Besley 2005, page 55). Mattozzi and Merlo, 2015, develop a model in which a "mediocracy" equilibrium obtains, which is characterized by low-quality politicians. As they explain, such an equilibrium is the outcome of the following trade-off: "On the one hand, recruiting the best possible individuals may enhance the party's electoral prospects in a competitive electoral environment (competition effect). On the other hand, recruiting a relatively "mediocre" but homogeneous group of individuals may maximize their collective effort on behalf of the party since the presence of "superstars" may discourage other party members and induce them to shirk (discouragement effect)" (page 32). Carrillo and Mariotti, 2001, emphasize the discrepancy between parties' and voters' objectives. In their model, contrary to parties, voters always prefer to replace mediocre incumbents. Even under symmetric information, their model shows that electoral competition may lead parties not to select the most suitable candidates. Finally, Besley et al., 2014, propose another mechanism through which parties might not be willing to select the most competent candidates. In their model, "a male party leader may feel threatened by appointing women and competent men, especially when he is of mediocre competence. This creates a dilemma for party leaders who may only be able to appeal to voters by risking their own position" (page 3). They show how a mediocre male leader responds to this concern by appointing fewer women and competent men.

The papers discussed above develop intuitions regarding parties' incentives to (not) select best politicians that are different from that on which we focus. Yet, their results point in the same direction as ours: bad politicians could also be in office because parties might have insufficient incentives to select good politicians. More similar to our intuition regarding why this might happen, Besley, 2005, page 55, suggests that "if rents are earned by parties as well as successful candidates, and protection of those rents is dependent on selecting bad politicians with little public service motivation, then the party may have an interest in putting up bad candidates".

As far as the relationship between the pay and quality of politicians is concerned, Caselli and Morelli, 2004, predict that increasing politicians' pay always increases politicians' quality due to a selection effect. We significantly depart from their setup by introducing parties and endogenizing the information that citizens have about candidates. Our results show that the selection effect dominates – and thus, that a positive relationship between the quality and pay of politicians emerges – if and only

if parties face sufficiently high costs of manipulating information and/or, in the absence of information manipulation, the society is sufficiently informed.

Using a different setup, Mattozzi and Merlo, 2008, show that increasing the pay for public service makes politics more attractive at all skill levels, which reduces quality but also makes it more attractive for skilled politicians to stay in politics longer. As a result, the impact of pay for public office on quality is ambiguous. In our setup, a similar intuition applies whereby higher pay makes politics a more attractive option for both unskilled and skilled agents. Yet, in our case, the ambiguous relationship between the pay and quality of politicians is due to parties' incentives to manipulate information regarding candidates, rather than to opportunity cost considerations by skilled politicians.

Messner and Polborn, 2004, also show that quality of politicians might decrease following an increase in the politicians' wage. Their result, however, stems from an intuition very different from ours. In their setup, citizens care about the quality of politicians, and crucially, each citizen knows that he can affect the quality of politicians if he enters politics. Hence, while other things being equal, an increase in salary makes politics more attractive for a skilled citizen, it also increases the incentive of each skilled citizen not to run for election and instead free ride on other skilled citizens, relying on the fact that some of them will run.

While all of the above-mentioned contributions abstract from parties, Poutvaara and Takalo, 2007, integrate political parties into a citizen-candidate model and show that the effects of pay for politicians on candidate quality may be non-monotonic. Their setup significantly differs from ours in several respects: the number of political parties is fixed, parties have no role in manipulating information, and candidate ability affects both outside options and the probability of sending a good signal in costly campaigning.

We conclude the discussion of the related literature with two observations regarding (i) the informative role of parties and (ii) the notion of politician quality used in our paper. First, in our model, parties also shape the quality of politicians by affecting the public signal regarding the quality of candidates through information manipulation. This relates our paper to the literature on the informative role of parties. The idea that parties possess more information than voters about candidates' quality has wide recognition in the literature (Calliaud and Tirole, 2002, Snyder and Ting, 2002). The issue of whether they have the right incentives to truthfully disclose such information has also received some attention. For instance, Galeotti and Mattozzi, 2011, build a model according to which "in richer communication networks parties disclose less political information and voters are more likely to possess erroneous beliefs about the characteristics of the candidates running for office" (page 307). Moreover, some influential papers on *media capture* have given a prominent role to parties (Djankov et al., 2003) and more generally to the government (Besley and Prat, 2004) in capturing the media to affect political outcomes, which is consistent with the intuition that we develop in our model, according to which parties might attempt to manipulate information rather than disclose it truthfully.

Second, various contributions on the quality of politicians, including Bernheim and Kartik, 2014, Besley, 2004, and Caselli and Morelli, 2001, focus on aspects of candidate type other than competence, such as honesty or public spirit. In that respect, our model could be reinterpreted by replacing skilled

and unskilled citizens with honest and dishonest citizens, with no change in the main result so long as dishonest citizens have greater incentives to enter politics than honest citizens. As suggested by Caselli and Morelli, 2001, this assumption appears realistic if governance in public sector is worse than in the private sector, making it is easier to expropriate cash flows from taxpayers than from private enterprises' stakeholders. Under this alternative setting, our theory would contribute to the above-mentioned literature by highlighting the potentially ambiguous relationship between the honesty and pay of politicians, whereby the level of honesty in politics is positively (negatively) related to politicians' pay depending on whether the level of social awareness is high (low) and/or parties' ability to manipulate information is low (high).

3 The model

Building on Caselli and Morelli, 2004, we develop a game between parties and citizens, in which parties play a key role in the selection of politicians through the manipulation of information regarding candidates, as fully explained later on in the discussion. The model setup is as follows.

3.1 Citizens, Party members, Candidates, Politicians and Parties

The economy is populated by a measure $1 + p$ of risk-neutral citizens and an endogenous measure N of political parties. Citizens are of two types: a fraction s is skilled (s), and a fraction $1 - s$ is unskilled (u). A citizen of type $i = s, u$, earns w_i in the private sector, with $w_s > w_u$ and, without loss of generality, $w_u = 1$.

Citizens consume an indispensable public good, whereby a citizen's utility would equal zero if the good were not provided. The provision of the public good requires a measure p of citizens being elected to public office, where we call *politicians* the elected public officials. Politics is run by parties. A citizen can engage in politics and potentially become a candidate who runs for office only by first enrolling as a *member* of a party. Participating in politics as a party member entails a *participation cost* ϕ, which measures the direct utility loss that a citizen incurs if engaging in political activity.[7]

Furthermore, we assume that party members face an infinite cost of switching parties.[8] Once endowed with a public informative signal regarding their type, party members become *candidates* and run for office.

Politicians are elected from a pool of candidates by citizens who vote individually. Each politician is assigned to a public office and receives a monetary reward $\pi > w_s$. Parties operate thanks to the contributions of their politicians, whereby a politician of type i pays service duties e_i to the party to which she belongs.

Crucially, skilled politicians are assumed to be more productive than unskilled ones: the per-capita tax $t(q)$, necessary to finance the provision of the public good, is decreasing in the quality of politicians q, where q is defined as the fraction of politicians of type s.

[7] It could be associated with the time that the citizen allocates to this activity at the expenses of other uses.

[8] To be precise, for our results to go through, we do not need the cost to be infinite but just sufficiently high that switching parties is never an option for party members.

Following Caselli and Morelli, 2004, to eliminate a trivial equilibrium in which the entire population runs for office, we assume that there is a measure $v \in [p, 1]$ of citizens who face an infinite (subjective) cost of being party members, such that $\mu \equiv 1 + p - v$ is the measure of citizens who can potentially become politicians.

3.2 The role of Parties

Since citizens can become candidates only if they are party members, parties play a role as gatekeepers. Moreover, as we explain below, they play a key role in the selection of politicians by shaping the information about candidates that is publicly available. The information structure is the following. A citizen's type i is private information. However, parties learn the true type of their members, at no cost. Party members become candidates once exposed to an information gathering process (which we do not model explicitly) resulting from the activity of various institutions at the society level, including, for example all media, which results in a public signal $j = s, u$ regarding the type of each member of each party k. Let $f(i|j)$ be the probability that for a party member of true type i, the public signal generated is j. The structure of the public signal is as follows:

Definition 1 (Signal structure)**.** *For a member of party k of type i, the public signal regarding her type is correct ($i = j$) with probability $f(i|i) \equiv \sigma_k$ and incorrect ($i \neq j$) with probability $f(i|j \neq i) \equiv 1 - \sigma_k$.*

Clearly, the signal is informative if and only if $\sigma \geq 0.5$. Each party k has the ability to interfere with the informative process that goes on at the society level by engaging in costly manipulation of information about its members. We model this by assuming that each party determines the informativeness of the public signal regarding its candidates, as measured by σ_k, at a fixed cost $c(\sigma_k)$. Specifically, we assume that if party k does not interfere, then the public signal signal j for each of its members will be correct with probability $\bar{\sigma} > 0.5$. Note that in this case, the party does not incur any cost, i.e., $c(\bar{\sigma}) = 0$. Alternatively, if the party interferes by manipulating information, this would result in a public signal j that is correct with probability $\sigma_k < \bar{\sigma}$ for each of its members, where σ_k induces a cost $c(\sigma_k) > 0$ incurred by the party, which is decreasing in σ, i.e., $c'(\sigma_k) < 0$. We further assume that manipulating information is increasingly costly, i.e., $c''(\sigma_k) > 0$. All parties face the same cost $c(\sigma_k)$ of manipulating information. Specifically, for party k, the cost of manipulating information is as follows:

$$c = \begin{cases} c(\sigma_k) & \text{if } \sigma_k < \bar{\sigma} \\ 0 & \text{if } \sigma_k = \bar{\sigma} \end{cases} \tag{1}$$

Parties' ability to manipulate is low (high) if, for a given σ, $c(\sigma)$ is high (low) and (in)elastic. To avoid trivial results, we assume that for either type and for any feasible set of σ_k, with $k \in N$, the measure of candidates with the correct signal is greater than the measure of public offices to be filled.[9] Henceforth, we refer to σ_k as the quality of information available about the members of party k.

According to our assumptions, in the absence of interference by parties, the effectiveness of the process of producing reliable information about candidates at the society level is maximized, which

[9]Restricting attention to $\sigma_k \geq 0.5$ for all $k \in N$, the necessary and sufficient parameter restrictions for this to occur are $\mu s > 2p$ and $\mu(1 - s) > 2p$. The equilibrium analysis conducted in the paper takes such restrictions into account.

results in a public signal of quality $\bar{\sigma}$ of a candidate's skills. In other words, $\bar{\sigma}$ measures the quality of information that citizens receive in the absence of information manipulation by parties. Accordingly, we interpret $\bar{\sigma}$ as a measure of the potential maximum quality of information in the society that – other things being equal – can be associated with the effectiveness of the institutions involved in the production of information, including the media, and/or the degree of citizens' concern about politics. We define a society as *aware* (*unaware*) if it is characterized by a relatively high (low) level of $\bar{\sigma}$. In a similar way, parties' ability to manipulate information should be relatively low (high) if they have little control (full control) over the institutions involved in the process of producing information about candidates at the society level. Accordingly, we define a *captured* (*free*) society as one in which parties' ability to manipulate information is high (low).

3.3 Voting Rules

Voting rules are set in a standard way as follows. Citizens can vote for at most one candidate, and votes for non-candidates are void. For a given measure of public offices x to be filled, the measure x of candidates who receive the most votes are elected to office. When necessary, ties are broken with a random draw.

3.4 Citizen-Parties game.

The timing of the game played by citizens and parties is as follows.

1. Nature decides individual types.
2. Parties enter.
3. Citizens decide whether to become party members and of which party.
4. Parties set service duties to be contributed by politicians and engage in information manipulation (if any) about their party members, while party members decide to stay and engage in political activity (incurring the cost ϕ) or quit politics (thereby not incurring the participation cost ϕ).[10]
5. Public signals about the individual type of party members engaged in politics are realized. Party members endowed with such signal become candidates, and citizens vote.
6. The outcome of the game is realized and payoffs are assigned.

4 Payoffs and actions

In this section, we analyze parties and citizens' payoffs and actions.

[10]Note that the costs of switching parties are infinite for party members, and thus switching parties is not considered an option.

4.1 Citizens

Let $d_i = \{0, 1\}$ represent the decision of whether to engage in politics for a citizen of type i, where $d_i = 1$ if a citizen decides to start a political career by becoming a party member and engaging in politics, and $d_i = 0$ otherwise, i.e., if the citizen either does not become a party member or, having become a party member, quits rather than engaging in politics (see stage 4 of the game). A party member who engages in politics incurs a cost ϕ. Subsequently, once endowed with a public signal $j = s, u$ of her type, party members who engaged in politics become candidates (stage 5 of the game). If elected, as a politician, the citizen will receive a payment π and will contribute service duties to the party. Let α^j be the probability of a candidate being elected – conditional on a signal $j = s, u$. Then, given the above and considering the probabilistic structure of the signal j provided by definition 1 and the related discussion, for a citizen of type i, the expected payoff from choosing a political career in party k, where such party charges service duties $e_{s,k}$ to skilled politicians and $e_{u,k}$ to unskilled politicians, is the following:

$$\begin{aligned} v_i|_{d_i=1} \equiv & \left[\alpha^s f(s|i) + \alpha^u(1 - f(s|i))\right](\pi - e_{i,k}) + \\ & \left[(1 - \alpha^s)f(s|i) + (1 - \alpha^u)(1 - f(s|i))\right] w_i - \phi - t\,(q) \end{aligned} \tag{2}$$

Similarly, the payoff of a citizen of type i who does not engage in politics would be

$$v_i|_{d_i=0} \equiv w_i - t(q) \tag{3}$$

Given the measure C of candidates, each citizen of type i expresses a vote $b_i \in \mathbb{R}$. The vote is void if $b_i \notin \mathcal{C}$, where $\mathcal{C}$ is the set of candidates, with measure C. An action for a citizen of type i is a pair (d_i, b_i).

4.2 Parties

We define $A_{k,s}$, and $A_{k,u}$, with $A_{k,s}, A_{k,u} \in \mathbb{R}$, as the measures of members of types s and u, respectively, recruited by party k. Accordingly, $A_s \equiv \int_k A_{k,s}$ and $A_u \equiv \int_k A_{k,u}$ are the aggregate measures of party members of type s and u, respectively, while $A \equiv A_s + A_u$ is the aggregate measure of party members, independent of type. Note that the following inequalities must hold:

$$A_s \leq \mu s \tag{4}$$

$$A_u \leq \mu(1 - s) \tag{5}$$

as the measure of party members cannot be – conditional on type – larger then the measure of the citizens who can engage in politics.

Given the above, the expected payoff of party k can be written as

$$v_k = e_{s,k}(\alpha^s \sigma_k + \alpha^u\,(1 - \sigma_k))A_{k,s} + e_{u,k}(\alpha^s\,(1 - \sigma_k) + \alpha^u \sigma_k)A_{k,u} - c\,(\sigma_k) \tag{6}$$

Each party k chooses whether to enter, $r_k = 1$, or not, $r_k = 0$, the level of informativeness of the public signal regarding its members (through information manipulation) $\sigma_k \in [0, \bar{\sigma}]$, and service duties $e_{u,k}, e_{s,k} \in \mathbb{R}$ to be paid by its unskilled and skilled elected politicians. An action for the party k is a quadruple $(r_k, \sigma_k, e_{s,k}, e_{u,k})$.

5 Equilibrium analysis

A strategy for a citizen of type i is a probability function a_i that maps actions (d_i, b_i) onto $[0,1]$. A strategy for a party k is a probability function a_k that maps actions $(r_k, \sigma_k, e_{u,k}, e_{s,k})$ onto $[0,1]$. Given these definitions,

Definition 2. *An equilibrium is a strategy profile for the citizens and the parties such that each agent's strategy is best response at any given stage of the game.*

Let $C^j_{k,i}$ be the measure of candidates of type i and signal j belonging to party k, such that (i) $C^j_i \equiv \int_k C^j_{k,i}$ is the aggregate measure of candidates of type i and signal j across parties; (ii) $C^j \equiv C^j_s + C^j_u$ is the aggregate measure of candidates of signal j across candidate's types; and (iii) $C \equiv C^s + C^u = C_u + C_s$ is the total measure of candidates. Note that $\int_j C^j_{k,i} = C_{k,i} = A_{k,i}$ and $C = A$ because, for any $i = s, u$ and for every party k, all party members become candidates once endowed with the informative signal j produced by their party. Rather than characterizing all equilibria, we restrict our attention to a subset of the possible equilibria that satisfy the following properties:

1. *Symmetry.* Members, candidates and politicians, are equally divided among parties. That is, for each $k \in N$,

$$A_{k,i} = \frac{A_i}{N} \tag{7}$$

$$C^j_{k,i} = \frac{C^j_i}{N} \tag{8}$$

   with $i, j = s, u$.

2. *Candidates who have a positive probability of being elected are perceived to be skilled, i.e., they have a high signal $j = s$.* Since voters prefer to vote for high-signal candidates rather than low-signal candidates, this condition is equivalent to requiring that there are enough candidates of high signal to fill all seats, i.e.,

$$C^s > p \tag{9}$$

3. *Skill composition of party members: the reluctance of skilled citizens to enter politics.* Of the μ citizens who can potentially enter politics, all unskilled citizens become party members while only a fraction of skilled citizens do so. That is,

$$(A_u = \mu(1-s)) \wedge (A_s < \mu s) \tag{10}$$

Concerning the equilibrium skill composition of party members (property 3), we observe that, in principle, there are three other possible equilibrium situations other than that on which we focus.

i. Skilled citizens all become members, while some of the unskilled citizens do not

$$(A_u < \mu(1-s)) \wedge (A_s = \mu s) \tag{11}$$

ii. All citizens, skilled and unskilled, become party members

$$(A_u = \mu(1-s)) \wedge (A_s = \mu s) \tag{12}$$

iii. Some skilled and unskilled citizens become members and some (both skilled and unskilled) do not

$$(A_u < \mu(1-s)) \wedge (A_s < \mu s) \tag{13}$$

However, there is no substantial loss of generality from focusing only on equilibria in which property 3, page 11, holds. Indeed, as we show in section 5.5, in the equilibria in which property 3 does not hold, such that the skill composition of politicians matches one of the three possibilities describe above (associated with conditions 11-13), either the measure of parties is infinite or indeterminate or the case for a positive relationship between pay and quality of politicians (which is the focus of the paper) is even stronger.

In the following discussion, we will fully characterize the equilibrium that satisfies properties 1-3 listed above. Then, we verify the parameter restrictions such that this equilibrium exists. Since we are assuming symmetry, we drop the k when referring to parties' actions.

5.1 Citizens's behavior and equilibrium values of the probability of being elected

We first analyze citizens' voting behavior (stage 5 of the citizen-parties game) and then their decision to become party members and engage in politics (stage 3 of the game).

Citizens vote based upon the set $\mathcal{C}$ of candidates, which coincides with the set of party members endowed with an individual informative signal j. Given $\mathcal{C}$, the optimal voting strategy of a citizen is as follows. Following the literature, we adopt the notion of conditional sincerity and assume that non-candidate citizens perform as if they were pivotal.

With that given, as citizens prefer skilled politicians and observe a signal for each candidate, whenever such signal is informative ($\sigma > 0.5$), each non-candidate citizen votes for a randomly chosen element of the set of candidates with a high signal $\mathcal{C}^s$, so long as this set is non-empty. Only if $\mathcal{C}^s$ were empty would non-candidate citizens vote for a randomly drawn element of the set of candidates with signal u $\mathcal{C}^u$. For candidates, the optimal subgame perfect equilibrium strategy is as follows. Each candidate who – given the optimal voting strategy of non-candidates – has a positive positive probability of being elected votes for himself. For candidates who have zero chance of being elected even if they vote for themselves, they will vote as non-candidate citizens do.

Citizens' optimal behavior as voters allows us to characterize the equilibrium probabilities of being elected for candidates with signal u or s. In particular, in any equilibrium in which condition (9) holds (property 2, page 11), such that there are enough candidates with a signal s to fill all public office seats, a candidate with a signal u will never receive votes for public office, as citizens prefer skilled politicians. Accordingly, only candidates with signal s will ever be elected if there are enough of them

to fill all seats.[11] Therefore, provided that this condition holds,

$$\alpha^s = \frac{p}{C^s} \tag{14}$$

$$\alpha^u = 0 \tag{15}$$

are the equilibrium probabilities for a candidate to be elected conditional on her signal.

Substituting for the values of α^s and α^u in the citizens' payoff expressions (2) and (3), the equilibrium expected gains from becoming party members for citizens of type s and u are

$$v_s|_{d_s=1} - v_s|_{d_s=0} \equiv \underbrace{\frac{p}{C^s}\sigma(\pi - w_s)}_{\text{Expected benefit}} - \left(\underbrace{\frac{p}{C^s}\sigma e_s + \phi}_{\text{Expected cost}} \right) \tag{16}$$

and

$$v_u|_{d_u=1} - v_u|_{d_u=0} \equiv \underbrace{\frac{p}{C^s}(1-\sigma)(\pi - 1)}_{\text{Expected benefit}} - \left(\underbrace{\frac{p}{C^s}(1-\sigma)e_u + \phi}_{\text{Expected cost}} \right), \tag{17}$$

respectively.

The optimal decision regarding whether to become a party member and engage in politics ($d_i = 1$) or not ($d_i = 0$) for a citizen of type i is as follows:

$$d_i \equiv \begin{cases} 1 & \text{if } v_i|_{d_i=1} - v_i|_{d_i=0} > 0 \\ 0, 1 & \text{if } v_i|_{d_i=1} - v_i|_{d_i=0} = 0 \\ 0 & \text{if } v_i|_{d_i=1} - v_i|_{d_i=0} < 0 \end{cases} \tag{18}$$

A citizen's net expected gain from becoming a party member and engaging in politics is given by the difference between an expected benefit and an expected cost. The expected gain is, for both skilled and unskilled citizens, a positive function of the probability of being elected and the difference between the reward received as a public officer and her salary in the private sector. The expected cost, for both skilled and unskilled citizens, is given by the sum of the participation cost and the expected service duties. Since, in the equilibria we consider, only party members with signal s have a positive probability of being elected, the net expected gains from entering politics are increasing (decreasing) in the informativeness σ of the signal for skilled (unskilled) citizens.

We note that, in the equilibrium we are interested in, the net expected gain from entering politics for a skilled and unskilled citizen should satisfy the following conditions. First, $v_u|_{d_u=1} - v_u|_{d_u=0} \geq 0$ must hold because if all unskilled citizens decide to become party members, this should be the preferred choice for this type of citizen. Second, $v_s|_{d_s=1} - v_s|_{d_s=0} = 0$ must hold because skilled citizens must be indifferent between becoming party members and not to ensure that only a fraction of skilled individuals to choose to become party members.[12]

[11] Note that if there are enough candidates with signal $j = s$ to fill all seats ($C^s > p$, property 2), in general, to be elected, a candidate needs more than one vote, and thus although each candidate with signal u votes for himself, this would be not enough for such candidates to be elected.

[12] Since all skilled citizens share the same payoff function, if $v_s|_{d_s=1} - v_s|_{d_s=0} > 0$, then all skilled citizens would be willing to run, while if $v_s|_{d_s=1} - v_s|_{d_s=0} < 0$, none of them will be willing to become party members.

Crucially, since only party members with signal s have a positive probability of being elected, the measure of candidates with a positive probability of being elected will be given by the sum of skilled party members with the correct signal and that of unskilled party members with the incorrect signal. Specifically,

$$C_s^s = \sigma A_s \tag{19}$$

$$C_u^s = (1-\sigma)A_u \tag{20}$$

In the class of equilibria we restrict our attention to, in which unskilled citizens all become party members, we also have

$$C_u^s = \mu(1-s)(1-\sigma) \tag{21}$$

Moreover, since $C^s = C_s^s + C_u^s$, in our equilibrium, the probability of being elected reduces to

$$\alpha^s = \frac{p}{C_s^s + \mu(1-s)(1-\sigma)} \tag{22}$$

where the value of C_s^s will be pinned down endogenously from parties' optimal behavior as analyzed in the next subsection.

5.2 Parties' behavior

In this subsection we analyze parties' equilibrium choice of service duties e_i (stage 4 of the citizen-party game) to be extracted from skilled and unskilled politicians $i = s, u$ and of the optimal degree of information manipulation σ, (stage 4 of the game) for a given measure of parties N. Then, the entry decision will be addressed. We assume perfect enforceability of service duties e_i.[13] As we shall see, the optimal value of e_i, together with the conditions on the citizens' optimal behavior, pins down the probabilities of being elected and the measure of candidates, as well as its skill composition.

5.2.1 Equilibrium values of the service duties e_s and e_u and of the measure of candidates with a positive probability of being elected C^s

The following result holds:

Lemma 1. *Consider a symmetric equilibrium in which the equilibrium measure of parties is finite, $N^* < \infty$, and determinate. Then, $e_u^* > e_s^* = 0$.*

Proof. We prove this result by contradiction. Consider a candidate equilibrium in which $e_s^* > 0$. In this case, by (6) and irrespective of the value of e_u^*, parties could make strictly positive profits by setting $\sigma = \bar{\sigma}$ such that $c(\bar{\sigma}) = 0$. However, in this case, an equilibrium in which parties make zero profits is only compatible with $N^* = \infty$, which contradicts the hypothesis of a finite measure for the measure of parties. Hence, $N^* < \infty$ implies that $e_s^* = 0$. Now, suppose that $e_u^* = 0$. Since $N < \infty$ implies that $e_s^* = 0$, then parties can make non-negative profits only by choosing $\sigma^* = \bar{\sigma}$. However, in this case, profits would always be zero, and therefore, the measure of parties would be indeterminate in equilibrium. □

[13] Otherwise, incentives for elected politicians to pay service duties to the party should be modeled explicitly. One could assume that parties can impose penalties on politicians who refuse to pay. In a repeated-interaction framework, the threat of excluding them from future elections could be such a penalty. Otherwise, we could assume that service duties have to be paid upfront when a party member becomes a candidate, which would not change the results.

The above result tells us that in equilibria in which the measure of parties is finite and determinate, parties are able to extract positive service duties only from unskilled politicians. If this were not the case, then either $e_u^* = e_s^* = 0$, in which case the equilibrium measure of parties would be indeterminate, or $e_s^* > 0$, in which case the equilibrium measure of parties would be infinite. We would like to emphasize that this equilibrium feature holds irrespective of whether properties 2 and 3 on page 11 hold.

Regarding the optimal value of service duties charged to unskilled politicians e_u^* and the equilibrium measure of candidates with a positive likelihood of being elected C^{s*}, the following result holds.

Lemma 2. *Consider an equilibrium in which properties 1-3 on page 11 are satisfied, and the equilibrium measure of parties is finite, $N^* < \infty$. Then,*

$$e_u^* = max\left[0, \frac{(1-\sigma)(\pi-1) - \sigma(\pi - w_s)}{(1-\sigma)}\right] \tag{23}$$

$$C^{s*} = \frac{p\sigma(\pi - w_s)}{\phi} \tag{24}$$

Proof. We restrict our attention to the case in which $N^* < \infty$, such that lemma 1 holds, and $e_s^* = 0$. First, we note that, in any equilibrium, parties are local monopolists when setting service duties since they make such decisions once citizen have become party members, and party members face an infinite cost of switching parties. Therefore, the best strategy of party k is always to charge the maximum feasible party duties (above which party members would quit politics), thereby extracting all of the expected surplus that the citizen makes by choosing to engage in politics, i.e., $e_i^* : v_i|_{d_i=1} - v_i|_{d_i=0} = 0$, where $v_i|_{d_i=1}$ is the payoff of a party member who engages in politics as defined by equation (2), and $v_i|_{d_i=0}$ is the payoff of a party member who decides to quit politics (3). Using $e_s^* = 0$ in (16), and setting $v_s|_{d_s=1} - v_s|_{d_s=0} = 0$, we find that $C^{s*} = \frac{p\sigma(\pi - w_s)}{\phi}$. Substituting this value for C^{s*} into (17) and setting $v_u|_{d_u=1} - v_u|_{d_u=0} = 0$, we obtain $e_u^* = \frac{(1-\sigma)(\pi-1)-\sigma(\pi-w_s)}{(1-\sigma)}$. Since e_u cannot be negative (parties cannot make negative profits in equilibrium), its equilibrium value is the maximum between 0 and $\frac{(1-\sigma)(\pi-1)-\sigma(\pi-w_s)}{(1-\sigma)}$. Note that according to lemma 1, e_u is necessarily positive only if the equilibrium measure of parties is determinate. □

Having analyzed the equilibrium service duties, we now turn our attention to parties' information manipulation.

5.2.2 Information manipulation: Optimal choice of σ by parties

Given Lemma 1, in any equilibrium with a determined and finite measure of parties, N^*, $e_s^* = 0$ and $e_u^* > 0$ should hold. Then, the following result follows from lemmata 1-2 regarding the optimal choice of σ by parties.

Corollary 1. *Consider an equilibrium in which properties 1-3 on page 11 are satisfied and the equilibrium measure of parties is finite, $N^* < \infty$, and determinate. Then the optimal degree of information manipulation chosen by parties must be such that*

$$\sigma^* < \hat{\sigma} \equiv \frac{\pi - 1}{\pi - w_s + \pi - 1} \tag{25}$$

Proof. By lemma 1, we know that $N^* < \infty$ and determinate imply $e_u^* > 0$. Furthermore, given the expression for e_u^* (lemma 2, equation 23), $e_u^* > 0$ implies $\sigma^* < \hat{\sigma} \equiv \frac{\pi-1}{\pi-1+\pi-w_s}$. □

The above corollary introduces an important parameter into our analysis, $\hat{\sigma}$, which represents the level of informativeness of the public signal above which skilled citizens are more willing to become party members than unskilled citizens.

It is interesting to note that $\hat{\sigma}$ is always decreasing in π since

$$\frac{\partial \hat{\sigma}}{\partial \pi}/\hat{\sigma} = \frac{1 - w_s}{(\pi - 1 + \pi - w_s)(\pi - 1)} < 0 \tag{26}$$

The intuition for this outcome is straightforward. When the level of informativeness of the signal equals $\hat{\sigma}$, skilled and unskilled citizens are equally willing to enter politics. Whenever the signal is informative, an increase in pay for politicians favors skilled party members more than unskilled members, as the former are more likely to be elected than the latter. To compensate for this effect, as the pay of politicians increases, the value of $\hat{\sigma}$ should decrease, thereby increasing the probability that unskilled party members will be elected.

Given corollary 1, we study the optimal choice of σ under the hypothesis that this choice satisfies $\sigma^* < \hat{\sigma}$, which is necessary for the equilibrium measure of parties to be finite and determinate. We will later verify (see section 5.5) the sufficient conditions under which this hypothesis is confirmed.

Combining (24) and (14), we obtain the probability of being elected as a function of only one endogenous variable, σ:

$$\alpha^s = \frac{\phi}{\sigma(\pi - w_s)} \tag{27}$$

Under the hypothesis that $\sigma^* < \hat{\sigma}$ (corollary 1), using lemmata 1-2 to substitute for the equilibrium values of e_s, e_u, C^s, α^s and α^u in (6), and considering that in a symmetric equilibrium each party is identical, the representative party solves

$$\max_{\sigma} \frac{\phi\mu\,(1-s)}{N}\left(\frac{\pi - 1}{\pi - w_s}\frac{1-\sigma}{\sigma} - 1\right) - c\,(\sigma) \tag{28}$$

In the case of an interior solution, for a given N, the optimal level of σ, which we call σ^*, solves the following first-order condition:

$$-\frac{\phi\mu\,(1-s)}{N}\frac{\pi - 1}{\pi - w_s} - \sigma^2 c'\,(\sigma) = 0 \tag{29}$$

An increase in σ has two opposing effects on the party's objective function. The positive effect stems from a lower cost of information manipulation (recall that $c'(\sigma) < 0$, meaning that $-\sigma^2 c'(\sigma) > 0$). This effect is associated with the second term on the LHS of equation (29). The negative effect is given by the first term on the LHS of (29). A lower degree of information manipulation reduces the amount of service duties that a party can extract from politicians. That is a result of two main forces: 1) the equilibrium measure of unskilled politicians is reduced (both because more skilled citizens are becoming party members and because the probability of being elected for a low-type/high-signal party member is reduced); 2) the maximum level of service duties that each unskilled politician is willing to contribute is lower because the expected net gains from politics are reduced.

The optimal level of σ is the one that balances the two effects. Before introducing an explicit cost function to fully characterize the optimal value of σ^* and find the parameter restrictions under

which the hypothesis that $\sigma^* < \hat{\sigma}$ holds, we first analyze how the equilibrium measure of parties N^* is determined.

5.3 Measure of parties and informativeness of the public signal

We assume free entry for parties (stage 2 of the game). Accordingly, the following result holds:

Lemma 3. *Consider an equilibrium in which properties 1-3 on page 11 are satisfied, and the equilibrium measure of parties is determined. Then, for a given σ, the equilibrium measure of parties N^* satisfies*

$$N^* = \frac{1}{c(\sigma)}\left(\phi\mu(1-s)\left(\frac{\pi-1}{\pi-w_s}\frac{1-\sigma}{\sigma}-1\right)\right). \tag{30}$$

Proof. For a given σ, N^* is found by: (i) substituting in equation (6) the equilibrium values of e_s, e_u, α_s, α_u, $A_{k,u}$, and $A_{k,s}$; then (ii) imposing free entry, which implies $v_k = 0$; and (iii) solving for N. □

The equilibrium measure of parties N^* and the equilibrium value of informativeness of the public signal σ^* associated with information manipulation by parties are found solving the simultaneous system of equations (29) and (30). By substituting for N^* in (29) using (30), we obtain

$$\sigma^* : \frac{\hat{\sigma}}{\hat{\sigma}-\sigma^*} = -\frac{\sigma^* c'(\sigma^*)}{c(\sigma^*)} \tag{31}$$

which implicitly defines the equilibrium value of σ, equal to σ^*, as a function of $\hat{\sigma}$ and therefore of π and w_s only (see equation (25)). Having characterized the equilibrium that satisfies properties 1-3, we now turn to the analysis of the relevant existence conditions.

5.4 Sufficient conditions for Equilibrium existence

For the value σ^* to yield a maximum, we require a party's objective function (28) to be globally strictly convex in $\sigma \in (0.5, \bar{\sigma})$, which in turn requires

$$\frac{2}{\sigma^3}\frac{A_u}{N}\phi\frac{\pi-1}{\pi-w_s} - c''(\sigma) < 0, \forall\sigma \in (0.5, \bar{\sigma}) \tag{32}$$

Substituting using (29), the above condition reduces to the following assumption:

Assumption 1. $-\frac{\sigma c''(\sigma)}{c'(\sigma)} = \gamma(\sigma) > 2$, *for* $\sigma \in (0.5, \bar{\sigma})$.

Assumption 1 states that the elasticity of the marginal cost of manipulating information should be large enough for a unique optimal value $\sigma^* \in (0.5, \bar{\sigma})$ to exist.[14]

Apart from Assumption 1, for σ^* to be consistent with properties 1-3 of the equilibrium, we need some other restrictions on the parameter values to be satisfied. First, since the equilibrium value of C^s is given by (24), property 2 on page 11 (i.e., $C^s > p$) implies that $\sigma^* > \frac{\phi}{\pi - w_s}$ should hold. In turn,

[14] This follows from the fact that if assumption 1 holds, then $\sigma^2 c'(\sigma)$ is strictly decreasing, and thus, there is only one value of σ that satisfies the first-order condition (29).

since $\sigma^* > 0.5$ must hold, as we want the signal produced by parties to be informative, a sufficient condition for $C^s > p$ to hold in equilibrium is

$$\phi < \frac{\pi - w_s}{2}. \tag{33}$$

That is, to have enough candidates of high signal to cover all seats in equilibrium, the participation cost should not be too large.

Second, property 3, page 11, requires that only a fraction of skilled citizens become party members, that is $A_s < \mu s$. Given that in the equilibrium we are analyzing, (i) the measure of candidates with high signal is equal to the sum of skilled party members with the correct signal and unskilled party members with the incorrect signal, and (ii) all unskilled citizens become party members; then,

$$C^s = \sigma A_s + (1-\sigma)(1-s)\mu \tag{34}$$

and thus the measure of skilled party members can be written as

$$A_s = \frac{C^s - (1-\sigma)(1-s)\mu}{\sigma} \tag{35}$$

Substituting for the equilibrium value of C^s as given by (24), we conclude that property 3 is satisfied when

$$\frac{\frac{\sigma^* p(\pi - w_s)}{\phi} - (1-\sigma^*)(1-s)\mu}{\sigma^*} < \mu s \tag{36}$$

which implicitly imposes an upper bound on the equilibrium value of σ^*, i.e.,

$$\sigma^* < \frac{(1-s)\mu\phi}{p(\pi - w_s) + \mu\phi(1-2s)}, \tag{37}$$

Finally, since we need $\sigma^* \in \left(\frac{1}{2}, \hat{\sigma}\right)$, the above inequality is satisfied if

$$\hat{\sigma} < \frac{(1-s)\mu\phi}{p(\pi - w_s) + \mu\phi(1-2s)} \tag{38}$$

or, given the value of $\hat{\sigma} = \frac{\pi - 1}{\pi - 1 + \pi - w_s}$, if

$$\phi > \frac{p(\pi - w_s)(\pi - 1)}{\mu((\pi - w_s) + s(w_s - 1))} \tag{39}$$

The above condition establishes an upper bound on ϕ. The cost of becoming a party member cannot be too large in an equilibrium in which only a fraction of skilled citizens become party members while all unskilled citizens do so.

Given the other parameters, we can summarize the restrictions on the value of ϕ that constitute necessary and sufficient for the existence of the equilibrium that satisfies properties 1-3 as follows:

Assumption 2. $\phi \in \left(\frac{p}{\mu}\frac{(\pi - w_s)(\pi - 1)}{(\pi - w_s) + s(w_s - 1)}, \frac{\pi - w_s}{2}\right)$.

It is important to note that when p/μ (i.e., the ratio between the measure of political seats and the measure of citizens who can potentially become politicians) is small enough, then there is a wide range of values of ϕ such that – given the other parameters – assumption 2 is satisfied and our equilibrium exists.

Finally, the following further assumption is needed to ensure that an equilibrium with a finite and determinate measure of parties N^* exists and $\sigma^* < \hat{\sigma}$ always holds in such an equilibrium (see corollary 1):

Assumption 3. $\bar{\sigma} > \hat{\sigma} \equiv \frac{\pi-1}{\pi-1+\pi-w_s}$.

This assumption ensures that, in equilibrium, parties' revenues do not exceed parties' costs for any $\sigma \in (0.5, \bar{\sigma})$ and that the two are equalized only when $\sigma = \sigma^*$, where by definition, parties maximize their profit but make zero profit.[15]

It follows directly from the above discussion that, given the other parameters, if ϕ, γ, and σ satisfy assumptions 1, 2 and 3, the equilibrium that we are interested in, which satisfies properties 1-3, exists and is unique.

5.5 Skill composition of party members: A discussion of potential equilibrium alternatives

In the previous section, we focused on equilibria in which property 3 holds, i.e., all unskilled citizens become party members, while only a fraction of skilled ones do so. In this section, we explain why such a choice does not entail a significant loss of generality, given the focus of the paper. As previously discussed on page 12, regarding the equilibrium skill composition of party members, there are three alternatives other than the that on which we focus. We could have that skilled citizens all become members, while some of the unskilled citizens do not (case i), or all skilled and unskilled citizens become members (case ii), or finally, that some skilled and unskilled citizens become members and some (both skilled and unskilled) do not (case iii).

In any equilibrium characterized by the skill composition associated with case i above, skilled citizens must be more willing to enter politics than unskilled citizens, which would imply that $e_s^* > e_u^* \geq 0$. However, from lemma 1, we know that $e_s^* > 0$ is only compatible with $\sigma^* = \bar{\sigma}$. We conclude that in this type of equilibrium, the level of information is always set at the maximum level $\bar{\sigma}$, and the measure of parties is infinite, i.e., $N^* = \infty$. This makes the analysis of this equilibrium rather uninteresting.

[15] From (28), we can rewrite the profit function of the party as

$$B(\sigma) - c(\sigma)$$

, where $B(\sigma)$ represents the party's revenue and can be written as $B(\sigma) = \frac{\mu\phi(1-s)}{N}\frac{\pi-1}{\pi-w_s}\left(\frac{1}{\hat{\sigma}} - \frac{1}{\sigma}\right)$. Now, note that $B(\sigma)$ is strictly decreasing ($\frac{\partial B}{\partial \sigma} < 0$) and strictly globally convex ($\frac{\partial^2 B}{\partial \sigma^2} > 0$) in σ. Since this is also the case for $c(\sigma)$ (see section 3.2), then it is straightforward to conclude that, due to free entry, $B(\sigma) \leq c(\sigma)$ for every $\sigma \in (0.5, \bar{\sigma})$ with $B(\sigma) = c(\sigma)$ *only for* $\sigma^* = \sigma < \hat{\sigma}$. However, then it must also be the case that $c(\hat{\sigma}) > B(\hat{\sigma}) = 0$, where the latter equality stems from the fact that $\hat{\sigma} = \sigma$ implies $e_u = e_s = 0$, and hence parties make zero profits. However, since $c(\cdot)$ is assumed to be continuous in $(0.5, \bar{\sigma})$ and monotonically decreasing in σ, ($c'(\sigma) < 0$), then it must be the case that $\hat{\sigma} < \bar{\sigma}$, which corresponds to assumption 3. For a graphical representation of the above argument, see also figure 3.

Regarding equilibria that correspond to case ii above in terms of skill composition, it is easy to see that in such equilibria, e_s^* is always strictly positive (and then the equilibrium measure of parties N^* is infinite) except for a specific value of σ^*, for which $e_s^* = 0$. When all citizens, both skilled and unskilled, become party members, then $C^s = \mu\sigma s + \mu(1-\sigma)(1-s)$. However, then, from (16) and imposing $v_s|_{d_s=1} - v_s|_{d_s=0} = 0$, we obtain

$$e_s = \pi - w_s - \frac{\phi C^s}{p\sigma}.$$

Now, by substituting for $C^s = \mu\sigma s + \mu(1-\sigma)(1-s)$, we can conclude that in this case, $e_s^* = 0$ *if and only if* $\sigma^* = \frac{(1-s)\mu\phi}{p(\pi - w_s) + \mu\phi(1-2s)}$. For this reason, the loss of generality from disregarding this type of equilibrium is negligible.

Finally, in any equilibrium that falls under case iii above in terms of the skill composition of party members, we would always have that $e_s^* \leq e_u^*$. Lemma 1 applies, meaning that $e_s^* = 0$ must hold for the measure of parties to be finite. In this case, we could have either $e_u^* = 0$ (but then by lemma 2 the measure of parties would be indeterminate and the equilibrium analysis uninteresting) or $e_u^* > 0$, in which case the measure of parties could be determined. Note that, in this case, $\sigma^* < \hat{\sigma}$ (given corollary 1, which also holds in this case). The main features of this equilibrium would then be similar to those associated with the equilibrium we focus on, with an important difference. In the equilibrium we focus on, all unskilled citizens are already in politics. In contrast, in this type of equilibrium, some of the unskilled citizens are outside politics. Therefore, an increase in the pay of politicians could attract more unskilled citizens into politics. This cannot happen in the case we focus on, in which an increase in the pay of politicians could only attract skilled citizens, if any, into politics. Thus, the case for a negative relationship between the pay and quality of politicians is even stronger than in the type of equilibrium on which we focus. Therefore, by adopting a conservative approach, we could disregard such equilibria.

Given the above discussion, the choice to focus on equilibria that satisfy property 3 on page 11 seems entirely appropriate and generates no significant loss of generality.

5.6 Equilibrium characterization with an explicit cost function

We now fully characterize the equilibrium by assuming the following explicit cost function:

$$c(\sigma) = \left(\frac{\bar{\sigma} - \sigma}{\sigma}\right)^{\theta} \tag{40}$$

Notice that in this case, assumption 1 requires that $\theta > 1$. Regarding $\bar{\sigma}$, the only relevant case by assumption 3 is that in which $\bar{\sigma} > \hat{\sigma} > 0.5$ holds, where we recall that $\bar{\sigma}$ measures the quality of the public signal of candidate type produced in the absence of information manipulation by parties. Given (40), condition (31) can be solved for σ^*, yielding

$$\sigma^* = \frac{\bar{\sigma}}{\theta\bar{\sigma} - \hat{\sigma}}\hat{\sigma}(\theta - 1) \tag{41}$$

Given $\theta > 1$, $\theta\bar{\sigma} > \bar{\sigma} > \hat{\sigma}$ follows, implying that $\sigma^* < \hat{\sigma}$, which ensures that σ^* is consistent with the existence of the type of equilibrium on which we focus. Moreover, for $\sigma^* > 0.5$ to hold, we need

to impose an additional following restriction on θ:

$$\theta > \frac{\hat{\sigma}(2\bar{\sigma}-1)}{\bar{\sigma}(2\hat{\sigma}-1)} > 1 \tag{42}$$

If this were not the case, then manipulating information would be so cheap that parties would always choose the minimum level of information manipulation.[16] The associated value of N^* is found by substituting for the value of σ in equation (30) using the above explicit solution for σ^*.

Having fully characterized the equilibrium, we can now turn to the analysis of how changes in the pay of politicians affect the quality of elected politicians.

6 Quality of politicians and politicians' pay

Given the model setup, the relevant measure of the quality of politicians q is the fraction of politicians of true type s, which negatively affects the level of taxes, $t(q)$, necessary to finance the provision of the public good. In the equilibrium we focus on, only candidates with high-signal have a positive probability to be elected, and such probability is given by α_s for all these candidates. Therefore, given a measure C^s of candidates with high-signal, the measure of elected politicians is equal to $\alpha^s C_s$. Moreover, given a measure C_s^s of candidates of true type s, the measure of elected politicians with true type s is given by $\alpha^s C_s^s$. Finally, this implies that the fraction of politicians of type s is the same as the ratio between skilled candidates endowed with signal s and candidates with signal s. That is, $q = \frac{C_s^s}{C^s}$ holds.[17] Using (24), and recalling that $C_s^s = C^s - \mu(1-s)(1-\sigma)$, we finally obtain the equilibrium value of q:

$$q^* = 1 - \frac{\mu\,(1-s)\,(1-\sigma^*)}{C^{s*}} = 1 - \frac{\phi\mu\,(1-s)\,(1-\sigma^*)}{p\sigma^*\,(\pi - w_s)} \tag{43}$$

as a function of the equilibrium value of the quality of public information σ^*. To see how politicians' pay affects the quality of politicians, we differentiate q^* with respect to π:

$$\frac{\partial q^*}{\partial \pi} = \frac{\phi\mu\,(1-s)}{p\sigma^*\,(\pi - w_s)} \left(\underbrace{\frac{1-\sigma^*}{\pi - w_s}}_{\text{Selection effect}} + \underbrace{\frac{\partial \sigma^*}{\partial \pi}\frac{1}{\sigma^*}}_{\text{Information manipulation effect}} \right) \tag{44}$$

The effect of pay on quality can be viewed as the sum of two different effects: (i) a *Selection* effect and (ii) an *information manipulation* effect. The first effect – which is always positive – is that proposed by Caselli and Morelli, 2004. An increase in π attracts skilled citizens into politics, which other things being equal, improves the quality of party members, candidates and elected politicians. The second effect is novel and has to do with the fact that an increase in the pay of politicians might induce parties to change their propensity to manipulate information about candidates. Crucially, the following result holds regarding the sign of the information manipulation effect.

[16] It is easy to note that σ^* is, quite intuitively, decreasing in θ.

[17] This is equivalent to what happens in Caselli and Morelli, 2004.

Lemma 4. *Consider an equilibrium in which properties 1-3 on page 11 are satisfied, and the equilibrium measure of parties is finite, $N^* < \infty$, and determinate. Then, an increase in the pay of politicians induces parties to manipulate information more. That is,*

$$\frac{\partial \sigma^*}{\partial \pi} \frac{1}{\sigma^*} < 0 \tag{45}$$

Proof. Rewriting condition (31) as follows

$$c\left(\sigma^*\right) \hat{\sigma} \equiv -\left(\hat{\sigma} - \sigma^*\right) \sigma^* c'\left(\sigma^*\right)$$

Applying the implicit function theorem by differentiating both sides of the latter expression with respect to σ and π and solving for $\frac{\partial \sigma^*}{\partial \pi}$ yields

$$\frac{\partial \sigma^*}{\partial \pi} = \frac{c\left(\sigma^*\right)}{\left(\hat{\sigma} - \sigma^*\right)\left(\gamma\left(\sigma^*\right) - 2\right) c'\left(\sigma^*\right)} \frac{\partial \hat{\sigma}}{\partial \pi} \left(\frac{\sigma^* c'\left(\sigma^*\right)}{c\left(\sigma^*\right)} + 1 \right)$$

where $\gamma(\sigma^*) = -\frac{\sigma^* c''(\sigma^*)}{c'(\sigma^*)}$ is the elasticity of the marginal cost of manipulating information evaluated at the equilibrium value of σ^*. Finally, using again equation (31), we find

$$\frac{\partial \sigma^*}{\partial \pi} / \sigma^* = \frac{\sigma^*}{\hat{\sigma} - \sigma^*} \frac{1}{\gamma\left(\sigma^*\right) - 2} \frac{\partial \hat{\sigma}}{\partial \pi} / \hat{\sigma}$$

which is clearly negative since: 1) by (26), $\frac{\partial \hat{\sigma}}{\partial \pi} / \hat{\sigma}$ is negative; 2) by the second-order condition, $\gamma(\sigma^*) > 2$; and 3) in the interior solution $\hat{\sigma} > \sigma^*$.

□

Why does an increase in politicians' compensation always induce parties to manipulate information more? The intuition can be gained from figure 3 that shows the equilibrium expected benefits $B(\sigma; \pi)$ and costs $c(\sigma)$ of a representative party as a function of $\sigma \in (0.5, \bar{\sigma})$ for two different values of politicians' pay equal to π_0 and π_1, respectively, with $\pi_0 < \pi_1$. Note that while $c(\sigma)$ does not depend on politicians' pay π, $B(\sigma; \pi)$ does depend on it because a change in π affects both the equilibrium level of service duties to be paid by unskilled politicians e_u and the skill composition of politicians belonging to each party.

For $\pi = \pi_0$, the optimal choice $\sigma^*(\pi_0)$ corresponds to the tangency point of the benefit curve $B(\sigma; \pi_0)$ and the cost curve $c(\sigma)$. Notice that at $\sigma^*(\pi_0)$, total costs equal total benefits, i.e., $B(\sigma^*(\pi_0); \pi_0) = c(\sigma^*(\pi_0))$, and marginal costs equal marginal benefits, i.e., $B'(\sigma^*(\pi_0); \pi_0) = c'(\sigma^*(\pi_0))$.[18] The horizontal intercept for the cost curve is $\bar{\sigma}$, which is the quality of public information in the absence of parties' interference, in which case parties incur no cost, i.e., $c(\bar{\sigma}) = 0$. The horizontal intercept for the benefit curve is by contrast $\hat{\sigma}(\pi_0) = \frac{\pi_0 - 1}{\pi_0 - 1 + \pi_0 - w_s}$, which is the quality of information such that, for $\pi = \pi_0$, the maximum service duties that can be charged to unskilled politicians equal those that can be charged to skilled politicians. Since in this type of equilibrium, $e_s = 0$, then $e_u(\hat{\sigma}(\pi_0)) = 0$, and therefore, $B(\hat{\sigma}; \pi_0) = e_u(\hat{\sigma}(\pi_0)) \alpha^s(\hat{\sigma}(\pi_0))(1 - \hat{\sigma}(\pi_0)) = 0$. Note that, by construction, the horizontal intercept of $c(\sigma)$, i.e., $\bar{\sigma}$, must be strictly larger than the horizontal intercept of $B(\sigma; \cdot)$, i.e., $\hat{\sigma}(\cdot)$, thus respecting Assumption 3.

[18] Also note that, due to free entry, a party's expected profits are zero, and this is why the cost curve always lies above the benefit curve except in correspondence with the optimal value.

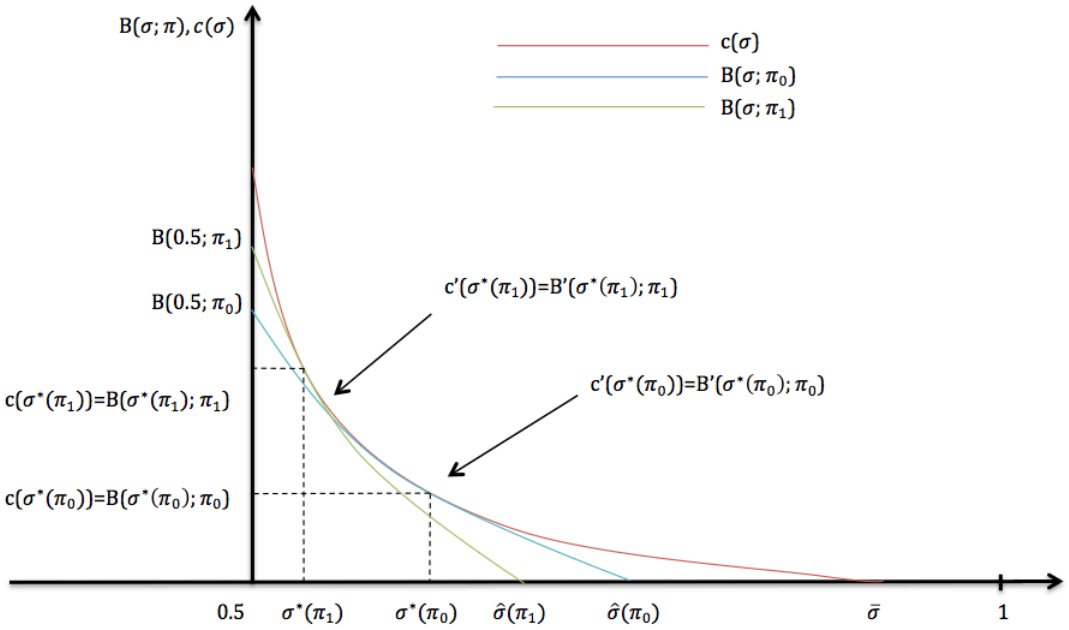

Figure 3: The information manipulation effect: change in the optimal solution of σ following an increase in π.

Now assume an exogenous increase in politicians' reward from π_0 to $\pi_1 > \pi_0$. The cost curve remains unaffected, while the benefit curve tilts clockwise, becoming steeper. The movement of the benefit curve can be explained as follows. First, a party's marginal benefits from manipulating information are increased at any level of σ, and second, unskilled politicians are less willing to run for public office, and thus, that the threshold $\hat{\sigma}$ falls. As a result, the 'old" equilibrium value $\sigma^*(\pi_0)$ is no longer optimal because, according to the new benefit curve $B(\sigma;\pi_1)$, at $\sigma^*(\pi_0)$, the marginal benefits are larger than the marginal costs, i.e., $-B'(\sigma^*(\pi_0);\pi_1) > -c'(\sigma^*(\pi_0))$, and total benefits are smaller than total costs $(B(\sigma^*(\pi_0);\pi_1) < c(\sigma^*(\pi_0)))$. To restore optimality, parties manipulate information more. In other words, the optimal value of σ is now $\sigma^*(\pi_1) < \sigma^*(\pi_0)$, which is associated with higher marginal and absolute costs (since $c''(\sigma) > 0$ and $c'(\sigma) < 0$) and higher marginal and absolute benefits. Hence, lemma 4 holds: an increase in the pay of politicians is associated with more information manipulation by parties.

The fact that unskilled citizens' willingness to run for office is reduced despite an increase in π is counterintuitive and deserves an explanation. For a given skill composition of politicians, an increase in π makes it more attractive for unskilled politicians to enter politics, which should increase the service duties they can be charged. However, following the increase in π, more skilled citizens decide to enter politics, and this reduces the chances of election for unskilled candidates to such an extent that the expected benefits for an unskilled citizen who decides to enter politics are reduced.[19]

Then, the question is how to reconcile an increase in the absolute and marginal benefits from manipulating information following an increase in politicians' rewards, given that a lower propensity

[19]This confirms that the type of equilibrium we focus on is that in which it is more difficult for an increase in π to result in a reduction in the quality of politicians. This is because in all other types of equilibria, the change in skill composition following an increase in π is either absent or ineffective.

of unskilled citizens to become party members implies that smaller service duties can be charged to them. In other words, why do parties want to incur higher costs of information manipulation if the service duties they can charge are reduced? Here the role of parties' free entry is crucial. By reducing absolute benefits due to the adverse effect on service duties while leaving absolute costs unchanged (for a given σ), an increase in π reduces the equilibrium measure of parties ($N^*(\pi_1) < N^*(\pi_0)$), which in turn increases the total and marginal benefits from manipulating information for incumbent parties.

To summarize, the information manipulation effect can be explained as follows. An increase in politicians' pay π increases the measure of skilled citizens who become party members. Since parties can charge higher service duties to unskilled politicians than to skilled politicians, they are more willing to bear the cost of manipulating information even further. The overall effect of increasing the pay of politicians on the quality of politicians is the result of the tradeoff between the selection effect and the information effect. Increasing politicians' pay always leads to more information manipulation by parties, according to lemma 4, which –other things being equal– would increase the chances of election for unskilled party members, thereby reducing politicians' quality. Therefore, for an increase in politicians' pay to improve the quality of elected politicians, the selection effect should be strong enough, as we explore in the next subsection by resorting to the full characterization of the equilibrium under the cost function (40).

6.1 Pay and quality of politicians with a specific cost function

Given the cost function, (40), the expression for the information manipulation effect can be obtained by differentiating (41) with respect to π, which yields

$$\frac{\partial \sigma^*}{\partial \pi}\frac{1}{\sigma^*} = \frac{\theta\bar{\sigma}}{\theta\bar{\sigma} - \hat{\sigma}}\frac{\partial \hat{\sigma}}{\partial \pi}\frac{1}{\hat{\sigma}} \tag{46}$$

where $\frac{\partial \hat{\sigma}}{\partial \pi}\frac{1}{\hat{\sigma}}$ is defined by (26). The following result holds.

Proposition 1 (Pay and quality of politicians)**.** *Consider an equilibrium in which properties 1-3 on page 11 are satisfied and the equilibrium measure of parties is finite, $N^* < \infty$, and determinate. Assume that the cost of manipulating information is given by equation (40). Then, increasing the pay of politicians reduces the quality of politicians whenever*

$$\left(\frac{\pi - w_s}{\pi - 1}\right)^2 < \frac{1 - \bar{\sigma}}{\theta\bar{\sigma}} \tag{47}$$

and improves it otherwise.

Proof. Given (44), we know that the equilibrium quality of politicians q^* is decreasing in π if the information manipulation effect is larger, in absolute value, than the information manipulation effect. That is,

$$\frac{\partial q^*}{\partial \pi} < 0 \Leftrightarrow -\frac{\partial \sigma^*}{\partial \pi}\frac{1}{\sigma^*} > \frac{1 - \sigma^*}{\pi - w_s} \tag{48}$$

Using (46) and (41), we can substitute for the explicit value of $\frac{\partial \sigma^*}{\partial \pi}\frac{1}{\sigma^*}$ and σ^* to obtain

$$\frac{\partial q^*}{\partial \pi} < 0 \Leftrightarrow -\frac{\bar{\sigma}\theta}{\theta\bar{\sigma} - \hat{\sigma}}\frac{\partial \hat{\sigma}}{\partial \pi}\frac{1}{\hat{\sigma}} > \frac{\theta\bar{\sigma} - \hat{\sigma}\left(1 + \bar{\sigma}\left(\theta - 1\right)\right)}{\theta\bar{\sigma} - \hat{\sigma}}\frac{1}{\pi - w_s} \tag{49}$$

Substituting for $\frac{\partial\hat{\sigma}}{\partial\pi}\frac{1}{\hat{\sigma}}$ and $\hat{\sigma}$, using (26) and (25), we obtain

$$\frac{\partial q^*}{\partial \pi} < 0 \Leftrightarrow \bar{\sigma}\theta\left(\frac{w_s - 1}{\pi - 1}\right) > \theta\bar{\sigma} - \frac{(\pi - 1)}{(\pi - w_s)}(1 - \bar{\sigma}) \tag{50}$$

Collecting $\bar{\sigma}\theta$, multiplying both sides by $\pi - 1$ and $\pi - w_s$, and dividing both sides by $\theta\bar{\sigma}$ yields condition (47):

$$\frac{\partial q^*}{\partial \pi} < 0 \Leftrightarrow \left(\frac{\pi - w_s}{\pi - 1}\right)^2 < \frac{1 - \bar{\sigma}}{\bar{\sigma}\theta} \tag{51}$$

□

Quite intuitively, according to Proposition 1, with the specific cost function (40), an increase in the pay of politicians reduces the quality of politicians whenever, other things being equal,

i. θ is relatively small. If parties' information manipulation technology is efficient such that manipulation is cost-effective, i.e., in captured societies in which parties control the process of producing information about candidates, the manipulation effect is comparatively stronger;

ii. $\bar{\sigma}$ is relatively small. The less informative the public signal that citizens receive in the absence of information manipulation is, i.e., the less aware a society is, the larger the information manipulation effect is, and the selection effect is comparatively smaller.

iii. $\frac{\pi - w_s}{\pi - 1}$ is relatively small. When politicians' compensation is small compared to the market wage of skilled citizens, the latter have less incentive to run for office, and the selection effect is comparatively smaller.

Notice that cases (i) and (ii) might well be self-reinforcing. In other words, θ and $\bar{\sigma}$ might be positively correlated. On the one hand, it appears more likely that manipulating information is cheaper in less-aware societies, in which the quality of media and the average level of citizens' concern and ability to correctly process information is low. On the other hand, in captured societies, manipulating information is cheap, and we expect that parties take advantage of this by choosing a higher degree of information manipulation (σ^* is low when θ is low; see equation (41)). One may then expect that exposing citizens to a high degree of information manipulation for a significant amount of time can affect their "exogenous" level of concern and their ability to process information correctly. We leave the analysis of such interaction for future research, and we simply observe that the alleged positive correlation between $\bar{\sigma}$ and θ would strengthen our argument.

6.2 Empirical implications

What are the empirical implications of our model? To what extent do our results provide a rationale for the relationship between rewards for public office and quality of politicians in Italy and in USA described in the introduction? Let us assume that the left-hand side of condition (47) is similar in

the US and Italy.[20] Then, our model predicts that if quality of politicians and politicians' pay are negatively correlated in the case of Italy and positively correlated in the case of the US, we should expect the extent to which the society is captured - i.e., the ability of parties to manipulate information about candidates by controlling the institutions involved in the production of such information, which is measured by θ in the model - and/or the level of citizen awareness, measured by $\bar{\sigma}$ in the model, to be lower in Italy than in the US. As mentioned in the introduction, although finding proper proxies for these quantities is not an easy task, we propose two indexes of press freedom as proxies for parties' ability to manipulate information (θ) and the so-called *Index of Ignorance* elaborated by IPSOS-MORI as a proxy for citizens' awareness ($\bar{\sigma}$). As shown in figure 4, according to the *Press Freedom Index* elaborated by Reporters Without Borders, since 2002, Italy's ranking ranges between 35th (out of 164 in 2007) and 73rd (out of 180 in 2015), while the US's ranking ranges between 17th (out of 134 in 2002) and 53rd (out of 161 in 2006). An even sharper picture emerges from the *Freedom of the Press index* elaborated by Freedom House, according to which, among 186 countries and since 2002, Italy's rank ranges from a maximum of 52nd (in 2002) to a minimum of 79th (out of 194 in 2006), while the US rank ranges from a maximum of 15th (out of 193 in 2004) to a minimum of 31st (in 2015 out of 199) as shown in figure 5. Moreover, Freedom House defines the Italian press as "partly free" in 10 of the last 14 years, while US press is always defined as "free". Indeed, these observations suggest that manipulating information is more difficult in the US than in Italy, which in our model, translates to a lower value of θ in Italy than in the US. Regarding the Ignorance index, Italy is the most ignorant country among the 14 considered, suggesting that citizens' awareness (and then the level of $\bar{\sigma}$) is lower in Italy than in the US. These empirical findings seem to support the model's predictions and suggest that the mechanism we propose might play a role in explaining the observed data.

Finally, for the subsample of 14 countries for which the information on both of the above-mentioned freedom of the press and the ignorance indexes is available, we computed the correlation between each country's relative average rankings during 2002-2015 on the ignorance and freedom of the press cross-country tables (see also figures 6 and 7). This correlation is equal to -0.57 if we consider the Freedom of the Press index developed by Freedom House and -0.61 if we consider the Press Freedom index elaborated by Reporters Without Borders. This correlation between these two variables is consistent with our prior that a captured society should also be less aware.

7 Conclusions

We analyze the relationship between the quality of politicians and their pay when parties play a role in the selection of politicians and show that the sign of this relationship is ambiguous. We demonstrate the existence of an equilibrium in which increasing politicians' pay reduces the average quality of politicians. This equilibrium is more likely to exist when (i) parties are sufficiently effective at

[20] Using OECD data (OECD, 2011) on earnings premiums from tertiary education, the Barro-Lee dataset (Barro and Lee, 2010) for the percentage of the population with a tertiary degree, Piketty's (2014) estimates on labor share and public information on politicians' pay in US and Italy, we calibrated the LHS of (47), $\left(\frac{\pi - w_s}{\pi - 1}\right)^2$, for the US and Italy from 1999 to 2009. The estimates for the two countries turn out to be very close. In the US, the estimated value of the LHS of condition (47) ranges from 0.74 to 0.77, while in Italy it ranges from 0.79 to 0.89.

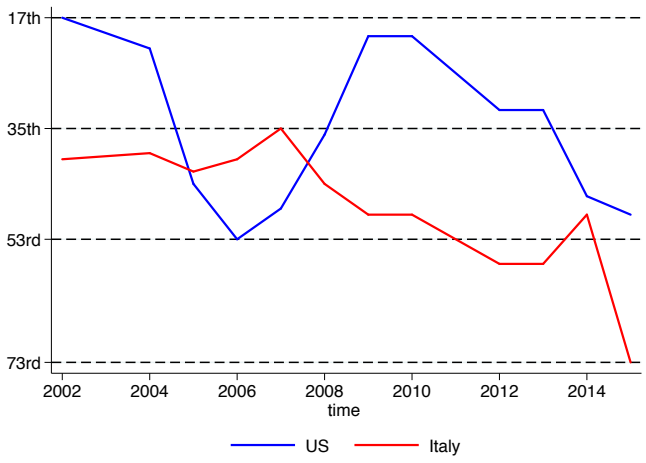

Figure 4: Trends in Italy's and the US's rankings according to the Press Freedom Index developed by Reporters Without Borders, 2002-15.

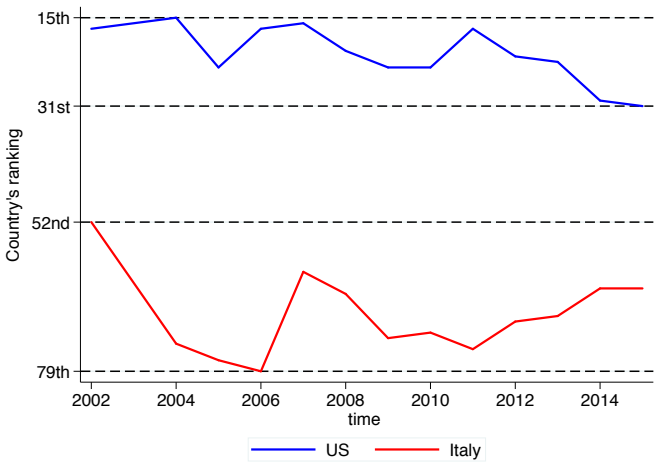

Figure 5: Trends in Italy's and the US's rankings according to the Freedom of Press Index developed by Freedom House, 2002-15.

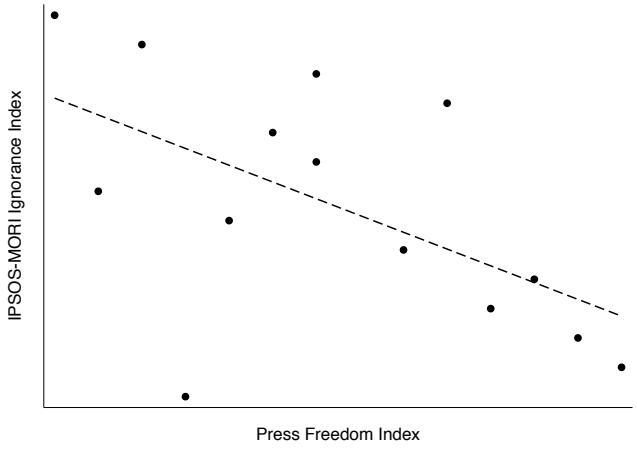

Figure 6: Cross-country linear relationship between IPSOS-MORI index and Press Freedom Index rankings. For the Press Freedom Index, we consider the time-series average ranking over the available periods.

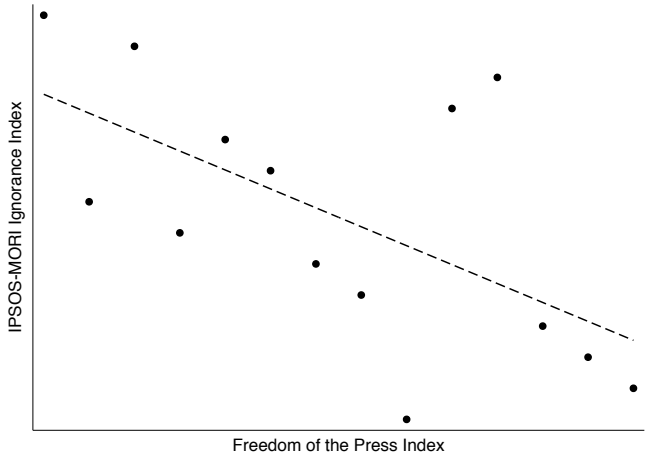

Figure 7: Cross-country linear relationship between IPSOS-MORI index and Freedom of the Press Index rankings. For the Freedom of Press Index, we consider the time-series average ranking over the available periods.

manipulating information, i.e., in captured societies in which parties effectively control the institutions involved in the production of information about candidates at the society level, and/or (ii) the society is less aware, i.e., the quality of information available on perspective politicians is relatively low, due for instance to the poor quality of the media or because citizens have little interest in politics. In such contexts, political parties may prefer to bear the additional cost of distorting information through aggressive political campaigning to increase the probability of election for unskilled candidates who, in the event of election, would be willing to provide higher party duties relative to skilled politicians. The empirical literature on how the remuneration of politicians affects their quality delivers convincing evidence that the sign of the relationship can be positive only at the local level. At the national level, the evidence is far more mixed, providing the case for an ambiguous relationship. This is consistent with our theoretical results, to the extent that the informational disadvantage of a citizen, as far as

the quality of candidates is concerned, might be higher in the case of national elections than in that of local elections.

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