Blocked Political Representation and the Exploitation of Public Office:

A Supply-Side Analysis of the Political Equilibrium[*]

Victor Tanaka[**]

(WORK IN PROGRESS)

Abstract. A model is suggested explaining costs of bureaucratic corruption and bureaucracy as a variable determined by the policy maker to limit the supply of competing policy-positions in democratic elections. Public office can then be exploited through the adoption of a favourable set of policies, but with the restriction of being re-elected for next period. With bureaucratic costs endogenously given the strong correlation between the unofficial economy and political mismanagement is explained. The equilibrium determines an institutional setting explaining high income dispersion across the population and the inability to exploit the potential for economic growth in such countries. Two types of exogenous shocks are identified as capable of breaking an established co-operative equilibrium.

Keywords: Growth and Development, Institutions, Unofficial Economy, Governance, Corruption, Inequality.

JEL Classification Number: D72, O17.

1   Introduction

In September of 2000 the most extensive corruption scandal in Latin America since the days of Papa Doc in Haiti in the 1960's was dismantled in Peru under spectacular circumstances. The systematic corruption that was discovered was built around President Fujimori and his nearest political sphere. Attending an international conference in December of the same year, President Fujimori resigned Presidency from abroad and left to Japan where he has citizenship. The resignation was followed by the fall of the government and legal prosecution that has not yet been concluded. Like his predecessor on the country's highest position of trust, Fujimori stayed abroad facing allegations of corruption.[1]

The process that followed to establish a new government was internationally recognised as rapid and democratic, and in June 2001 the first President ever with origins from the native population was elected in free elections. However, only one year after assuming power, President Toledo faced record low popularity ratings in opinion polls, and has today even lower popularity ratings than ex-President Fujimori. In particular, the decision to increase wages of higher officials of his administration – including himself – to record high levels, only after one month in office and in a harsh economic situation for the country, was unpopular. The wage increase was explicitly motivated by the President as a deterrent to stealing and other corruption activities amongst state officials.

Both corruption scandals as well as populist political programs have frequently been present on the political scene of Latin American countries.[2] But the Peruvian case can also be seen as an example of the problems of corruption and political mismanagement associated to the developing world in general. A subject that has gained increased research interest lately, due to the focus on institutions that has followed the insight of the difficulties of applying general solutions to promote growth and development.

---

[1] In the early 1990's former President García escaped the country facing allegations of having stolen from the state budget during his Presidency, 1985-1990. A decade later, after the fall of president Fujimori, legal action against him was laid down and he returned to Peru to candidate for presidency for a second mandate where he lost against current president Toledo in a second and decisive voting round.

[2] See Dornbusch and Edwards, (1991) for an interesting historical review of these two malign phenomenon that has kept on plaguing politics in Latin America.

The problem with political mismanagement is obviously an issue of the strength of democratic institutions. Because democracy, at least under its constitutional definition, has repeatedly been coexisting with severe political mismanagement in the developing world. For instance, the 'reform' implemented by president Toledo to fight political corruption, and the presumptive motives behind it, emphasises the problem of persistence, and, particularly, the incentive problems attached to political delegation. This is not per se a unique feature of the developing world; there is general agreement that political markets fail to generate welfare maximising policies (Grossman and Helpman, 1992). From the perspective of the constitution as being an incomplete contract supervising the political system, leaving discretionary power to politicians as a more dynamic and complementary tool for governance, it is clear that the political process is associated with incentive problems. Still, the extensive existence and persistence of political mismanagement in developing countries suggests fundamental differences across countries in the institutional premises that should allow voters to enforce acceptable representation from their elected representatives.

The *Virginia school*, with James Buchanan and Gordon Tullock as pioneers, has focused on the informational disadvantage of voters against politicians, defining the delegation of political power as a common agency problem with the politician as an agent with at least one principal. Moreover, the *Chicago view* has emphasised the role of pressure groups, with Becker (1983) as an early contributor. Both approaches give a demand determined political equilibrium, taking the political system as given. On the other hand, Myerson (1993) argues that besides having the candidates' true policy-position (including degree of corruption) as reliable public information, it is necessary to have an effective electoral system and electoral competition for public office to guarantee a non-cooperative and corruption-free political outcome in a repeated voting game.[3] Hence, besides informational disadvantages, the policy-maker may also be able to exploit the inability of voters to establish political representation within the political system.

---

[3] Myerson analyses the effectiveness of different electoral systems in terms of their capacity to transform electoral competition and the voters' ability to identify corruption levels amongst political parties into a corruption-free political equilibrium. He considers a subgame beginning after chosen corruption levels and received (reliable) signals by the voters, implying that in a general model an effective electoral system is required to establish a subgame perfect equilibria where all parties choose a corruption-free policy-position. *Approval voting* and *Proportional representation* are identified as fully effective electoral systems with all equilibria excluding corrupt parties.

The poor political representation of the population in developing countries is also something that is commonly emphasised under the issue of democracy in the more general development agenda. Possibly mirroring the perception that while the extent of informational asymmetries and pressure groups in the political process should be fairly similar across countries, the access to politics is restricted to a much smaller group in developing countries. Most models that have been put forward to explain the failure of political processes have approached the problem from the perspective of developed countries – by analysing the demand side of the political equilibrium and typically focusing on the role of interest groups to explain, for example, ineffective trade policies. Often, these models have taken the political system as given and assumed perfect competition amongst lobbies and politicians.[4] Political science has been more successful at looking inside this black box and analysing the factors of the political process that determine the supply side of the political equilibrium (Laffont, 2001). That is, not necessarily taking the stand that a political outcome reflects the desire of voters and pressure groups, but mainly opening up for the possibility that politicians may not be willing to offer the political package representing the desire of voters. Any such analysis must consider the interaction between government and voters.[5]

In this paper the political process is modelled with focus on the supply side of the political equilibrium, and with special reference to the specific circumstances of less developed countries. In particular, the extensive existence of bureaucracy and bureaucratic corruption, and its expected positive effect on informal economic activity is considered. In analysing the policy-maker's ability to exploit the power of public office, the voters are assumed to be perfectly able to identify offered policy-positions and to enforce their implementation in the case of winning the elections. Hence, we will neglect any agency losses related to the delegation of political power to concentrate on the government's ability to limit the supply of competing policy-positions in elections – departing from a simple definition of democracy and regarding a decentralised economy. However, the demand-side of the political equilibrium will also be considered by allowing the policy-maker to sell policies to lobbies, and of course, the population to vote.

---

[4] See, for example, Becker (1983), Grossman and Helpman (1992), and Besley and Coate (2001).

[5] Myerson (1993), for instance, emphasises the necessity of mutual restrictions to achieve welfare improvements; the government enforces laws to restrain citizens from destructive behaviour while citizens vote to restrain the government from abuse of power. Similarly, to explain the formation of institutions, Nabli and Nugent (1989) point out the importance of emphasising both the government's ability to influence transaction costs and informational costs in the economy, and the collective action (and lobby activities) it is exposed to.

Two related assumptions of the model are crucial for the results that will be established. First, the institutional capacity of political parties to reduce transaction costs and problems of collective action are assumed to be large enough to require the representation of any policy-position through a formal political party to make it possible for that policy-position to win the elections. The other assumption is that the government is able to set the 'bureaucratic costs' attached to the formal registration of any official economic or political activity at some discretion. Thereby, the government will be able to block a subset of the population from forming a political party to offer their optimal policy-position in elections. However, since high bureaucratic costs will also deter formal economic activity, limited political competition will only be achieved at the cost of lost tax-revenues. With such trade-off, the policy-maker's optimisation problem is eventually solved with institutional and re-distributive restrictions, resulting in a co-operative equilibrium – that may or may not be established, depending on the policy-maker's ability to fulfil the restrictions – where wealth is distributed from the majority of the population to the politically represented minority. Such equilibrium will relate the exploitation of public office to different types of corruption, extensive informal economic activity, and discriminatory institutions. Furthermore, the established stability of such co-operative political equilibrium emphasises the importance of the initial institutional conditions. Also, such equilibrium will determine an institutional setting resulting from the optimisation problem of the corrupted government, explaining high income dispersion across the population and the inability to exploit the potential for economic growth in such countries.

The structure of the paper is the following. The next section reviews existing research on the causes and consequences of the informal sector to argue that large informal sectors must result from some hidden motive of the policy-maker to accept its extensive costs. Such motive is here suggested to be the limitation of competing policy-positions in elections. In section 3 an electoral system with majority voting and the government's ability to influence the outcome of the elections is modelled, with the government's optimisation problem solved in the last subsection. In section 4 the importance of the institutional setting to reach the co-operative equilibrium described in section 3 is emphasised, and the stability of such equilibrium is established. Section 5 concludes.

2 Informal Economic Activity: A Review of its Causes and Consequences

The existence of an informal economic sector has long time been disregarded as an "…interesting, but exotic, phenomena of no real economic or social significance" (Portes, et al., 1989, p. 1). At least this view seems to explain the long time absence of attempts to quantify and explain its existence. Surprisingly, also considering the informal sector of developing countries, despite being a central aspect of economic and social life in the developing world. However, two comprehensive field studies in the 1980's, separately but almost simultaneously initiated by de Soto and Portes, have shed new light upon the nature of this underground phenomenon. In particular when considering its extensive existence in developing countries.[6] Both works must be considered as major contributions, and in particular the work of de Soto has triggered an increased research interest that have coincided with the increased research efforts to explain corruption. This focus should not be seen as coincidental, though, because while the increased research interest for institutions is relatively new within economics, the extensiveness of these two phenomena have separated the developed and the underdeveloped world of today for a very long time.

There are two schools offering an explanation for the existence of informal economic activity. The first has tax evasion as the main motive for individuals to deviate into unregistered economic activities, while the second identifies political and social institutions as the most important cause of informality (Friedman, et al., 2000). Recent research results have put focus on the relevance of the latter explanation, at least considering developing countries since it relates corruption and bureaucracy to informality. Johnson, et al. (2000) have studied the motives for firms in post-communist countries to hide from official registration, motivated

---

[6] Both projects have involved many researchers and lasted for several years. In de Soto (1989), the results of comprehensive field study on the informal sector of Lima, Peru is presented and analysed by economist Hernando de Soto. The other project had also focus on the informal sector of less developed countries, but since its point of departure was to analyse the very logic of informal economic activity it covered studies of advanced economies as well. Selected studies of the project are presented in Portes, et al. (1989), where researchers from several disciplines of social science are represented (Portes, for instance, is a sociologist).

by the observation that countries with inefficient regulatory environments and extensive corruption have an informal sector accounting to more than 40 percent of the overall economy. And moreover, the choice of post-communist countries is interesting because those countries have started from similar levels of informality and then diverged. Although the authors were not able to establish any causality from their firm-level data, they found that the only significant explanatory variable was bribing of corrupt official, with underreported sales of firms as the positively correlated dependent variable. Concluding that firms either go underground to avoid bureaucratic corruption, or that underground firms need to pay bribes. On the other hand, the empirical study of Friedman, et al. (2000) shows that poor institutions, defined by extensive bureaucracy and corruption, and a weak legal environment, explain large relative informal sectors. A result robust to the use of exogenous instrumental variables for institutional development. Furthermore, they found no evidence of a positive effect of tax-rates on informal economic activity, but instead, some evidence that direct tax-rates have a *negative* effect on the relative size of the informal sector. This is explained by the assumption that richer countries have better-run administrations and higher tax-rates. Then, from their finding that entrepreneurs go underground to reduce the burden of bureaucracy and corruption, they conclude that "dodging the grabbing hand" reduces tax revenues for the government so that corrupt governments become small governments with low tax-rates.

Although these empirical findings are quite new they are consistent with the findings of de Soto and can be explained by the analysis made by Portes and Castells (in Portes et al., 1989). In de Soto (1989), a wide range of presented fieldwork-results amount to convincing evidence that formal economic activity is simply not an alternative for a large subset of the studied population. For instance, in a famous experiment of the project, it is showed that the formal establishment of a small manufacturing firm requires time efforts and, in particular, economic resources that most informal individuals lack. Where, in general, the extraordinary obstacle to carry on economic activity officially is derived to absurd proportions of bureaucracy and bureaucratic corruption.[7] De Soto explains this massive bureaucratic cost as the consequence of a tradition to use the law for redistribution of income rather than to create income, creating a "lobby democracy" where rent-seeking behaviour is the main determinant of formal norms (de Soto, 1989, pp. 239-241).

---

[7] The field work by de Soto has, in essence, been carried through in the same way in Manila, Philippines, Cairo, Egypt, and Port-au-Prince, Haiti, giving very similar results (de Soto, 2000).

Portes and Castells (in Portes et al., 1989) scrutinise the possible causes of informality further. In order to provide a general analytical framework, released from considerations to the particular institutional environment within which informality is created, they focus on the logic of the process. Establishing that the informal economy "…is unregulated by the institutions of society, in a legal and social environment in which similar activities are regulated" (p. 12), and emphasising that it is the formal institutional framework for economic activity that defines the informal sector. In addition, they state that "governments tolerate or even stimulate informal economic activities as a way to resolve potential social conflicts or to promote political patronage" (p. 27). Hence allowing for discrepancies between socially accepted norms and the norms represented by formal institutions, so that 'going underground' cannot be regarded as a universally obscure phenomenon. Consistently, de Soto (1989, p. 12) establishes that an important cause for widespread informal economic activity in his study is when the law defines rules breaking against socially accepted norms not considering the expectations, choices, and preferences of those who cannot accomplish those rules.

Taking into account the crucial role of the government in the formation of formal institutions,[8] and considering the importance of institutions established by Friedman, et al. (2000), we can expect the relative size of the informal sector to mirror considerations taken by the government. Moreover, the negative effect of informal economic activity on economic growth (see, for instance, de Soto (1989), pp. 221, 310; Loayza (1997); and Johnson et al. (2000)) suggest hidden motives – in line with the analysis of Portes and Castells – for the government to allow the existence of extensive informality. Such reasoning is backed up by the disfavoured position of individuals engaged in informal economic activity,[9] further motivating the view that informality is enforced by costs outside the control of the individual rather than stimulated as an especially advantageous alternative.

---

[8] See reference to Myerson (1993), and Nabli and Nugent (1998) in footnote 5.

[9] De Soto (1989) gives an insight into the great costs faced by individuals in the informal sector of Lima (pp. 211-214). He also establishes that, although avoiding formal registration, the informal sector is a net transfer of wealth to the formal sector (pp. 198-201). Moreover, Portes and Castells (1989) give a description of individuals engaged in informal economic activity that seems to be consistent with the findings of de Soto. Stating that "the informal economy evolves along the borders of social struggle, incorporating those too weak to defend themselves, rejecting those who become too conflictive, and propelling those with stamina and resources into surrogate entrepreneurship" (p. 27), and claiming that the dependence upon certain social characteristics enforce individuals to engage into informal economic activity.

3 Modelling the Supply Side of the Political Process

To analyse the government's ability to exploit the power of public office, as mentioned earlier, the supply side of the political process will be at centre, and with this focus, the role of political parties will be emphasised due to their institutional capacity of reducing transaction costs and problems of collective action (Muller, 2000). For that purpose, some voting games will first be considered in order to proceed with a formal argument to establish a causality between the government's ability to limit competing policy positions and the informal sector of the economy. The causality will imply that the government is only able to limit political competition in elections at the cost of increased informal economic activity. This trade-off and the government's ability to redistribute wealth amongst the population will prove to be crucial in the optimisation problem of the government that will be solved in the last subsection.

3.1 Voting Games and Coalition Building

Consider first the set of alternatives available in a voting game, $P = \{p_1, p_2, ..., p_J\}$, with $p_j \in P$ as the optimal alternative for $n_j \subset \mathbb{N} = \{n_1, n_2, ..., n_J\} = \{N, N'\}$ individuals of type $j \in \mathfrak{I} = \{1, 2, ..., J\} = \{\Gamma, \Gamma'\}$. Where $\mathbb{N}$ is the set of participants in the game, with $0 \prec n_j \prec \infty$ for every $j \in \mathfrak{I}$. So that every offered alternative in a given voting game is 'populated' in the sense that every alternative is optimal for at least one individual in this game. Note also that the sets $\mathbb{N}$ and $\mathfrak{I}$ can be separated into two subsets, where ´ is used to denote the subset of individuals not able to co-ordinate their voting with other types of participants of the voting game.

   Let us first consider a simple voting game where no participants are able to co-ordinate their voting. In such voting game every individual will vote for their optimal alternative, and

the most populated alternative, $\hat{p} = \left\{ p_j \in P; n_j \succ n_k \ \forall \ j, k \in \mathfrak{I}, \text{where } j \neq k \right\}$, populated by n_j individuals will win this game. If we proceed by allowing the participants of this game to co-ordinate their voting, the outcome may be different, however. It will depend on the relative preferences for different alternatives amongst the participants. If we require preferences that allow a unique ordering of the different types of participants in their preference for any alternative $p_j \in P$, we will be able to establish useful results. Consistent with the required preferences, the optimal choice amongst available alternatives for an individual of type k is then defined as $p_k = \left\{ p_j \in P; \min(|k - j|) \forall k, j \in \mathfrak{I} \right\}$. The best alternative ever available for this individual is therefore $p_{j=k}$. With such single-peaked and heterogeneous preference relations, the winning alternative, p_M, will be the one best balancing all the participants of the game around the subset n_M having p_M as optimal. Formally defined as

$$p_M = \left\{ p_M \in P; \sum_{m=1}^{M} n_m \succ \sum_{n=M+1}^{J} n_n \ \text{and} \ \sum_{m=1}^{M-1} n_m \prec \sum_{n=M}^{J} n_n \ \forall \ m, n \in \mathfrak{I} \right\}. \quad (3.1)$$

The definition above motivates us to call the type-M voters, n_M, *median voters*. Their optimal alternative is assured to win the voting game since, in order to challenge p_M, the most competitive alternative that can be offered when voting can be co-ordinated is

$\tilde{p} = \left\{ \tilde{p} \in (p_{M-1}, p_{M+1}); \max(\sum_{m=1}^{M-1} n_m, \sum_{n=M+1}^{J} n_n) \right\}$. By definition of p_M, and given the preferences of the participants, $\tilde{p}$ cannot be preferred by more individuals than p_M. Formally, if we define n^j as the set of individuals in a coalition j having $p_j \in P$ as the alternative they have committed themselves to vote for, then $n^{j \in (M-1, M+1)} \prec n^M$ will always be true. Moreover, it is assured that the coalition n^M will always exist, and consequently, the coalitions n^{M-1} and n^{M+1} will never exist at the same time. This is so since, given the existence of n^{M-1} and n^{M+1}, both coalitions will have the incentive to include n_M to win the voting game (which follows from definition (3.1)). But since the median voters are indifferent to p_{M-1} and p_{M+1} they will only join a coalition offering p_M.

Note that $p_M = \hat{p}$ will not necessarily be true. Actually, it will only be true for the case of a symmetric population of participants when ordered by their preferences. It follows from the now assumed ability to co-ordinate voting between the participants of the game. The power of this ability in a voting game is obvious if we only allow a subset of the participants

to co-ordinate their voting. Consider, for instance, the case where the subset of individuals n_M cannot co-ordinate their voting with any other type of participants, $(n_1, n_2, ..., n_{M-1}, n_{M+1}, ..., n_J)$, while all other participants of the game are able to do so. It will be enough to restrict the information available for the median voters to establish their inability to co-ordinate voting. Without knowledge about the preferences of the other participants – i.e. without knowledge about how the existing alternatives are populated – the best they can do is to vote for their optimal alternative. By consequence, the participants that can co-ordinate voting are able to perfectly identify the type of all the participants in the voting game. Then, only $n_M = N'$ individuals will vote for p_M and a coalition $n^c = \max(n^{M-1}, n^{M+1})$ will be able to offer the most competitive alternative p_c. This coalition will defeat p_M if only the requirement $n^c \succ n_M$ is met. The result will also hold if several types of participants are unable to build coalitions with other types of voters. The general requirement will then be

$$n^c \succ n_k \ \forall k \in \Gamma', \tag{3.2}$$

with $n^c = \max(n^j) \ \forall j \in \Gamma$, to have a coalition winning the voting game.[10] Note, however, that we have not identified the winning alternative p_c. In order to do so we must have information about how the subsets N' and N are related to each other by their preferences.

3.2   The Government's Ability to Limit Political Competition

To apply the obtained results for the purpose of this analysis, we now proceed defining a democracy as a decentralised economy where all individuals, $i \in B = \{Population\}$, are allowed to vote for any offered policy position – represented by an agent, that may be

---

[10] Actually, to assure that $j \notin \Gamma'$ for the agreed upon alternative j of the winning coalition, a further requirement is needed. For instance, it will be enough to require that for the individuals able to co-ordinate voting they will only be able to do so with individuals of the same subset $\sum_{j}^{m} n_j$, where all $j \in \Gamma$ and $m \in \Gamma$, and where $j-1, m+1 \in \Gamma'$. That is, only individuals of a subset not separated by any type $k \in \Gamma'$ when ordered by their preferences, are able to co-ordinate voting with each other. However, a formal requirement of this type will not be of any relevance for the further development of the model and will therefore be neglected.

independent or tied to a political party, or the individual himself – and to establish a political party to offer a policy position in elections. The policy-position with most votes in the election will give its representative the mandate to form a government to manage public office during a given mandate period. We will assume away any possible agency losses and informational asymmetries attached to such delegation, i.e. any offered policy-position will be perfectly identified by the voters and will be carried through in the case of winning the elections. Further, the common right to vote and to organise politically through the formation of a formal political party will be constitutional rules, implying they cannot be changed. Also, real wealth of the individuals in this economy is given by $W_i = A_i + y_i + g_i$. Where A_i is initial endowment, g_i is worth of consumed public goods and services, and y_i is net income from offering goods or services on accessible markets for any individual $i \in B$. We will assume that to be able to offer goods or services on the formal markets of the economy a cost $c(F)$ arises. Equivalently, there is a cost $c(p)$ for establishing a political party. These costs will take the form of formal costs of bureaucracy when establishing a firm or political party, for example such as administrational fees. But will also include informal costs due to, for example, bureaucracy, red tape and other types of corruption. To offer services on the formal labour markets, the formal costs will be due to the acquisition of formal education to compete for employment.

Now, also assume that the government, that will be denoted G, is able to set $c(p)$ and $c(F)$ at own discretion within a given range, and of course, G can also determine g_i for any individual $i \in B$ at some discretion. Then, also assuming that the exclusion from formal markets lowers y_i for any individual $i \in B$, we have provided G with the necessary tools to be able to block a subset of the population $I = \left\{ i \in B; \sum_{i \in \hat{n}_k} W_i \prec c(p) \ \forall k \in \Im \ and \ \forall \hat{n}_k \subset n_k \right\}$ from establishing a political party. Where $\hat{n}_k$ denotes any set with the constant number of individuals $\hat{n}$ able to co-ordinate economic resources for any given type of individual $k \in \Im$.[11] Therefore, the number $\hat{n}$ specifies the maximal number of individuals of same type

---

[11] To save notation we will drop the additional index on $\hat{n}_j$ that is required to emphasise that different subsets $\hat{n}_j \subset n_j$ with $\hat{n}$ individuals may be formed from any subset n_j of type $j \in \Im$. Further, we will assume that $\hat{n} < \sum i \in n_j \ \forall j \in \Im$.

that can take collective economic action, no matter type of individual. *G* will be able to do this by setting the *bureaucratic costs function*, $c(\cdot)$, responsive enough to the arguments F and p, and by minimising $W_i \; \forall i \in \mathrm{I}$. Then, *G* will maximise the size of I by including the worst-off subset of the population, and we end up with a more precise definition of I :

$$\mathrm{I} = \left\{ i \in B; \sum_{i \in \hat{n}_k} W_i \prec c(p) \; \forall k \in \mathfrak{I}, \forall \hat{n}_k \subset n_k; where \sum_{i \in \hat{n}_k} A_i \prec \sum_{a \in \hat{n}_j} A_a \right. \tag{3.3}$$
$$\left. \forall i \in \mathrm{I}, \forall a \notin \mathrm{I}, \forall k, j \in \mathfrak{I}, and \; \forall \hat{n}_k \subset n_k \; and \; \forall \hat{n}_j \subset n_j \right\}.$$

This subset of the population will in general share the characteristics of low initial endowment, low consumption of public goods and services, and low market income. And will also define the *politically represented* subset of the population, F, that is able to form a political party, where $\mathrm{I} \cap F = \varnothing$ and $\mathrm{I} \cup F = B = \{Population\}$. It is worth noting that since we are considering a decentralised economy, *G*'s possibilities of lowering W_i for any $i \in B$, are dependent not only on his ability to restrict g_i, but also on his ability to restrict y_i.[12] As suggested, *G* will only be able to lower y_i by limiting i's possibilities of exploiting the gains from engagement in market activities. This is done by blocking the access to the formal markets for i, who will then be obliged to resort to the less attractive informal markets of the economy. Hence, *G* will only be able to lower an individual's market income at the cost of lost tax-revenues.

Following the reasoning so far, political parties must be given important properties for *G* to be able to limit competing policy-positions. The crucial role that will be assigned political parties in the process of coalition building for elections has already been motivated by their ability to reduce transaction costs and free-rider problems. However, before proceeding, let us further scrutinise the arguments. Free-rider problems in an election will arise for voters with similar preferences for policy-positions. For a single voter, the incentive to vote (for its optimal policy position) will be weaker the more acceptable, although not identical, policy-positions that exist and are being voted for by others (for given probabilities of winning the elections). That is, the closer the second-best alternative is to the optimal policy-position, the lower are the incentives to vote for any given individual. By consequence, an agreed upon policy-position amongst voters with similar preferences will increase the probabilities of

---

[12] Consider, for comparison, a centralised economy where G would be able to perfectly re-distribute wealth amongst the population if not facing informational restrictions on its re-distributive ambitions.

winning the elections, since each vote will strengthen rather than compete with each other, but also lower the incentive to vote. The establishment of a formal political party representing such policy-position will reasonably be the best mean of minimising the transaction costs attached to the settlement of such agreement. But it will also lower the transaction costs arising from collective action taken through the establishment of norms to co-ordinate a positive, not free-riding voting behaviour within the coalition. So ultimately, it is the capacity to reduce transaction costs as formal institution that will give a relative advantage to voters organised through a political party. Moreover, the transaction costs attached to the delegation of political power through elections are potentially very high. Mainly because of the long period of delegation, and the large degree of discretion that is being delegated. The formal institutionalisation of a policy-position will reduce transaction costs related to agency losses arising in the case of reaching public office as well.

To proceed further, we now need to specify the importance of political parties as tool for coalition building. In definition (3.3) an underlying assumption is that only $\hat{n}$ voters with common preferences – however identified – are able to co-ordinate economic resources to form a political party. Therefore, aggregated wealth for any $\hat{n}$ individuals of the same type was considered when evaluating if that particular type of individuals were able to represent its optimal policy-position through the establishment of a political party. This is motivated by common factors shared by voters with identical preferences for available policy-positions. The common factors may be social, lowering the transaction costs for collective action, and – not least – an important factor is the common interest, lowering possible costs of delegation. By the same reason it will be assumed that only a subset of the individuals of same type will be able to co-ordinate voting in elections *without* the establishment of a political party, and hence – following the notation of the previous subsection – we have that $k \in \Gamma'$ for any type k represented in I. Then, if only (3.2) holds, no optimal policy-position p_k for any type k represented in I will be able to win the elections. So under certain circumstances, G will be able to achieve a different outcome in the elections than (3.1) – the median voters' optimal policy-position winning the voting game where all types of individuals were able to co-ordinate voting. Simply by limiting the supply of available policy-positions in elections, restricted to the policy-positions offered by existing formal political parties representing the wealthier subset of the population.

3.3　　　The Political Equilibrium

Of course, the issue of interest is now which policy-position will win the elections. The results from sub-section 3.1 do not give a straight answer. It was only concluded that the winning alternative in the voting game would be optimal for a type of individual able to co-ordinate voting with other types, and that the identification of the specific type would require more information about the subsets $N', N \subset \mathbb{N} = B$. In particular, we will have to look at the type of preference relations for different policy-positions represented in B, and how they are distributed between the subsets N and N', in order to identify the winning coalition, c, in (3.2). A reasonable simplification will be to assume that voters only consider their individual wealth-effect implied by different policy-positions when choosing amongst available alternatives. Although preferential considerations for re-distributive effects amongst the whole population as well as non-wealth effects may be claimed to be more realistic, the simplification should be expected to give a reasonable representation of real world preferences for the case considered.

With only individual wealth effects entering the utility function of voters, the results from sub-section 3.1 are now directly applicable. We will only require strictly monotone utility functions, and a restriction on G's re-distributive ability through the adoption of a certain policy-position to be able to claim a unique ordering of the voters by their preference for any given policy-position. The second requirement is essentially that for any particular policy-position, the wealth effect must be strictly decreasing as we move away from the representative individual having this given policy-position as optimal. The argument justifying such assumption is that we are considering a decentralised economy. Then, re-distributive policies should be targeted at economic attributes, and consequently, also give wealth effects dependent on those same economic attributes. So, if we are willing to use wealth as a measure capturing relevant economic attributes, we have justified the assumption of strictly decreasing wealth effects implied by a given policy-position across individuals ordered by their wealth. In fact, this assumption is part of the assumption that G is only able to determine g_i for any given individual $i \in B$ at some discretion. That is, G's re-distributive capacity through g_i is limited.

We can now reformulate preferences from sub-section 3.1. The optimal policy-position for an individual of type m can be defined as $\pi_m = \{\pi_n \in \Pi; \min(|m-n|) \, \forall m, n \in \mathfrak{I}\}$, so $\pi_{n=m}$ is the optimal policy-position ever available for the m-type. Where $\Pi = \{\pi_1, \pi_2, ..., \pi_J\}$ is the set of populated policy-positions that any government, G, is able to adopt. As may be expected, the classification of different types of voters $\mathfrak{I} = \{1, 2, ..., J\}$ is done by wealth levels, each covering a given range of wealth and reasonably including different numbers of individuals. Then, consistent with the underlying preferences defining π_m, $\mathfrak{I}$ will include types of voters ordered by their wealth where 1 will represent the type of individuals with lowest wealth while J will represent the wealthiest type of individuals. The size of the set $\mathfrak{I} = \{1, 2, ..., J\}$ reflects G's ability to redistribute wealth, since a *larger* set $\mathfrak{I}$ for any given population B translates into *more types* of individuals that G is able to identify as members of *smaller subsets* with unique wealth effects for any policy-position that G may adopt. For instance, $\sum m \in \mathfrak{I} = \sum i \in B$ would imply the somewhat unrealistic situation of G being able to design policy-positions to single individuals of the population. Here, it will be assumed that individuals with the same wealth specify a type. Hence setting the type of the individual as a function of its exact wealth, and as such, if we assume a continuous range of wealth levels amongst the population, the set $\mathfrak{I}$ is a compact interval. We then have that individuals with equal wealth are all of the same type and will therefore face the same wealth effect for any adopted policy-position.

By the definition of I and from the derived preferences, it is now straightforward to identify a winning policy-position. In order to apply previous results remember that in sub-section 3.1 the inability to co-ordinate voting was due to the lack of knowledge about the preferences of other types of participants. Here, the difficulties to co-ordinate voting are caused by the inability to overcome transaction costs and free-rider problems through the official formation of a political party. Moreover, considering the role of the political party, it will explicitly reveal its policy-position in order to maximise the members of the coalition. So that the policy-position of every political party will be public information. This changes the premises for the voting game. Since, when adopting an explicit policy-position for a political party, the *competition* from any optimal policy-position, p_k, for the subset of individuals $n_k \subset I$ of any type $k \in \Gamma'$ can be neglected – as in the voting game considered in sub-section 3.1 – if only (3.2) holds. But with the policy-position of political parties made public, the

preferences for policy-positions of those same individuals must be considered. Assuming, then, that (3.2) holds, we have that the only circumstances under which the median voter's optimal policy-position,

$$\pi_M = \left\{ \pi_M \in \Pi; \sum_{m=1}^{M} n_m \succ \sum_{n=M+1}^{J} n_n \ \ and \ \ \sum_{m=1}^{M-1} n_m \prec \sum_{n=M}^{J} n_n \ \ \forall m, n \in \Im \right\},$$

cannot win the elections, is when $n_M \subset I$. Furthermore, from the definition above, it is clear that $n_M \subset I$ only if

$$I \succ B - I, \tag{3.4}$$

since we have the different types in $\Im$ ordered by their wealth, and given the definition of I. Then, if (3.4) is true, it follows that no policy-position can defeat

$$\pi_{I+\varepsilon} \equiv \pi_f,$$

where $\hspace{6cm}$ (3.5)

$$n_{I+\varepsilon} \equiv n_f = \left\{ i \in n_j; \min(W_j) \ \forall j \in \Gamma \right\}.^{13}$$

That is, the policy-position optimal to the worst-off type of individuals able to establish a political party will win the elections. Since the success of this policy-position depends on (3.4), there is a threshold level regarding the size of the subset I to assure a policy-position other than π_M winning the election. The threshold level in this majority voting game is that a majority of the voters must be blocked from political representation in order to have another policy-position winning the elections. Hence, political competition must become quite limited in the elections before the outcome resulting from perfect political representation can be altered.

3.4   The Government's Optimisation Problem

So far we have showed that under certain circumstances G will be able to affect the outcome of elections. However, we have not yet identified possible incentives for G to do so. It will be done in this sub-section to solve the optimisation problem of G, where the policy-position

---

[13] Since it has just been assumed that the exact wealth level identify a type, all individuals belonging to the same type will have equal wealth. Therefore we do not need any individual indexation for wealth in the given definition, and an indexation for the type will be enough.

$\pi_{I+\varepsilon}$, defined in (3.5), will be of central interest. Hence, it will be assumed that G is able to make (3.4) hold, i.e. G is able to block the policy-position π_M from political representation. Moreover, from the preferences that were specified in sub-section 3.3, we know individuals care only about own wealth. Then G's optimisation problem will simply be a wealth-maximising problem.

We have not yet given a formal definition of G. To simplify things G will be defined as the $\hat{n}$ individuals of same type establishing the political party winning the elections. Then, assuming that each member, $i \in G$, have identical incomes, it will be sufficient to consider the optimisation problem of the representative member of the government, ρ. Disregarding from initial endowment in the wealth specification that was given earlier, we are left with a market-income part and the consumption of public goods and services in the wealth specification. The wage will be denoted w^ρ and will be exogenously given. Y_g^ρ is the subjective monetary value of consumed public goods and services for ρ, simply meaning that we are considering a utility function transforming consumption of public goods and services into money worth for ρ. Thereby we will be dealing with equal units, simplifying things when solving the optimisation problem that we will end up with. The consumption of public goods and services for any given individual will be a function of tax-revenues, T, and the policy-position adopted by G, so Y_g^ρ is ultimately determined by G.[14] However, G will also sell rules or policies, $r \in R^\ell \subset R^L$, to a given set of lobbies, $\ell \subset L \subset B$, that will pay for the implementation of such policies. R^L is the set of policies that G is *able* to approve and that at least one lobby, $l \in L$, is *willing* to buy, and R^ℓ is the set of policies that are actually sold to ℓ. This will be an important instrument for G to exploit the political mandate given by the voters.

The adoption of any given number of policies, $\Sigma \equiv \sum r \in R^\ell$, will imply a certain deviation from the welfare-maximising policy-position – defined by some objective function. Therefore, the net income, considering the implementation of R^ℓ, for any individual $i \in (B - \ell)$ is given by $Y_r^m = \Sigma \times p_R - \Sigma^{\theta_m}$.[15] The first term of the equation is revenue from selling every $r \in R^\ell$ at the constant price p_R, and will hence only be nonzero for any $i \in G$.

---

[14] Remember that G determines the set I defined in (3.3) to limit political competition, which in turn determines the extent of lost tax revenues.

The second term is costs due to the implementation of R^ℓ, and therefore enters negatively. Consistent with the discussion about G's re-distributive ability in sub-section 3.3, costs from the implementation of R^ℓ will differ for different types of individuals and the indexation will be of relevance for any type in $\Im$. Those costs will typically arise through increased prices due to, for example, the monopolisation of a market or the establishment of trade barriers, thereby lowering real wealth for any given individual.

We now have the income of ρ defined as $Y^\rho = w^\rho + Y_r^\rho + Y_g^\rho$. Before proceeding, though, it will be necessary to motivate the specification of Y_r^m. First, note that the term entering negatively may be written $\Sigma^{\theta_m} = \sum_{r \in R^\ell} c_r^m = \overline{c}^m * \Sigma$, where c_r^m is the cost to any type $m \in \Im$ due to the implementation of some $r \in R^\ell$. That is, the parameter θ_m will determine costs generated to individuals of type $m \in \Im$ for any given set of policies, R^ℓ, being implemented. We would expect G to prioritise policies with high net revenue, so R^ℓ should be the most price/cost-effective set of policies amongst R^L. Then, we will have that $\partial^2 Y_r^\rho / \partial \Sigma^2 \prec 0$, and of course – at least for some initial values – $\partial Y_r^\rho / \partial \Sigma \succ 0$. This is accomplished, since we have assumed a constant price for every $r \in R^\ell$, by the requirement $\theta_\rho \succ 1$.

Since we have now identified the target function to be maximised, the next step will be to consider the restrictions of the optimisation problem. At this point, the only restriction that ρ will face will be to achieve re-election for the next mandate period. Then, following the argumentation identifying $\pi_{I+\varepsilon}$ as the policy-position winning the elections, and from the definition of I given in (3.3), the restriction can be translated into ρ not reaching a wealth level higher than the $I+\varepsilon$-type defined in (3.5). Since if ρ would end up with wealth higher than this type, a subset of $\hat{n}$ $I+\varepsilon$-type individuals will be able co-ordinate economic action to form a political party offering the same policy-position, $\pi_{I+\varepsilon}$, but with higher total supply of public goods and services. It will be possible since the representative member of the new party, `$\rho$, could have the income $Y^{I+\varepsilon}$, and still be able to offer the difference $\left( Y^G - Y^{`G} \right)$ to

---

[15] The wealth of individuals that are members of a lobby will not be relevant for the analysis and will therefore not be considered.

supply additional public goods and services. The $I+\varepsilon$ -type will therefore constitute the *political restriction* put on ρ .

A variable that will be of central interest in the optimisation problem that we are striving after is I, i.e. the subset of the population that G will block from political representation. And even though it has been assumed that G will at least reach the lower level given by (3.4), a more precise determination of I will be pursued. Hence, I will be one of the variables that G will have to consider when maximising utility. As a consequence, we can only specify the wealth of the $I+\varepsilon$ -type implicit on I in order to give a formal definition of the restriction in the optimisation problem. Simply because $\pi_{I+\varepsilon}$ is the policy-position optimal to the type of individuals just a wealth level above the subset of individuals n_I of type

$I = \left\{ I \in \Gamma'; Y^I \succ Y^k \ \forall \ k \in \Gamma' \right\}$, or as formulated earlier, the optimal policy-position for the worst-off type of individuals able to establish a political party. Hence, the subset I must be defined in order to identify the type I, and I is needed to specify the type in (3.5).

A general specification for the market income of any type of individual $m \in \Im$ can be stated as $y^m = y_0 + m^\alpha$. Where y_0 is the market income for the worst-off type of individuals amongst the whole population B, and where the type of any individual $i \in n_m$ is defined as the real number $m \in [0, J]$ solving the market income equation given above. Then, $\alpha \in (0, \infty)$ is a measure of prevailing income dispersion in B.[16] Since we know that it is the $I+\varepsilon$ -type that exerts the political restriction on G, we are interested in his market income,

$y^{I+\varepsilon} = y_0 + (I+\varepsilon)^\alpha$. Furthermore, we know that $Y_r^m = -\Sigma^{\theta_m}$ for any individual $i \in (B - G - \ell)$ of type $m \in \Im$, and that $Y_g^m = h\left(g_m \left(T(I), \pi^G \right) \right)$ for the same individual. Where $h(\cdot)$ is the utility function transforming consumption of public goods and services into money worth discussed earlier, and $\pi^G \in \Pi$ is the policy-position adopted by G. Also, since we know that G will have the incentive to implement policies in order to block $I \subset B$ from political representation, and to get revenues from ℓ, any $\pi_m \in \Pi$ will now be defined as the optimal

---

[16] Since we have assumed away initial endowment in the wealth specification of this sub-section, market income will be the economic attribute determining re-distribution given a certain policy-position. Then market income will set the ordering of the different types of individuals of the population by wealth levels, and we will assume as previously for wealth, a continuous range of market incomes amongst the population.

policy-position for any type $m \in \Im$ *given* the policies adopted to block political representation, and *given* the policies sold to ℓ.

We are now able to solve ρ's optimisation problem,

$$\max_{I, \Sigma, \pi} Y^\rho = w^\rho + Y_r^\rho + Y_g^\rho$$

$$s.t. \tag{3.6}$$

$$Y^\rho \le y^{I+\varepsilon} + Y_r^{I+\varepsilon} + Y_g^{I+\varepsilon} = Y^{I+\varepsilon},$$

where ρ will have to determine the variables I^*, Σ^*, and π^G that solve the problem.[17] All terms in (3.6) have been defined; however, we will replace $y^{I+\varepsilon}$ with y^I to simplify things.[18] The Lagrangian we end up with is then,

$$L = w^\rho + \left(\Sigma \times p_R - \Sigma^{\theta_\rho} \right) + Y_g^\rho +$$

$$+ \lambda \left[\left(y_0 + I^\alpha - w^\rho \right) + \left(\Sigma^{\theta_\rho} - \Sigma^{\theta_{I+\varepsilon}} \right) - \Sigma \times p_R + \left(Y_g^{I+\varepsilon} - Y_g^\rho \right) \right],$$

and the first order conditions are

$$\frac{\partial L}{\partial I} = \overbrace{\frac{\partial Y_g^\rho}{\partial g} \frac{\partial g}{\partial T} \frac{\partial T}{\partial I}}^{= \frac{\partial Y_g^\rho}{\partial I}} + \lambda \left[\alpha I^{\alpha-1} + \left(\frac{\partial Y_g^{I+\varepsilon}}{\partial I} - \frac{\partial Y_g^\rho}{\partial I} \right) \right] = 0, \tag{3.7}$$

$$\frac{\partial L}{\partial \Sigma} = \left[p_R - \theta_\rho \Sigma^{\theta_\rho - 1} \right] + \lambda \left[\left(\theta_\rho \Sigma^{\theta_\rho - 1} - \theta_{I+\varepsilon} \Sigma^{\theta_{I+\varepsilon} - 1} \right) - p_R \right] = 0, \tag{3.8}$$

$$\frac{\partial L}{\partial \pi} = \frac{\partial Y_g^\rho}{\partial \pi} + \lambda \left[\frac{\partial Y_g^{I+\varepsilon}}{\partial \pi} - \frac{\partial Y_g^\rho}{\partial \pi} \right] = 0, \text{ and} \tag{3.9}$$

$$\frac{\partial L}{\partial \lambda} = \left(y_0 + I^\alpha - w^\rho \right) + \left(\Sigma^{\theta_\rho} - \Sigma^{\theta_{I+\varepsilon}} \right) - \Sigma \times p_R + \left(Y_g^{I+\varepsilon} - Y_g^\rho \right) = 0. \tag{3.10}$$

Now, before proceeding with the standard algebraic approach to solve the maximisation problem, things will simplify greatly by first establishing an intuitive solution for π^G. With

---

[17] Since we have defined $\Im$ as the set of types $m \in [0, J]$, both I^* and π^G are continuous variables. While the continuity of Σ^* will be assumed by allowing for partial implementation of policies sold to lobbies. The additional requirement of concavity for the Lagrangian will be settled later in this subsection when establishing the marginal condition for an inner solution.

[18] Since we are interested in establishing the effect of involved parameters rather than predicting the size of the set I, this simplification will simplify the algebra and spare notation, and still allow us to make relevant

the restriction in (3.6) binding, ρ will become an $I+\varepsilon$-type and the second and third bracket in the square brackets of the Lagrangian will equal zero. Then, since $\left.\dfrac{\partial Y_g^m}{\partial \pi^G}\right|_{\pi^G=\pi_m} \prec 0$ for any individual of type $m \in \mathfrak{I}$, the optimal policy-position for ρ will be $\pi_{I+\varepsilon}$. Therefore, any adopted policy-position $\pi^G \in \Pi$, where $\pi^G \neq \pi_{I+\varepsilon}$, will at the same time lower Y^ρ and strengthen the restriction in (3.6), so G will clearly set $\pi^G = \pi_{I+\varepsilon}$. With a solution for π^G at hand we can proceed solving the remaining equations (3.7), (3.8) and (3.10).

Since we have concluded that ρ will be an $I+\varepsilon$-type, the remaining first order conditions to be solved can be simplified since they also include the bracketed terms in the Lagrangian that were identified to equal zero. After these simplifications we get the implicit solution for the two remaining variables as

$$I^* = \left[\frac{p_R}{\theta_\rho} \left[\left.\frac{\partial Y_g^\rho / \partial I}{\partial y^I / \partial I}\right|_{I=I^*} +1 \right]^{\frac{\theta_\rho}{\theta_\rho -1}} + \left(w^\rho - y_o \right) \right]^{\frac{1}{\alpha}}, \text{ and} \tag{3.11}$$

$$\Sigma^* = \left(y_o + I^{*\alpha} - w^\rho \right)^{\frac{1}{\theta_\rho}}. \tag{3.12}$$

In (3.11) the numerator of the derivative quotient is negative as pointed out in (3.7); since, while increasing tax-revenues increases the supply of public goods and services, which in turn gives higher utility, a wealthier I is equivalent to an enlarged population $I \subset B$, and that can only be achieved at the cost of lowered tax-revenues. The denominator is obviously positive since y^m is just the general specification of the market income level for any type of individual $m \in \mathfrak{I}$, as previously stated. It follows that the derivative quotient is negative. Consequently, the square brackets including the derivative quotient enters positively only if the denominator of the quotient dominates. The reason is that with higher income dispersion, the inclusion of a new type in I (who then becomes the wealthiest type, qualifying to be defined as $I \in \Gamma'$) gives a higher marginal effect in loosening up the restriction in (3.6). Then the new wealth level that the loosened-up restriction allows ρ to reach will be higher.

---

conclusions since I can be derived from I. The difference between the income $y^{I+\varepsilon}$ and the income range y^I is by definition negligible (see footnote 16).

Although the enlargement of any given set I will be a necessary condition for ρ to be able to increase its wealth and still win the elections, it will not be sufficient. It must also be assured that ρ is able to reach the new wealth level in the restriction implied by an enlargement. Therefore, since ρ is an $I+\varepsilon$-type, to have the restriction in (3.6) binding we will require that

$$\left(y_0 + I^\alpha - w^\rho\right) \le p_R \times \hat{\Sigma}, \tag{3.13}$$

where $\hat{\Sigma} \equiv \sum r \in R^L$, and I is implied by any $I > B - I$. That is, potential revenues from selling policies to lobbies make it possible for ρ to reach any $Y^{I+\varepsilon}$ implied by such I. However, besides the ability to reach new wealth levels through lobby revenues, we must also take into consideration ρ's incentive to have a new type considered in its wealth restriction. This is not irrelevant, because even though an enlargement of the set I will indeed mean a higher market income in the new wealth restriction, the enlargement of the set and the increased number of policies being sold to reach the new wealth level will have a negative effect on the wealth restriction. Implying that, although we can be sure that a *relatively* higher wealth level (in terms of the whole population) will be considered, the *absolute* wealth level may be lower. Hence, we will require that

$$\partial y^{I+\varepsilon} / \partial I \succ \left|\partial Y_g^{I+\varepsilon} / \partial I\right| + \left|\partial Y_r^{I+\varepsilon} / \Delta\Sigma\right|, \tag{3.14}$$

for ρ to have the incentive to enlarge any set I. Where $\Delta\Sigma$ are additional policies sold to lobbies – with $\Delta\Sigma > 0$ and (3.13) holding – needed to reach a higher income level. Having (3.14) fulfilled for initial values of I, with the marginal condition

$$\partial y^{I+\varepsilon} / \partial I = \left|\partial Y_g^{I+\varepsilon} / \partial I\right| + \left|\partial Y_r^{I+\varepsilon} / \Delta\Sigma\right| \tag{3.15}$$

holding for some $I \subset B$, we can be assured of an inner solution for I^* if we know that $\partial^2 Y_g^{I+\varepsilon} / \partial I^2 \prec 0$. In that case, any values $\left(I^*, \Sigma^*\right)$ fulfilling the marginal condition would implicate that it is not possible for ρ to reach a higher wealth level through an enlargement of the set I^* and by selling additional policies. Because, at such equilibrium values, the implementation of further distortionary policies, and further decreased consumption of public goods and services will dominate the positive effect of considering a higher market income in the wealth restriction. Therefore, since it is also true that $\partial^2 Y_r^{I+\varepsilon} / \partial \Sigma^2 \prec 0$, we only need to establish a strong enough marginal effect – when enlarging some set $I \subset B$ – on Y_g^ρ to establish an inner solution.

The (negative) marginal effect on the tax base when considering an enlargement of any set I to include a new type of individuals will depend on the number of individuals being included and the tax contributions they made. Although these two factors have an ambiguous effect on the tendency of the marginal effect,[19] we can be sure that $T \to 0$ as $I \to B$. Then, if only

$$\partial Y_g^\rho / \partial g_\rho \to \infty \text{ as } g_\rho \to 0, \tag{3.16}$$

the equality in (3.15) will be assured anyway for some $I \subset B$. Moreover, for the domain $I \succ B - I$ that we are considering (see (3.4)), the associated levels $g_{I+\varepsilon}$ supplied by G will be low. Therefore, although $\partial^2 T / \partial I^2 > 0$ can be expected to hold within this domain (see footnote 19), the utility loss from lowered consumption of public goods and services will be large for those same levels if (3.16) is true. It is therefore reasonable to assume that this latter effect is dominating when considering any level I giving the marginal condition in (3.15) (which will exist for some $I \subset B$ if (3.16) is true), so that $\partial^2 Y_g^{I+\varepsilon} / \partial I^2 < 0$ is assumed to hold when evaluated at such level. Then the necessary concavity of the Lagrangian is assured, and we can establish that the set I^* implied by (3.11) is a global optima.

Clearly, revenues from selling policies to lobbies is an indispensable tool for ρ to reach higher wealth levels in a loosened-up restriction. p_R therefore enters positively into (3.11). Moreover, a well-developed re-distributive capacity will allow ρ to loosen up the restriction. Because selling policies that are considerate to the $I+\varepsilon$-type, and the ability to mitigate the costs of lost tax-revenues for this same type (that ρ will become), will imply a large equilibrium set I^* before the marginal condition in (3.15) is reached. Consequently, θ_ρ and $|\partial Y_g^\rho / \partial I|$ has a negative effect on I^*. The term $(w^\rho - y_0)$ is just a relative measure of ρ's wage income. It enters positively in (3.11) because higher wage income for ρ will require

---

[19] The relation between tax-revenues, T, and I will depend upon the demography of the population B with the individuals ordered by their market incomes. Because the more individuals being included in the subset I and the higher market incomes those individuals are earning, the more potential tax revenues are being lost. Then, for any realistic population demography, we will have $\partial^2 T / \partial I^2 > 0$ when evaluated at some large enough set $I \subset B$. The further enlargement of this set will mean the inclusion wealth-types' so poorly populated that the effect of higher wealth of those individuals being included is dominated. Hence, eventually, we might expect lost tax revenues at a decreasing rate due to poorly populated wealth-types' being included in I as the set is being enlarged.

higher levels of I^* (implying a higher market income to consider in the wealth restriction) to be able to exploit the power of public office without breaking against the restriction in (3.6).

Finally, (3.12) just shows that if the income difference between G and the type that restricts G's maximisation problem is large, more policies need to be sold to reach an optimal solution. Further, high levels of θ_ρ will imply that the equality in (3.15) will be met for lower values of Σ^* (and a smaller set I^*). As mentioned, this is why also θ_ρ in (3.11) has a negative marginal effect on I^*, and p_R a positive effect. These effects of θ_ρ and p_R are also present if we consider the solution for the parameter λ,

$$\lambda = 1 - \frac{\theta_\rho}{p_R}\left(y_0 + I^{*\alpha} - w^\rho\right)^{\frac{\theta_\rho-1}{\theta_\rho}}.$$

Since λ is an approximate measure of increased wealth for ρ when the restriction in (3.6) is loosened up with $dY^{I+\varepsilon}$ units, we see that both θ_ρ and p_R have the expected effect. That is, high values of θ_ρ reduces ρ's possibilities of reaching new wealth levels as the restriction is loosened up, while high values of p_R works in the other direction. For instance, note that as $p_R \to \infty$, $\lambda \to 1$. Implicating that there are no restrictions on ρ's ability to generate funding to reach increasingly high wealth levels of the $I+\varepsilon$-type in the restriction of (3.6) as wealthier types are being considered in the restriction. On the other hand, for high enough values of θ_ρ, λ will be negative and ρ will not be able to transform the further enlargement of any set I into higher wealth levels. We can conclude that the value of λ corresponding to the marginal condition in (3.15) is $\lambda \approx 0$ when considering an enlargement of I.

4 Institutional Quality and the Exploitation of Public Office

In section 3, G's ability to exploit the power of public office was modelled. It has been showed that given that G is able to include a large enough subset of the population in I – considering a majority voting electoral system – it will allow him to reach higher wealth levels at the cost of the individuals included in I. Since, while Σ and π^G are just revenue generating tools in the exploitation of public office, it is I that will determine the political restriction put on G.

However, while the different conditions determining G's choice of I^* (implied by I^*) has been carefully analysed, G's ability to reach I^* has not been considered. We have simply assumed that G were able to set any $\mathrm{I} \succ B - \mathrm{I}$. This section will analyse the institutional conditions within which G solves its optimisation problem to focus on the ultimate determinants of G's ability to exploit the power of public office.

4.1 Stability and Initial Conditions

From the definition of I given in (3.3) we know that the number of individuals included in I will rest upon the size of the subset of the population with types of individuals lacking the common economic resources needed to form a political party. Clearly then, a large subset of the population with low wealth levels, together with the ability of G to set high levels of $c(p)$, will enhance G's possibilities of reaching I^* implied by (3.11). Moreover, as outlined in sub-section 3.2, G will also be able to influence the wealth of different types of individuals in order to reach I^*. Both through the supply of public goods and services, g_k, for any type of individual in I, and through the exclusion from formal markets by setting high enough $c(F)$. However, since $g_k\left(T(\mathrm{I}), \pi^G\right)$ is ultimately a function of I and π^G, g_k will be determined by the solution to optimisation problem (3.6) as long as I^* can be reached. We will assume this and focus on G's ability to set the bureaucratic costs function, $c(\cdot)$, responsive enough to reach the optimal solution I^*.

Basically, it is prevailing institutions that will determine $\hat{c}(F,p)$, the highest possible cost of accessing the formal markets of the economy and of establishing a formal political party that G is able to set. Therefore, we will define the institutional setting, $\prod$, as the set of existing formal and informal rules and norms, and any other types of prevailing institutions, determining the premises for economic interaction. So $\hat{c}(\cdot)$ will be determined by the institutional setting, $\prod$. Moreover, $\prod$ is determined by the exogenous factor history and geography that will be commonly denoted as H. Hence, the ability to exploit the political mandate in any defined democracy will ultimately depend on $\prod(H)$, since those factors will determine if G will be able to reach any level $I > B - I$ that solves (3.6), given this additional *institutional restriction*. Therefore, the optimisation problem faced by ρ is really

$$\max_{I,\Sigma,\pi} Y^\rho = w^\rho + Y_r^\rho + Y_g^\rho$$

$$s.t.$$

$$1) \quad Y^\rho \le y_{I+\varepsilon} + Y_r^{I+\varepsilon} + Y_g^{I+\varepsilon} = Y^{I+\varepsilon}, \ and$$

$$2) \quad I_t^* \equiv I\left(c(F,p)_t^*\right) \le I\left(\hat{c}(F,p)_t = f\left(\prod_{t-1}(H)\right)\right),$$

(4.1)

with $c(F,p)_t^*$ as the bureaucratic costs set by G to solve (4.1) for any given period t. Where the additional institutional restriction, 2), underlines the importance of institutional conditions for G to be able to exploit the power of public office. Despite the triviality of this constructed result, it puts important focus on the initial conditions during which democracy has been established. The reason is that any level I_t^*, Σ_t^*, and π_t^G resulting from the solution to optimisation problem (4.1) will prove to be a stable equilibrium, and under reasonable assumptions, also increasingly resistant to exogenous shocks. This should be interpreted in terms of the political restriction faced by G. Because G will never be able to include a subset of individuals $n_j \subset F_t = \left(B - I_t^*\right)$[20] into an enlarged set $I_u^* \succ I_t^*$, of any type $j \in \Gamma$, at any future period $u \succ t$. And more important, no subset of individuals $n_k \subset I_t^*$ of any type $k \in \Gamma'$ will ever be able to enforce G to include them into an enlarged set $F_u \succ F_t$.

To see this, first consider G's ability to influence $\hat{c}(F,p)_t$. By definition we have that $\mathbb{R}_t^G \subset \prod_t$, where $\mathbb{R}_t^G$ is the set of rules and policies adopted by G in period t. Formally, we have that $\mathbb{R}_t^G = \left\{\pi^G, R^\ell, R^1\right\}_t$, where R_t^1 is the set of policies adopted in order to reach any

---

[20] We assume a constant population and drop the time indexation on B.

given level I_t^*, and hence, the set of policies giving the underlying costs $c(F,p)_t^*$. Although we will assume that G is able to affect the subset $\left(\prod_{t+1} - \mathbb{R}_t^G\right)$ through $\mathbb{R}_t^G$, i.e. policies and rules adopted by G will affect the development of other existing institutions – formal as well as informal – not even such a powerful tool will enable G to enlarge any set of individuals $I_t^* \prec I^*$ (with I^* implied by (3.11)). Since, although G may adopt policies in current and subsequent periods in order to enable higher levels $\hat{c}(F,p)_u$ to reach $I\left(c(F,p)_u^*\right) = I^*$ at some future period $u \succ t$, this will be understood by the population F_t. Then a subset of the population $n_{I+\varepsilon,t} \subset F_t \subset B$, defined as in (3.5), will form a political party in period t. Thereby effectively taking away G's incentive to enlarge I_t^*. Because with another political party offering the policy-position $\pi_{I+\varepsilon}$, the enlargement of I_t^* to I_{t+1} in period $t+1$ to loosen up restriction 1) in (4.1) will lower the total supply of public goods and services and imply the adoption of a policy-position optimal to a wealthier type in the loosened up restriction. Then, the policy-position $\pi_{I+\varepsilon,t}$ (the optimal policy-position for the $I_t^* + \varepsilon$-type) offering $I_{t+2}^* = I_t^* \prec I_{t+1}$ will take G out of office in the elections for period $t+2$.

Evidently, it is the ability of the subset of individuals $n_{I+\varepsilon,t}$ to represent their optimal policy-position, $\pi_{I+\varepsilon,t}$ through a political party that deters G from trying to include any set of individuals $n_j \subset F_t$ into I_{t+1}^*. This is essentially a time restriction on G's ability to increase $\hat{c}(F,p)_t$ in (4.1). Since, free of other restrictions, G's ability to influence the institutional setting will enable him to set $\hat{c}(F,p)_{t+u} = \infty$ as $u \to \infty$, and hence, no institutional restriction is faced in the long run. Similarly, increasingly long mandate periods would allow G to set increasingly high levels of $\hat{c}(F,p)_t$ in one single period, and for limits, $\hat{c}(F,p)_t = \infty$ will be possible considering periods that are long enough. G's ability to reach $I_t^* = I^*$ in period t will therefore rest upon the ability to reach high enough $c(F,p)_t$ during that particular period. Then, after the set I_t^* has been determined, G will not be able to enlarge the set, and only exogenous shocks directly affecting the variables determining I_t^* will generate an enlargement of the set.

Consider instead the subset I_t^* and their possibilities of experiencing a decrease of $I_t^* \leq I^*$ in the future. Obviously, those individuals will prefer lower values of I_t^* to assure lower

values of Σ_t^* and a policy-position π_t^G where $G \in \Gamma_t'$. And also, to assure higher consumption of public goods and services, and to reduce the set of rules R^1 lowering the wealth of the individuals in I_t^*. However, for G, it would strengthen the political restriction in (4.1), and require acceptance of the lower wealth-level $Y_{t+1}^\rho = Y_{t+1}^{I+\varepsilon} \prec Y_t^{I+\varepsilon}$. Moreover, since winning the elections is a restriction for G, and since we know that individuals only care about their own wealth, any member of G must become a type with at least not higher wealth in the case of leaving G. Then, G will never – absent of exogenous shocks – initiate a decrease of I_t^*, and since I_t^* has no political representation, we must look at the incentives of the rest of the politically represented population, $(F-G)_t$. Therefore, note that to solve optimisation problem (4.1), ρ – who becomes a $I_t^* + \varepsilon$-type – will adopt its optimal policy-position and sell policies to lobbies with net personal gain to exploit the power of public office. In doing so, ρ will only be restricted by the institutional restriction in (4.1), and by the re-distributive restrictions behind the marginal condition in (3.15) that was claimed to hold for any solution given in (3.11). That is, ρ will enlarge the set I as long as it is possible and profitable, thereafter, once I_t^* has been determined, only the welfare of the $I_t^* + \varepsilon$-type will be considered when solving for the remaining variables Σ_t^*, and π_t^G in the optimisation problem. However, since we are now considering future periods, to assure the outcome I_t^* the ability of the whole subset $(F-G)_t$ to offer competing policy-positions must be accounted for as well. A further requirement to any solution I_t^* must therefore be

$$\mathrm{T} \times Y^j\left(I_t^*, \Sigma\left(I_t^*\right), \pi_t^G\left(I_t^*\right)\right) \geq$$

$$\sum_t^{\bar{\mathrm{T}}} Y^\rho\left(\breve{I}_t^*, \Sigma\left(\breve{I}_t^*\right), \pi_t^G\left(\breve{I}_t^*\right)\right) + \left(\mathrm{T}-\breve{\mathrm{T}}\right) \times Y^j\left(\breve{\breve{I}}^*, \Sigma\left(\breve{\breve{I}}^*\right), \pi_t^G\left(\breve{\breve{I}}^*\right)\right)$$

for any type $j \in \Gamma$, and any levels $I_t^* \supset \breve{I}_t^* \supseteq \breve{\breve{I}}^*$ implying

the numbers $\Sigma\left(I_t^*\right) > \Sigma\left(\breve{I}_t^*\right) \geq \Sigma\left(\breve{\breve{I}}^*\right) \geq 0$, (4.2)

where T is the total number of periods remaining for any given individual, and $\breve{\mathrm{T}}\left(\prod_t\right)$ is the number of periods needed to be able to establish the smaller set $\breve{\breve{I}}^* \subset B$ or $\breve{\breve{I}}^* \in \varnothing$ that may be optimal to any j-type considered. Hence, $\breve{I}_t^* \supseteq \breve{\breve{I}}^*$ is any smaller set allowed by the institutional restriction at any period t given in (4.2) that is temporarily established in order to

finally reach $\breve{\bar{\mathrm{I}}}^*$.[21] That is, the requirement is that there cannot exist a smaller set $\breve{\bar{\mathrm{I}}}^*$ which will increase the lifetime wealth for any individual $i \in F_t$, given the institutional and time restrictions he faces. Hence requiring that the positive effect of higher tax revenues and fewer distortionary policies sold to lobbies is dominated by the negative effect of facing a less favourable policy-position implied by any set $\breve{\bar{\mathrm{I}}}^* \prec \mathrm{I}_t^*$ being considered, and the lower income that must be accepted during $\breve{\mathrm{T}}$ periods to establish $\breve{\bar{\mathrm{I}}}^*$. Because if (4.2) does not hold for some type $j \in \Gamma$, there will be a subset $\hat{n}_j$ willing to strategically accept wealth level/s $Y^\rho \le Y^j\left(\mathrm{I}_t^*\right)$ during $\breve{\mathrm{T}}$ periods to offer the policy-position $\pi^G = \pi_{I+\varepsilon}\left(\breve{\bar{\mathrm{I}}}^*\right)$ in period $\breve{\mathrm{T}}+1$. The j-types can then look forward to the wealth level

$$Y^j\left(\breve{\bar{\mathrm{I}}}^*, \Sigma\left(\breve{\bar{\mathrm{I}}}^*\right), \pi_t^G\left(\breve{\bar{\mathrm{I}}}^*\right)\right) \ge Y^j\left(\mathrm{I}_t^*, \Sigma\left(\mathrm{I}_t^*\right), \pi_t^G\left(\mathrm{I}_t^*\right)\right) \text{ during } \left(\mathrm{T}-\breve{\mathrm{T}}\right) \text{ periods ahead. Hence, with}$$

(4.2) holding, the set $\left(F-G\right)_t$ will prefer status quo, and the only subset with the incentive to set any lower level $\mathrm{I} \subset \mathrm{I}_t^*$ is the one without political representation. Since ρ_t is pursuing re-election, (4.2) is a *re-distributive restriction* that must be added to optimisation problem (4.1).

Now, to identify possible exogenous shocks lowering I_t^* consider the marginal condition given in (3.15) that must hold for any solution to (3.6). Since we know that the subset I_t^* is not politically represented, consider shocks that may incentive G to decrease the set I_t^*. For instance, any level $\mathrm{I} \succ \mathrm{I}^*$ that G may be considering when solving (3.6) will generate the inequality

$$\left.\partial y^{I+\varepsilon}\Big/\partial \mathrm{I}\right|_{\mathrm{I} \succ \mathrm{I}^*} \prec \left|\left.\partial Y_g^{I+\varepsilon}\Big/\partial \mathrm{I}\right|_{\mathrm{I} \succ \mathrm{I}^*}\right| + \left|\left.\partial Y_r^{I+\varepsilon}\Big/\partial \Sigma\right|_{\Sigma=\Sigma^*}\right|, \tag{4.3}$$

requiring a decrease of the set I to transform (4.3) into the equality in (3.15). The inequality above will imply that the wealth level $Y^{I+\varepsilon}\left(\mathrm{I}\right) \prec Y^{I+\varepsilon}\left(\mathrm{I}^*\right)$ implied by the set $\mathrm{I} \succ \mathrm{I}^*$ in (4.3) is not worth pursuing. Of course, an exogenous shock in period $v \succ t$ to any of the variables in (3.15) generating the inequality in (4.3), when evaluated at the set I_t^* that has been established as a solution to (4.1), will also incentive G to set $\mathrm{I}_v^* \prec \mathrm{I}_t^*$ as an up-to-date solution to

---

optimisation problem (4.1). Implying the higher absolute wealth level $Y^\rho\left(I_v^*\right) \succ Y^\rho\left(I_t^*\right)$.

However, we must also here look at the preferences of the population $(F-G)_t$.

Consider a stronger re-distributive restriction than that given by (4.2), evaluated after the hit of an exogenous shock in period v,

$$Y_v^j\left(I_t^*, \Sigma\left(I_t^*\right), \pi_t^G\left(I_t^*\right)\right) \geq Y_v^j\left(I_v^*, \Sigma\left(I_v^*\right), \pi_t^G\left(I_v^*\right)\right),$$

where $I_v^* \prec I_t^*$, and for any type $j \in \Gamma$ represented in $(F-G)_t$.   (4.4)

With (4.4) holding, the population $(F-G)_t$ will prefer status quo. Implying that the negative effect of adopting a less favourable policy-position is stronger than the positive effect of increased tax-revenues and less policies sold to lobbies. Then, if there is a mechanism enabling a transfer

$$\Upsilon, \text{ such that } Y_v^\rho\left(I_t^*, \Sigma_t^*, \pi_t^G, \Upsilon\right) \geq Y_v^\rho\left(I_v^*, \Sigma_t^*, \pi_v^G\right) \text{ and}$$

$$Y_v^j\left(I_t^*, \Sigma\left(I_t^*\right), \pi^G\left(I_t^*\right), \tau^j\right) \geq Y_v^j\left(I_v^*, \Sigma\left(I_v^*\right), \pi^G\left(I_v^*\right)\right),$$ (4.5)

for any individual $i \in F_t$ and with τ^j defined as the contribution to the transfer $\Upsilon = \sum_{j \in \Gamma} \tau^j * n_j$

made by individuals of any type $j \in \Gamma$, the population $(F-G)_t$ will be able to induce G to stick to the policy-position $\pi^G\left(I_t^*\right)$. Notice that the existence of such mechanism is, by definition of Υ, in the interest of the whole subset F_t. It will allow F_t to redistribute wealth within this subset of the population to maintain the extractive equilibrium even after the hit of exogenous shocks that might have – in the absence of such mechanism – incentive ρ to deviate. Such transfer mechanism may also be a substitute to lost lobby revenues, that may follow from a negative exogenous shock working through p_R, to have G willing to candidate for the next period with maintained policy-position.

The implications of the existence of a transferring mechanism given in (4.5) should be interpreted in terms of the politically represented subset's ability to keep the set I_t^* constant in order to allow maintained redistribution from I_t^* to F_t (implied by (4.4)). From that perspective it is clear that with a transferring mechanism that is effective enough, only exogenous shocks directly altering the distribution of political representation within the population will change I_t^*. Also, note that since (4.4) is a further restriction on optimisation problem (4.1), ρ_t must not only consider the $I_t^* + \varepsilon$-type behind restriction 1), but also the

rest of the population in F_t. For instance, (4.2) is more likely to hold the higher the capability of G to redistribute wealth from I_t^* to F_t through the adoption of any given policy-position π_t^G, and the more tax-revenues G is able to extract from I_t^*. Since both factors are determined by $\prod_t$, and given the incentives of the politically represented set F_t once any I_t^* fulfilling (4.2) has been established as a solution, the institutional setting will reasonably develop to strengthen and secure (against exogenous shocks) its re-distributive structure. Hence, in the absence of exogenous shocks directly altering the distribution of political representation, or strong enough shocks on F_t's re-distributive ability (breaking against condition (4.5)), the institutional setting allowing the exploitation of public office is expected to become more resistant to such exogenous shocks through increased redistribution from I_t^* to F_t. Because strengthened re-distributive ability of the set F_t will improve the possibilities to redistribute wealth to disincentive the supply of competing policy-positions – enlarging the subset of politically represented individuals – that may be triggered by an exogenous shock. Thereby improving F_t's ability to take collective action to maintain the co-operative equilibrium.

From the established stability for the outcome of a solution to (4.1) with (4.4) as a further restriction, we can conclude that the variables $\left(I_u^*, \Sigma_u^*, \pi_u^G\right)$ at any period u can be expected to mirror the institutional conditions of the very first period t.

4.2   Institutional Quality

In the previous subsection we have added two more restrictions to the optimisation problem faced by G in (3.6). The institutional restriction in optimisation problem (4.1) required the ability to set high enough bureaucratic costs in order to reach any solution $I_t^* \succ B - I_t^*$, while (4.2) – or (4.4) – required certain re-distributive capacity from G to have this I_t^* as the optimal level for the whole subset of the population with political representation. Both restrictions depend ultimately on the institutional setting preceding the very first period of democracy, $\prod_{t-1}$. So, in order to reach I^* given in (3.11) – or for instance any smaller set $I_t^* \succ B - I_t^* - \prod_{t-1}$ must enable G to set high bureaucratic costs and to redistribute enough

wealth from I_t^* to $(F - G)_t$. Therefore, any institutional setting $\prod_{t-1}$ allowing some $\mathrm{I}_t^* \succ B - \mathrm{I}_t^*$ must be discriminatory in favour of the set F_t, because it must allow redistribution of both wealth and political influence to the minority F_t. So with an institutional setting $\prod_{t-1}(\mathrm{H})$ that is enough discriminatory, the introduction of a defined democratic constitution will just imply the institutionalisation of the discriminatory structure to suit the new conditions.

In particular, the potential ability of G to set higher bureaucratic costs for the subset I_t^* will enhance the possibilities to reach any $\mathrm{I}_t^* \succ B - \mathrm{I}_t^*$. Because with any such screening mechanism available, the separation of the subset I_t^* will be carried out more effectively in terms of lost tax revenues, T. Then (4.2) is more likely to hold, and ρ_t's wealth restriction in (4.1) will be loosened up. It will require the identification of individuals not belonging to the favoured set, that we may denote F_{t-1}, when the bureaucrat charges the costs $c(F,p)_t$. Assuming that such price discrimination cannot be carried out through the formal part of the bureaucratic costs (because it can be expected to be institutionally unfeasible), the costs $\breve{c}(F,p)_{t,F}$, free of red-tape and other types of corruption, will be charged to any individual identified as $i \in F_{t-1}$. While the costs $\hat{c}(F,p)_{t,1} \succ \breve{c}(F,p)_{t,F}$, including corruption, will be charged to any individual a not identified as $a \in F_{t-1}$. An effective and – probably – institutionally feasible mechanism for separation will be to delegate the cost-setting mechanism by allowing for *nepotism* within bureaucracy. Having bureaucrats as members of the privileged subset F_{t-1}, the allowance of nepotism and corruption within bureaucracy may serve as a screening mechanism, generating the higher bureaucratic costs $\hat{c}(F,p)_{t,1}$ for individuals not identified as $a \in F_{t-1}$. However, if the discriminated subset $B - F_{t-1}$ can be identified by any other means, the allowance of *discrimination* in general within bureaucracy will make the blocking of political representation further effective. The effectiveness of such separation mechanism will then rest upon the bureaucrats ability to identify individuals of their own group.

Since the positive externalities of fighting corruption and different types of discrimination require collective action, G will just have to make sure not to implement institutions deterring corruption and the required type of discrimination.

5 Concluding Remarks

The importance of the pre-democracy institutional conditions that have been established here puts focus on the colonial origins of the developing world. The establishment of extractive institutions – consistent with the historical purposes of colonisation – together with the ability to separate the native population from the colonial minority are requirements that may be necessary to enable the exploitation of public office after the establishment of a defined democratic constitution. Moreover, the colonial institutions should be expected to create large income dispersion across the population, further increasing the gains from the exploitation of public office. Then, since it has been showed that a majority of the population must be blocked from political representation to enable the exploitation of public office, the widespread existence of informal economic activity and political mismanagement characterising developing countries may just reflect a threshold effect released by discriminatory colonial institutions. Since, if not managing to block a majority of the population from political representation, efforts to do so will just result in increased informal economic activity that is costly without allowing the exploitation of public office. Hence, large informal sectors should be primarily explained by efforts taken to allow revenues from political corruption, while lower levels should be derived completely to the policy-makers inability to deter undesired informal economic activity. However, considering an electoral system without majority voting, for instance proportionality voting, blocking the political representation of a majority of the voters will not be necessary to loosen up the policy-maker's political restriction. Since blocking a minority of the voters from political representation will also – although less extensively – allow the exploitation of public office at the cost of the blocked minority. In that case, blocking the majority of the population from political representation will not constitute any threshold level. So differences in the relative size of the informal sector and the extensiveness of political mismanagement should just mirror institutional differences during the implementation of such democratic constitution for otherwise similar countries.

Any equilibrium established in the model to allow the exploitation of public office has been identified as a co-operative outcome. The capacity of the policy-maker to redistribute wealth will be crucial for his ability to establish a co-operative equilibrium, and the re-

distributive ability of the whole politically represented subset will determine the capacity of such equilibrium to resist exogenous shocks. In such equilibrium, wealth distribution is accomplished through the adoption of a particular policy-position and by selling policies to lobbies. But the majority of the population without political representation will face further costs. Because, besides the direct redistribution of wealth, the policy-maker must undertake measures to limit political competition from that majority. Such measures will, if institutionally feasible, mean the acceptance of institutions allowing corruption, discrimination and extensive bureaucracy, and of all the costs associated to the existence of a large informal sector. The costs generated will mainly be buried by the majority of the population that these measures are aimed for, since they will be designed to block their access to the formal markets of the economy in order to lower their wealth, and to increase their costs of forming a political party.

Three major features will be associated to an established co-operative equilibrium. First, the policy-maker will deviate from the welfare maximising policy-position; to loosen up the political restriction, and to increase its own wealth. For instance, by allowing for corruption and extensive bureaucracy, motivated by the former, while selling policies to lobbies and the adoption of policies preferred by the politically represented minority will allow the latter. Second, the modelled deviations from the welfare optimum will all work to re-distribute wealth to the politically represented minority. Such redistribution will not only be a consequence of the policy-maker's efforts to increase its own wealth, it will also result from measures taken to secure the motivation of the politically represented subset to stick to the co-operative equilibrium. Also in the case of facing future exogenous shocks. Finally, the institutional setting that has been established to allow the exploitation of common welfare will only enable general economic development within the political restriction faced by the policy-maker. That is, the policy-maker will only allow general economic development if consistent with its ambitions of increased wealth and limited political competition. Obviously, with the optimisation problem of such policy-maker determining the formation of formal institutions, the exploitation of the possibilities for general economic development will be restricted to those fulfilling the requirements of the politically represented minority. And in general, measures to reduce wealth dispersion amongst the population will never be taken. Hence, the possibilities for economic growth will be fewer in an economy where the supply side of the political process has been restricted to exploit the power of public office, and moreover, such economy will – absent of exogenous shocks – experience deepened wealth dispersion in the long-run.

Two types of exogenous shocks have been identified as able to generate the supply of alternative policy-positions taking the corrupted policy-maker out of office. The first type of shocks are those strongly reducing the policy-maker's re-distributive capacity, and the other type of shocks are those directly enabling new types of individuals to be politically represented. Therefore, the policy implication should be that, when considering issues of economic development, the institutional premises allowing the exploitation of public office cannot be neglect, and in particular, to achieve development in the long run, broadened political representation will be necessary. However, although we may be able to identify the channels through which political mismanagement can be deterred, it will be of little interest if we cannot design reforms using those channels and that can at the same time be implemented. This should be a challenge, since it requires the politically represented subset's acceptance of reforms redistributing political influence and wealth at their cost.

References

Acemoglu, D., S. Johnson, and J. Robinson (2001) "The Colonial Origins of Comparative Development: An Empirical Investigation". Forthcoming in *American Economic Review*.

Banerjee, A. (1997) "A Theory of Misgovernance". *Quarterly Journal of Economics*, vol. 112, no. 4, 1289-1332.

Becker, G. S. (1983) "A Theory of Competition Among Pressure Groups for Political Influence". *Quarterly Journal of Economics*, vol. 98, 371-400.

Bergman, T., W. Muller, K. Strom, (2000) "Introduction: Parliamentary democracy and the chain of delegation". *European Journal of Political Research*, 37, 255-260.

Besley, T., and S. Coate (2001) "Lobbying and Welfare in a Representative Democracy". *Review of Economic Survey*, vol. 68, 67-82.

Castells, M., and Portes, A. (1989) "World Underneath: The Origins, Dynamics, and Effects of the Informal Economy". In Portes, et al. (1989).

De Soto, H. (1988) *El Otro Sendero*. Editorial Printer Colombiana Ltda.

De Soto, H. (2000) *El Misterio del Capital*. Empresa Editorial El Comercio S.A.

Dixit, A. (1996) *The Making of Economic Policy: A Transaction-Cost Politics Perspective*. The MIT Press.

Dixit, A., G. M. Grossman, and E. Helpman (1997) "Common Agency and Coordination: General Theory and Application to Government Policy Making". *Journal of Political Economy*, vol. 105, no. 4, 752-69.

Dornbusch, R. and S. Edwards (ed.)(1991) *The Macroeconomics of Populism in Latin America*. The University of Chicago Press.

Friedman, E., Johnson, S., Kaufmann, D. (2000) "Dodging the Grabbing Hand: The Determinants of Unofficial Activity in 69 Countries". *Journal of Public Economics*, vol. 76, 459-493.

Grindle, M. (1991) "After the Decision: Implementing Policy Reforms in Developing Countries". *World Development*, vol. 18, no. 8, 1163-1181.

Grossman, G. M., and E. Helpman (1994) "Protection for Sale". *American Economic Review*, vol. 83, no. 4, 833-850.

Hall, R., and C. Jones (1999) "Why Do Some Countries Produce So Much More Output Per Worker Than Others?". *Quarterly Journal of Economics*, vol. 114.

Jain, A. (2001a) "Corruption: A Review". *Journal of Economic Surveys*, vol.15, no. 1.

Jain, A. (ed.)(2001b) "The Political Economy of Corruption". Routledge Contemporary Economic Policy Issues.

Johnson, S., Kaufmann, D., McMillan, J., and Woodruff, C. (2000) "Why Do Firms Hide? Bribes and Unofficial Activity after Communism". *Journal of Public Economics*, vol. 76, 495-520.

Kurer, O. (2001) "Why do Voters Support Corrupt Politicians?". In Jain (2001b).

Laffont, J-J. (2001) *Incentives and Political Economy*. Oxford University Press.

Loayza, N. (1997) "The Economics of the Informal Sector: A Simple Model and Some Empirical Evidence from Latin America". *Policy Research Working Paper 1727*, The World Bank Policy Research Department.

Mauro, P. (1995) "Corruption and Growth". *Quarterly Journal of Economics*, vol. 110, no. 3, 681-712.

Mitchell, P. (2000) "Voters and their representatives: Electoral institutions and delegation in parliamentary democracies". *European Journal of Political Research*, 37, 335-351.

Myerson, R. (1993) "Effectiveness of Electoral Systems for Reducing Government Corruption: A Game-Theoretic Analysis". *Games and Economic Behaviour*, vol. 5, 118-132.

Muller, W. (2000) "Political parties in parliamentary democracies: Making delegation and accountability work". *European Journal of Political Research*, 37, 309-333.

Nabli, and Nugent (1998) "The New Institutional Economics and Its Applicability to Development". *World Development*, vol. 17, no. 9, 1333-1347.

North, D. C. (1989) "Institutions and Economic Growth: An Historical Introduction". *World Development*, vol. 17, no. 9, 1319-1332.

Portes, A., Castells, M., and Benton, L. A. (ed.)(1989) "The Informal Economy. Studies in Advanced and Less Developed Countries". The John Hopkins University Press.

Rose-Ackerman, S. (2000) "Political Corruption and Democratic Structure". In Jain (2001b).

Schneider, F., and Enste, D. H. (2000) "Shadow Economies: Size, Causes, and Consequences". *Journal of Economic Literature*, vol. 38, 77-114.

Tanzi, V., and H. Davoodi (2001) "Corruption, Growth, and Public Finances". In Jain (2001b).

Treisman, D. (2000) "The Causes of Corruption: A Cross-National Study". *Journal of Public Economics*, vol. 76, 399-457.