# Working Paper

# IMF Working Paper

# Ethnic Diversity, Democracy, and Corruption

*Etienne B. Yehoue*

INTERNATIONAL MONETARY FUND

**IMF Working Paper**

IMF Institute

**Ethnic Diversity, Democracy, and Corruption**[1]

Prepared by Etienne B. Yehoue

Authorized for distribution by Marc Quintyn

September 2007

**Abstract**

I study the link between ethnic diversity, democracy, and corruption. In a static model, I show that contrary to conventional wisdom, corruption might emerge as a negative externality of democracy. This occurs through ethnicity, which appears as a rent-extracting technology in a democratic society. Extending the model into a dynamic framework, I find that this technology of extraction operates only at the early stage of democracy. Its impact tends to phase out as democracy matures. In other words, the model predicts that democracy exhibits a threshold effect on corruption.

---

Contents

# I.  INTRODUCTION

Democratic change should be associated with political participation, transparency, and accountability. Citizens should benefit from greater freedom and means to hold their government accountable. Separation of powers between the executive, the legislative, and the judiciary with appropriate checks and balances should help prevent the abuse of power by any branch of the government. Regular elections should constitute a key mechanism for disciplining public officials from wrong doing or corruption. Based on these premises, and perhaps after the failure of many dictatorial regimes to fulfil popular expectation, the last decade witnessed many experiments of democratization in Africa. Indeed, all but four African countries staged some sort of competitive election during the 1990s (see Bratton and van de Walle, 1997, p. 21-2). Nonetheless, despite the emergence of democracy in many African countries a decline in the level of corruption–defined here as the misuse of public office for private gain–is yet to materialize.

For example, in South Africa–which became truly democratic in 1994 after the transition from the "apartheid" regime, by comparing the levels of corruption for the pre- and post-transition periods, ICRG's corruption index data indicate no improvement, as on average the index went down from about 6 over the period 1984-94 to about 3 over 1995-2006.[1] In 1999, Nigeria successfully negotiated a peaceful transition from a military rule to a democratic political system. According to the ICRG's data, the corruption index prior to the transition was on average about 2. Despite the political will of the new government to fight corruption, ICRG's data indicate that improvement in lowering the level of corruption is yet to materialize since the average corruption index went down to about 1 after the transition, that is, over 2000-06. In Kenya, in 2002, President Mwai Kibaki ran as the candidate of the

---

[1]ICRG stands for International Country Risk Guide. The ICRG's corruption index measures within the political system corruption that threatens foreign investment by distorting the economic and financial environment, reducing the efficiency of government and business by enabling people to assume positions of power through patronage rather than ability. The index ranges from 0 to 6, with the higher the index the lower the corruption.

multiethnic united opposition group in a genuinely democratic election, and center-ing his campaign on an anticorruption platform, won. However, while the ICRG's data indicate an average corruption index of about 3 over 1984-2002, this index declined after the election to about 2 over 2003-06, suggesting no improvement, despite a clear vision of the new president to fight the phenomenon. In addition, Zakaria (2003, p.98) notes that although democracy has opened up African politics and brought liberty to people, it has also created an environment that has actually made corruption worse in many countries. Furthermore, primary evidence suggests that in sub-Saharan Africa, during their first five to seven years, democracies with multiparty competitive elections and alternation in power, experience an increase in corruption by 6 to 9 percent a year on average.[2]

Evidence suggests that Africa is not an exception. Huntington (1968) observes that political modernization, defined as a transition from autocracy to a more democratic regime, is accompanied by increases in corruption. He reported impres-sionistic evidence suggesting that political life in eighteenth-century America and in twentieth-century America was less corrupt than in nineteenth-century[3] America. Similarly, political life in seventeenth-century Britain and in late nineteenth-century Britain was less corrupt than it was in eighteenth-century[4] Britain (see Huntington, 1968, p. 59). More recently, Quan (2004) points out that the third wave of democra-tization has been accompanied by an eruption of corruption in both the Philippines and South Korea, although the levels of corruption have declined afterward in both countries. Similarly, Diamond (1999) argues that the process of democratization in countries such as Colombia, Mexico, Thailand, and Russia was also first affected by corruption before improvements materialize. Thus, corruption exists in different degrees in all societies but seems more prevalent in some periods in the evolution of a society than in other periods.

I analyze this observation and contend that countries that have multiparty com-petitive elections experience lower levels of corruption over time but, this genuine

---

[2]See Ruhashyankiko (2007).

[3]The century of political modernization in the United States.

[4]The century of political modernization in the United Kingdom.

democracy comes at a cost of higher levels of corruption in early stage. Corruption then appears as a negative externality of democracy in early stage. In other words, democracy not only matters for corruption but, equally important, has a threshold effect.

I rationalize this contention by focusing on a key characteristic of most developing countries: ethnic fractionalization. In particular, I argue that in early stage of democracies, political parties emerge along ethnic group lines. Benin and Cote d'Ivoire are among the many countries in which ethnic political parties have flourished. Consequently, in countries characterized by a high degree of ethnic fractionalization, no single party is capable of winning a majority of the popular vote. A candidate wins a presidential election by forming a coalition. This leads to the emergence of "king-makers" who are leaders of ethnic groups or political parties and who are supposed to represent the preferences of those belonging to their groups. Their emergence is even more likely when the majority of voters are uninformed because king-makers can convince members of their groups to mass behind a single ethnic party rather than distributing their votes across a range of parties. This occurs even if the king-makers' preferences are not exactly the same as those of the group members. This context is characterized by pre-electoral coalition formation where rewards consist of promises of administrative positions or other rents to king-makers in exchange for endorsements which carry the group members' votes. The candidate elected through such coalitions will have to compensate the king-makers to maintain their continued support in order to survive in office.

Thus, ethnic fractionalization reduces the autonomy of state which, essentially, requires some degree of insulation from the surrounding social structure in order to be effective. In particular, insufficient autonomy prevents the state from operating as an effective organization in providing the incentives for economic development or adopting growth-enhancing policies. Thus, ethnicity appears as a rent-extracting technology that fosters a highly politicized administration and widespread corruption. Over time, as the process of democratization matures and people become better informed, elections can effectively perform their function as a mechanism for

disciplining public officials, leading to lower corruption.

The available evidence on voting behavior supports the view of ethnic group members massing their votes behind a single ethnic party. For example, in Benin, in the 1996 presidential election, the challenger Mathieu Kerekou obtained the decisive support of the Goun ethnic group after the endorsement of their leader Adrien Houngbedji. In Uganda, the pro-Buganda Kabaka Yekka obtained the support of the Gandas in 1962 (Kasfir, 1976). In South Africa, the pro-Zulu Inkatha Freedom Party obtained the support of a plurality of Zulus in Natal in 1986 (Horowitz, 1991). In India, the Hindu nationalist Bharatiya Janata Party obtained a strong support level among Hindus in 1998 (Ferree and Singh, 1999).

I formalize these ideas by proposing a simple model of a two-candidate election in which the incumbent and the challenger compete. In order to attract votes, candidates announce their policy platforms—a vector of public goods to be delivered after the election—and lobby king-makers for endorsement through the promise of administrative posts or other rents. Public endorsements are used as a mean of communication between the informed king-makers and the uninformed group members. Either the latter do not fully understand how particular policy proposals will affect their well-being, or it might be too costly for them to acquire all the information needed to cast an informed vote. As a result, these uninformed group members might rather look at readily available cues to guide them in their voting choice. In such a context, endorsements by group leaders may convey useful information to uninformed group members.

An equilibrium consists of a pair of policy platforms and a set of rent schedules that maximize each candidate's chance of winning the contested election. I show that in an environment characterized by a high proportion of uniformed voters distributed across ethnic groups, corruption will result in equilibrium. I later introduce some dynamics into the model and show that as the democratization process matures, the degree of corruption will decline over time.

The paper is organized as follows. Section II briefly refers to the related literature. Section III presents the model, comprising a setup, a static equilibrium, and a dynamic extension. Finally, section IV concludes.

## II.  RELATED LITERATURE

Most studies on corruption investigate the causes of corruption with an emphasis on historical and cultural traditions, levels of economic development, political institutions, and government policies. Treisman (2000), in an empirical study, provides a comprehensive survey of the literature on corruption. He analyzes the determinants of corruption and finds that longer exposure to democracy reduces corruption. The model here not only provides a formal theoretical support for this finding, but it also shows that lesser exposure to democracy can increase corruption.

Analyzing corruption as a negative externality of democratization has not received enough attention in the literature. Some exception should be highlighted. Huntington (1968) observes that political modernization might bring about corruption and offers three rationals for such a connection. First, he argues that modernization involves change in the basic values of the society in such a way that what was perceived as normal before might subsequently be regarded as corruption. Second, he notes that modernization may contribute to corruption by creating new sources of wealth and power. As a result, the efforts of the new groups with new resources to make themselves effective within the political sphere will lead to corrupt behavior. Finally, modernization may bring about corruption by the change it produces in the political system. Here, I propose not only a new channel—ethnic fractionalization—but I also propose the first attempt at formalizing corruption as a negative externality of new democracies.

Diamond and Plattner (1993), Heywood (1996), and Geddes (1977) note that the risk of exposure to corruption may be higher in more democratic and open political systems. Their argument is that electoral competition may create incentives for

corruption through the need to raise money for electoral campaigns; this need can lead to abuses of power to benefit private interests of a party at the expense of the general welfare. The argument in this paper differs from theirs as it emphasizes the rent-extracting technology role of ethnic fractionalization in newly democratic societies.

# III.  The model

I study electoral competition between two candidates—an incumbent and a challenger—in a jurisdiction characterized by large population of voters (a continuum with measure one) distributed across an exogenous number $J$ of ethnic groups. I begin the description with the general setup, followed by the static equilibrium, and the dynamic extension.

## A.  Setup

### 1.  Voters

I follow Baron (1994) and Grossman and Helpman (1996) by distinguishing the behavior of two types of voters, the informed and the uninformed. Informed voters are those who are well educated, understand the issues and the intricacies of both candidates' policy platforms. The welfare of the informed voters depends upon the ultimate policies implemented and other exogenous characteristics related to the candidates. For example, the voters' welfare may be affected by their affinities for the candidates. These affinities can be influenced by factors such as competence, charisma, or relationship with the candidates. As Grossman and Helpman (1996) point out, voters may derive some pleasure from supporting the candidate of the party to which they have developed an historical attachment. Based on the policy platforms and the exogenous attributes, informed voters cast their votes for whichever candidate offers the highest utility.

Consider a typical informed voter $i$ who derives utility $u_i\left(g^L\right)$ from a public good vector $g^L$ proposed by the incumbent $L$, and utility $u_i\left(g^C\right)$ from a public good vector proposed by the challenger $C$. I assume $u_i\left(.\right)$ continuous and differentiable. The informed voter $i$ would vote for the incumbent if and only if $u_i\left(g^L\right) - u_i\left(g^C\right) \geq \beta_i$ where $\beta_i$ is a measure of her assessment of the superiority of her personal affinity toward the challenger relative to that of the incumbent. I assume that candidates do not know the $\beta$ of any voter but presume that it is drawn from a known distribution $F\left(\beta\right)$. In addition, I assume that the distribution of preferences on affinity to candidates is statistically independent from the effects of the public good vector $g$ on individuals' utilities. As a result, the perceived probability of individual $i$ casting a vote for $L$ is $F\left[u_i\left(g^L\right) - u_i\left(g^C\right)\right]$. I assume a continuum of voters with measure one, the law of large number dictates that the share of informed votes cast for the incumbent is $\frac{1}{n_I}\int_{i \in I} F\left[u_i\left(g^L\right) - u_i\left(g^C\right)\right] di$, where $I$ is the set of informed voters and $n_I$ is the cardinality or the measure of $I$.

The uninformed voters, by contrast, do not know or are unable to assess the respective policy platforms. As a result, uninformed voters do not recognize the relationship between policy platforms and their own well-being. It may be too costly for these individuals to gather all the information they need to cast an informed vote. Uninformed voters are distributed across ethnic groups and those belonging to the same ethnic group know they share similar goals. In other words, an uninformed voter within an ethnic group is aware that his group comprises a set of voters with the same ideal policy platform. He holds the prior belief that his group's ideal point has been drawn from some distribution. He may have an initial bias toward a candidate, but can be swayed by the endorsement signal he receives from his group leader.

Contrary to group members, groups leaders have informational advantage with regard to the position of the ideal points of their different groups. By endorsing a particular candidate, group leaders send a signal to their group members that the common ideal point of the group is closer to the policy platform. In other words, group leaders send the signal that the endorsed candidate will provide the highest

contingent utility to the group. The group members then update their beliefs and cast their ballots accordingly. From a policy vector $g$, a typical member of ethnic group $(j)$ derives a utility of $\gamma_j v(g)$, where $\gamma_j \in [0, 1]$ and is an heterogeneity parameter capturing the group-specific private utility from the public good vector $g$ and $v(.)$ is a concave function. I denote by $\alpha$ the share of uninformed voters in the total voting population, with $\alpha > 1/2$ meaning that the majority of voters are uninformed.

## 2.   King-makers

I modify the Grossman and Helpman (1996) model—in which special interest groups lobby politicians through campaign contributions to influence their policy platforms—and adapt it to this setting where candidates lobby king-makers for endorsements.

King-makers are the leaders of ethnic groups who share the same ideal points as their respective groups. However, in making their endorsement decision, they care not only about their group's ideal point, but also about their own private reward, which I denote $R$. A strictly positive value of $R$ suggests that public resources are diverted for private end, that is, society experiences corruption. The utility of group $(j)$'s king-maker is then given by $V(R_j, g)$. Because king-makers make their endorsement decision based on their utility functions and because group members follow their signal through beliefs updating, the fraction of uninformed voters that vote for the incumbent after the king-makers endorsements will depend not only on $g^L - g^C$, but also on $R^L - R^C$. I denote this fraction by $H\left[g^L - g^C,\ R_1^L - R_1^C, ..., R_J^L - R_J^C\right]$.

Thus, combining the informed and uninformed votes, the fraction $\Lambda$ of ballots cast for the incumbent can be expressed as follows

$$
\begin{aligned}
\Lambda \;=\; & \frac{1-\alpha}{n_I} \int_{i \in I} F\left[u_i\left(g^L\right) - u_i\left(g^C\right)\right] di \\
& + \alpha H\left[g^L - g^C,\ R_1^L - R_1^C, ..., R_J^L - R_J^C\right].
\end{aligned}
\tag{1}
$$

## 3. Candidates

The incumbent chooses $g^L$ and $R^L$ to maximize her share $\Lambda$ of votes subject to: (1) the budget resource constraint (RC) $e(g^L) + \sum_{j=1}^{J} R_j^L \leq \Omega$ with $R_j^L \geq 0$, where $\Omega$ is the level of resources available in the jurisdiction, and $e(g^L)$ represents the resources allocated to the implementation of $g^L$; (2) the incentive compatibility constraint (IC) $V\left(R_j^L, g^L\right) \geq V\left(R_j^C, g^C\right)$; and (3) the participation constraint (PC) to be formalized below. I assume that the more resources are allocated to a public good vector $g$, the better this policy platform, that is, $\frac{\partial u_i(g)}{\partial e(g)} > 0$ and $\frac{\partial v(g)}{\partial e(g)} > 0$. Also I assume that if two vectors of policy platforms $g_1^L$ and $g_2^L$ require the same level of expenditures or resources for their implementation, that is, $e(g_1^L) = e(g_2^L)$, then they provide the same level of utility and hence are considered equivalent or equal, that is, $g_1^L \sim g_2^L$ or $g_1^L = g_2^L$.

The incumbent needs to target a number $J^L \leq J$ of ethnic groups among the existing $J$ groups because she may never succeed in convincing some king-makers to be part of her coalition and there is no incentive to choose non-representative (or negligible) groups. I rearrange the $J^L$ in the incumbent coalition from 1 to $J^L$.

The challenger chooses $g^C$ and $R^C$ to maximize the fraction $1 - \Lambda$ subject to the same three constraints where indexes $L$ and $C$ are switched.

## 4. Equilibrium concept

An equilibrium consists of a pair of feasible policy vectors $\left(g^L, g^C\right)$ and a set of reward schedules $\left\{R_j^L, R_j^C\right\}$ for each ethnic group such that

1. $g^L, R_j^L$ maximize $\Lambda$, given $g^C, R_j^C$,

2. $g^C, R_j^C$ maximize $(1 - \Lambda)$, given $g^L, R_j^L$.

A strictly positive value of any $R_j$ is indicative of the existence of corruption, and the higher the $R_j$ the higher the level of corruption. A corruption-free society is the one in which $R_j = 0$ for all $j$ and $e(g^L) = \Omega$.

## 5. Functional forms

To simplify the analysis, I adopt some specific functional forms. I assume $F(.)$ is uniformly distributed over the interval $\left(-\frac{1}{2k} - \frac{b}{k}, \frac{1}{2k} - \frac{b}{k}\right)$, where $k > 0$ and $|b| < 1/2$. Thus, $k$ is the density of the distribution $F(.)$ and $\frac{1}{k}$ capture the diversity of opinions concerning the exogenous characteristics or affinities. This implies, $F[u_i\left(g^L\right) - u_i\left(g^C\right)] = \frac{1}{2} + b + k\left[u_i\left(g^L\right) - u_i\left(g^C\right)\right]$. The parameter $b$ captures the average preference for the incumbent and can be interpreted as the ex ante bias toward her. A positive bias, $b > 0$, reflects an ex-ante incumbency advantage whereas a negative bias, $b < 0$, reflects some ex-ante dissatisfaction toward the incumbent.

I assume that $H[.]$ is linearly additive in the following sense:

$$H\left[g^L - g^C, \ R_1^L - R_1^C, ..., R_J^L - R_J^C\right]$$
$$= \frac{1}{2} + b + \lambda\left[v\left(g^L\right) - v\left(g^C\right) + \sum_{j=1}^{J^L}(R_j^L - R_j^C)\right], \text{ where } \lambda > 0.$$

By setting $W\left(g^L\right) = \frac{1}{n_I}\int_{i\in I} u_i\left(g^L\right) di$ , which is the average welfare of informed voters, it follows

$$\Lambda = \frac{1}{2} + b + (1 - \alpha)k\left[W\left(g^L\right) - W\left(g^C\right)\right] \qquad (2)$$
$$+\alpha\lambda\left[v\left(g^L\right) - v\left(g^C\right) + \sum_{j=1}^{J^L}(R_j^L - R_j^C)\right].$$

Notice that the average welfare function $W(.)$ is an increasing function of the policy platform $g$.

I also assume that $V\left(R_j, g\right) = \omega R_j^L + (1 - \omega)\gamma_j v\left(g^L\right)$, where $\omega \in (0, 1)$ and $\omega$ captures the weight that king-makers put on their private rewards relative to the private utility derived from the public goods by the ethnic group to which the king-maker belongs.

## 6. Participation constraint

If the king-maker from the group $(j)$ refuses any compensation by the candidates then he would support a public good vector that best serves the average informed voter. This public good vector, $g^*$, satisfies $\nabla W(g^*) = 0$. Thus, the king-maker would get $V(0, g^*)$. Therefore, for the king-maker to support $(L)$, it has to be the case that the resulting utility from the package $(R_j^L, g^L)$ be higher than the one derived from $g^*$; that is $V(R_j, g^L) \geq V(0, g^*)$. Then, the incumbent $L$ must offer a contribution $R_j^L$ that at least satisfies $V(R_j, g^L) = V(0, g^*)$ which can be written as $R_j^L = \frac{1-\omega}{\omega} \gamma_j \left[ v(g^*) - v(g^L) \right]$. Similarly, the challenger $C$ needs to offer at least $R_j^C = \frac{1-\omega}{\omega} \gamma_j \left[ v(g^*) - v(g^C) \right]$. Thus, the participation constraint is

$$R_j^x \geq \frac{1-\omega}{\omega} \gamma_j \left[ v(g^*) - v(g^x) \right] \text{ for } x = L, C. \tag{3}$$

## B. Static equilibrium

Given the symmetry between the incumbent and the challenger's problems, one simply needs to solve for one. Here I choose to focus on the incumbent's problem. The incumbent chooses $g^L$ and $R^L$ to maximize her share of votes $\Lambda$ subject to the three constraints detailed above. Replacing the binding participation constraint into the objective function and taking the derivative with respect to $e(g^L)$ gives the incumbent first order condition

$$(1-\alpha) k \frac{dW(g^L)}{de(g^L)} - \alpha \lambda \sum_{j=1}^{J^L} \left( \frac{1-\omega}{\omega} \gamma_j - 1 \right) \frac{dv(g^L)}{de(g^L)} = 0. \tag{4}$$

This condition comprises two distinct terms that show how the incumbent balances the impact of her policy platform on the informed voters and the uninformed voters, respectively. In the specific case where $\gamma_j = \frac{\omega}{1-\omega} \ \forall j$, the impact of her policy platform on the uninformed voters no longer matters and the public good vector proposed by the incumbent is equal to the public good vector that best

serves the average informed voter, $g^L = g^*$. In this case, the first order condition yields $\frac{dW(g^L)}{de(g^L)} = 0$. More generally, when $\gamma_j \neq \frac{\omega}{1-\omega}$ for some $j$, the incumbent will alter her policy platform by binding her resource constraint and/or the king-makers' incentive constraint. When the resource constraint is binding then it implies $\sum_{j=1}^{J^L} \frac{1-\omega}{\omega}\gamma_j \frac{dv(g^L)}{de(g^L)} = 1.^5$ This latest relation in turn leads to $\frac{dv(g^L)}{de(g^L)} = \frac{\omega}{(1-\omega)} \frac{1}{\sum_{j=1}^{J^L}\gamma_j}.^6$ The use of these two relations allows to simplify the first order condition which shows that the average welfare of informed voters is a linear function of $g^L$. This simplified first order condition together with the budget constraint are the key equations that govern the incumbent's choice

$$
\begin{cases}
\frac{dW(g^L)}{de(g^L)} = \frac{\alpha}{(1-\alpha)}\frac{\lambda}{k}\left(1 - \frac{\omega}{(1-\omega)}\frac{J^L}{\sum_{j=1}^{J^L}\gamma_j}\right) \\
e(g^L) + \sum_{j=1}^{J^L} R_j^L = \Omega.
\end{cases}
\tag{5}
$$

Remember $\gamma_j$ represents the heterogeneity parameter capturing each ethnic group's specific private utility from the public good vector. Now let's set $\bar{\gamma} = \frac{1}{J^L}\sum_{j=1}^{J^L}\gamma_j$. $\bar{\gamma}$ represents the average heterogeneity parameter in the incumbent coalition. I establish the following result:

**Proposition 1** *In a fractionalized society with competitive electoral system,*

*(i) if $\bar{\gamma} < \frac{\omega}{(1-\omega)}$, then the society is characterized by corruption in equilibrium*

*(ii) if $\bar{\gamma} \geq \frac{\omega}{(1-\omega)}$, then a corruption-free equilibrium emerges.*

**Proof.** If $\bar{\gamma} < \frac{\omega}{(1-\omega)}$, then $\sum_{j=1}^{J^L}\gamma_j < \frac{\omega J^L}{(1-\omega)}$ and the incumbent's choice implies $\frac{dW(g^L)}{de(g^L)} < 0$ or $W(g^L) < W(g^*)$, for all $g^L \neq g^*$. If follows that $e(g^L) < e(g^*) = \Omega$, and from the resource constraint one infers that $\sum_{j=1}^{J^L} R_j^L > 0$, suggesting that in equilibrium at least one king-maker receives a strictly positive private reward, in other words, the society experiences corruption in equilibrium.

---

[5] Notice a binding resource constraint implies this equality but this equality obviously does not imply that the resource constraint is binding.

[6] This relation can aslo be obtained when both the resource constraint and the incentive constraint are binding.

If $\bar{\gamma} \geq \frac{\omega}{(1-\omega)}$, then $\sum_{j=1}^{J^L} \gamma_j \geq \frac{\omega J^L}{(1-\omega)}$ and the incumbent's choice implies $\frac{dW(g^L)}{de(g^L)} \geq 0$ or $W(g^L) \geq W(g^*)$. But $W(g^L) \leq W(g^*)$, since $g^* = \arg\max W(g)$. If follows that $W(g^L) = W(g^*)$ and $e(g^L) = e(g^*) = \Omega$. From the resource constraint, it follows that $\sum_{j=1}^{J^L} R_j^L = 0$, hence $R_j^L = 0$ for all $j$, leading to a corruption free equilibrium. ∎

Intuitively, there is a threshold, $\frac{\omega}{(1-\omega)}$, for the average heterogeneity parameter $\bar{\gamma}$ such that below this threshold, the private benefit for the average ethnic group is too low to get group's votes without providing private reward to the group leader. Above this threshold, private reward to the group's leader may not be necessary to get the group's votes.

The analysis so far implicitly assumes that there is no uncertainty about $\gamma_j$, the parameter capturing the heterogeneity of the uninformed voters' private utility from public good. More realistically, I now assume that the candidates do not know $\gamma_j$, or the average $\bar{\gamma}$. In this environment with imperfect information, I assume that each candidate plays a mixed strategy where the probability of playing the corruption strategy $(R_j^L, g^L)$ with $R_j^L > 0$ is denoted $q$. Obviously, $(1-q)$ is the probability of playing the corruption free strategy $(0, g^*)$.

**Proposition 2** *In a competitive electoral system, when there is imperfect information about $\gamma_j$, a more fractionalized society is more likely to experience more corruption.*

**Proof.** I first claim that $q$ is an increasing function of $J^L$. To see this, notice that the larger $J^L$, the number of ethnic groups in the incumbent's coalition, the lower $\bar{\gamma} = \frac{1}{J^L} \sum_{j=1}^{J^L} \gamma_j$. This occurs not only because of the inverse relation between $\bar{\gamma}$ and $J^L$, but also because the larger $J^L$, the lesser the incumbent's platform will fit a representative ethnic group $j$, and the lower the specific benefit for the group, that is, the lower $\gamma_j$. As a consequence, the more likely one has $\bar{\gamma} < \frac{\omega}{(1-\omega)}$. Hence, from proposition (1) the incumbent will have a stronger tendency to play the corruption strategy $(R_j^L, g^L)$. It follows that $dq/dJ^L > 0$.

Now, denoting by $\phi$ the coefficient of ethnic fractionalization, one notices that a more fractionalized society means a higher $\phi$, which in turn implies the existence of a higher number of ethnic groups with almost homogenous size (otherwise the entire population would have been distributed across a few ethnic group). As a result, a winning coalition must have a higher number of ethnic groups. Hence, it follows $d\phi/dJ^L > 0$. Having established that $dq/dJ^L > 0$, it directly follows that $dq/d\phi > 0$ meaning that in a highly fractionalized society there is a greater likelihood of playing the corruption strategy. $\blacksquare$

## C.  Dynamics

In this section, I show how corruption will decline over time as the process of democratization matures. So far, I have considered a static or a one-period model in which voters' types are totally exogenous. They are exogenous in the sense that there were two predetermined classes of voters—informed voters and uninformed voters—with no possibility for a voter to migrate from one class to another. I now introduce a second period where voters' types will depend on education, sensitization, or training for political emancipation that voters will have acquired during the preceding period. The idea is that as the process of democratization matures, informed voters will have the possibility to energize the civil society by providing training for political emancipation. This can be done through NGOs or other private organizations and is facilitated in an environment with real freedom of expression and association as well as free media. In other words, in this section, I endogenize the share of uninformed voters in the total voting population.

The training of an uninformed voter to become an informed voter involves a variable cost, which, I assume, depends on the extent of the democratization process. This dependency comes from the fact that in weak democracies, there can be some abuses of power through different forms of intimidation to prevent training for political emancipation of uninformed voters. I parametrize the extent of democracy by $\theta$, where $\theta \in (\underline{\theta}, \bar{\theta})$ with higher value of $\theta$ referring to deeper democracy, where $\bar{\theta}$ the upper bound value referring to the "perfect" democracy and $\underline{\theta}$ referring to the

weakest democracy or dictatorship. Because the higher the scale of such training, the higher the exposure to intimidation, I define the total costs of training a share $\eta$ of uninformed voters in the total voting population by $C = \eta c(\theta)$, where $c(\theta)$ is the unit cost. This function is assumed to be convex and has the following properties

$$\begin{cases} c(\underline{\theta}) = \bar{c} \\ c'(\theta) < 0 \quad \forall \theta \in (\underline{\theta}, \bar{\theta}), \\ c(\bar{\theta}) = \underline{c}, \end{cases} \tag{6}$$

where $\bar{c}$ and $\underline{c}$ are constant and $\bar{c} > \underline{c}$. These properties express that the unit cost reaches its upper bound for the weakest democracy, that as democracy matures the unit cost will be declining, and that it will reach its lower bound for the perfect democracy. I set the informed voters' initial earnings to $y^i$, and the uninformed voters' initial earnings to $y^u$. I assume that uninformed voters do not have enough earnings in the first period to cover the cost of becoming informed and cannot borrow because of, say, market imperfections. Informed voters do not face this liquidity constraint. More formally, all this amounts to assuming that $y^u < c(\theta) < y^i$.

Informed voters in the first period may have some incentives to subsidize the political emancipation of some uninformed voters by supporting in per capita terms the amount $c(\theta) - y^u$, when it is in their own interest. The latter stems from the externality benefit in second period, which depends on the overall proportion of informed voters. Should they decide to help a share $\eta$ of uninformed voters, they would have to transfer to them $\tau = \eta(c(\theta) - y^u)$. Such transfers may bring about some distortions in the economy owing to distribution, so I assume that there is an *efficiency cost* linked to the transfer of $\tau$. In particular, I assume this cost to be proportional to the square of the share of the transfer in the total income of the population. In other words, to transfer $\tau$, informed voters need to disburse $\left[ \frac{\tau}{\bar{y}} + a \left( \frac{\tau}{\bar{y}} \right)^2 \right] \bar{y}$, where $\bar{y}$ is the mean income in the voting population in the first period, that is: $\bar{y} = \alpha y^u + (1 - \alpha)y^i$ and $a$ is the proportionality coefficient.[7]

---

[7]Perroti (1993) and Bourguignon and Verdier (1993) use similar specification in political par-

An increase in the proportion of informed voters yields a positive externality in the sense that all individual earnings in the second period are augmented by an amount equal to $\mu \|I\|$, where $\|I\|$ is the overall proportion of informed voters in the second period and $\mu \; (> 0)$ is an externality parameter. It is clear that informed voters will be willing to bear the political emancipation cost only if the externality benefit in the second period is greater or equal to this cost.

I assume a zero discount rate so that the total income of informed voters over the two periods as a function of the various costs and benefits can be expressed as follow

$$Y(\eta) = \left( y^i - \left[ \frac{\eta(c(\theta) - y^u) + a\eta^2(c(\theta) - y^u)^2/\bar{y}}{1 - \alpha} \right] \right) + \left( y^i + \mu \left[ 1 - \alpha + \eta \right] \right). \quad (7)$$

The first term gives the earnings of informed voters in the first period net the cost per informed voter of the transfer necessary for training $\eta$ uninformed voters. The second period gives the direct income in the second period plus the political emancipation externality, which is proportional to the total share of informed voters in second period, $(1 - \alpha + \eta)$.

The informed voters will be willing to bear the political emancipation cost of uninformed voters if the marginal benefit of it is larger than the cost at $\eta = 0$, that is

$$\frac{\partial Y(\eta)}{\partial \eta}\bigg|_{\eta=0} > 0 \;\; \text{or equivalently} \;\; \mu > \frac{c(\theta) - y^u}{1 - \alpha}. \quad (8)$$

If this condition holds, then the first order condition derived from (7) yields

$$\eta^* = \left( \mu - \frac{c(\theta) - y^u}{1 - \alpha} \right) \frac{(1 - \alpha)\bar{y}}{2a(c(\theta) - y^u)^2} > 0 \quad (9)$$

As a result the share of informed voters in the second period becomes $(1 - \alpha + \eta^*)$ and the share of uninformed voters becomes $(\alpha - \eta^*)$.

ticipation and growth models.

**Proposition 3** *If* $\mu > \frac{c(\theta)-y^u}{1-\alpha}$, *the democratization process yields an increase of the share of informed voters, which improves policy platforms or public goods and therefore reduces corruption over time.*

**Proof.** To prove the first assertion of this proposition I need to show that $\frac{\partial \eta^*}{\partial \theta} > 0$.

$\frac{\partial \eta^*}{\partial \theta} = -\frac{c'(\theta)\bar{y}}{2a(c(\theta)-y^u)^2} - \frac{(1-\alpha)\bar{y}}{a}\left[\mu - \frac{c(\theta)-y^u}{1-\alpha}\right]\left[\frac{c'(\theta)}{(c(\theta)-y^u)^3}\right]$. Since $c'(\theta) < 0$ and $\mu > \frac{c(\theta)-y^u}{1-\alpha}$, it follows that $\frac{\partial \eta^*}{\partial \theta} > 0$.

The second assertion refers back to the incumbent first order condition (equation 5). As the share of informed voters increases from $(1-\alpha)$ in the first period to $(1-\alpha+\eta^*)$ in second period, the incumbent first order condition can be amended to become $\frac{dW(g^L)}{de(g^L)} = \frac{\alpha-\eta^*}{(1-\alpha+\eta^*)}\frac{\lambda}{k}\left(1 - \frac{\omega}{(1-\omega)}\frac{J^L}{\sum_{j=1}^{J}\gamma_j}\right)$. Notice that $\frac{d}{d\eta^*}\left(\frac{dW(g^L)}{de(g^L)}\right) = -\frac{1}{(1-\alpha+\eta^*)^2}\frac{\lambda}{k}\left(1 - \frac{\omega}{(1-\omega)}\frac{1}{\bar{\gamma}}\right)$.

If $\bar{\gamma} < \frac{\omega}{(1-\omega)}$, then $\frac{dW(g^L)}{de(g^L)} < 0$ and $\frac{d}{d\eta^*}\left(\frac{dW(g^L)}{de(g^L)}\right) > 0$, so that the correspondence $\eta^* \longmapsto \frac{dW(g^L)}{de(g^L)}(\eta^*) = \frac{\alpha-\eta^*}{(1-\alpha+\eta^*)}\frac{\lambda}{k}\left(1 - \frac{\omega}{(1-\omega)}\frac{1}{\bar{\gamma}}\right)$ is a negative function, is increasing in $\eta^*$, and reaches zero as $\eta^*$ increases and reaches $\alpha$. But $\frac{dW(g^L)}{de(g^L)} = 0$ means $e(g^L) = e(g^*)$ or $g^L = g^*$. Hence, $\eta^* \nearrow \alpha \Longrightarrow g^L \to g^*$ and from the budget constraint in (5) $R_j^L \to 0$ for all $j$, that is the policy platform converges toward the optimum and corruption declines.

If $\bar{\gamma} \geq \frac{\omega}{(1-\omega)}$, then $\frac{dW(g^L)}{de(g^L)} \geq 0$ and $\frac{d}{d\eta^*}\left(\frac{dW(g^L)}{de(g^L)}\right) \leq 0$, so that the correspondence $\eta^* \longmapsto \frac{dW(g^L)}{de(g^L)}(\eta^*) = \frac{\alpha-\eta^*}{(1-\alpha+\eta^*)}\frac{\lambda}{k}\left(1 - \frac{\omega}{(1-\omega)}\frac{1}{\bar{\gamma}}\right)$ is a positive function, is decreasing in $\eta^*$, and reaches zero as $\eta^*$ increases and reaches $\alpha$. But $\frac{dW(g^L)}{de(g^L)} = 0$ means $e(g^L) = e(g^*)$ or $g^L = g^*$. Hence again, $\eta^* \nearrow \alpha \Longrightarrow g^L \to g^*$ and from the budget constraint in (5) $R_j^L \to 0$ for all $j$, that is the policy platform converges toward the optimum and corruption declines. ∎

One way to see this result is that as the number of informed voters increases, the share of informed votes to be cast for the incumbent becomes more important and

the share of uninformed votes becomes less important, as it can be seen from equation (2). As a result the incumbent chooses and implements a policy platform that is closer to the average informed voter.

# IV.  CONCLUSION

Democracy not only allows pluralist elections, but it also guarantees separation of powers between the executive, the legislative, and the judicial branches, with appropriate checks and balances. As such, it constitutes a mechanism for disciplining public officials and preventing them from wrong doing or corruption. Despite all these premises, corruption has surged in nearly all new democracies.

In this paper, I investigate this empirical observation by focusing on the interplay of democracy and ethnic diversity. I propose the first attempt at formally analyzing corruption as a negative externality of democracy. In particular, I present a framework in which corruption emerges as a negative externality of democracy, at least initially. In other words, genuine democracy comes at a cost of higher levels of corruption in early stage. This occurs via ethnicity, which operates as a rent-extracting technology. More precisely, I show that in a more fractionalized society, multiparty competitive elections can lead to a surge in corruption. I also show that this effect tends to phase out as democracy matures. In other words, corruption declines over time as democracy matures, suggesting a threshold effect of democracy on corruption.

# References

Armendariz de Aghion, Beatriz, 1999, "On the Design of a Credit Agreement with Peer Monitoring," *Journal of Development Economics*, Vol. 60, pp. 79—104.

Baron David P., 1994, "Electoral Competition with Informed and Uninformed Voters," *American Political Science Review*, 88, pp. 33—47.

Bourguignon, François, and Thierry Verdier, 2000, "Oligarchy, Democracy, Inequality and Growth," *Journal of Development Economics*, 62, pp. 285—313.

Bratton, Michael, and Nicholas Van de Walle, 1997, *Democratic Experiments in Africa* (Cambridge: Cambridge University Press).

Diamond Larry, 1999, *Developing Democracy: Toward Consolidation* (New Haven: Yale University Press).

Diamond, Larry, and Marc F. Plattner, 1993, *The Global Resurgence of Democracy* (Baltimore: Johns Hopkins University press).

Ferree Karen and Smita Singh, 1999, "Institutional Change and Economic Performance in Africa," unpublished, Harvard University, Cambridge, Massachusetts.

Geddes, Barbara, 1997, "The Political Uses of Corruption and Privatization," paper prepared for presentation at the annual meeting of the ASPA, Washington D.C.

Grossman, Gene, and Elhanan Helpman, 1996, "Electoral Competition and Special Interest Politics," *The Review of Economic Studies*, 63(2), pp. 265—86.

———, 1999, "Competing for Endorsements," *American Economic Review*, 89(3), pp. 501—24.

Horowitz, Donald, 1991, "Ethnic and Nationalist Conflicts," in *World Security: Trends and Challenges at Century's End*, ed. by Michael Klare (New York: St. Martin's Press)

Huntington Samuel P., 1968, *Political Order in Changing Societies* (New Haven: Yale University Press).

Kasfir, Nelson, 1976, *The Shrinking Political Arena: Participation and Ethnicity in African Politics, with a Case Study of Uganda* (Berkeley: University of California Press).

Perotti Roberto, 1993, "Political Equilibrium, Income Distribution, and Growth," *Review of Economic Studies*, 60(205), pp. 755—776.

Przeworski, Adam, Michael Alvarez, José Antonio Cheibub, Fernando Limongi, 2000, *Democracy and Development: Political Institutions and Material Well-Being in the World, 1950—1990* (New York: Cambridge University Press).

Quan, Jon, 2004, "Democratization and Political Corruption in the Philippines and South Korea: A Comparative Analysis." *Crime, Law & Social Change* 42, pp. 61—81.

Ruhashyankiko, Jean-François, 2007, "Ethnic Diversity, Democracy, and Corruption in Sub-Saharan Africa: An Empirical Investigation," (Work in progress).

Treisman, Daniel, 2000, "The Causes of Corruption: A Cross-National Study," *Journal of Public Economics*, 76, pp. 399—457.

Zakaria, Fareed, 2003, *The Future of Freedom: Illiberal Democracy at Home and Abroad* (Norton, New York).