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Corruption and discrimination in Douala metropolis public hospitals of Cameroon

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Abstract. The problem that arises is how the State official in a monopoly situation maximizes the value of bribes collected, by selling public services to users? To answer this question, we show that the State agent in a monopoly situation can discriminate users according to their characteristics in order to collect more possible bribes. The Shleifer and Vishny' simple monopoly model is therefore limited. The survey of patients of nine public hospitals in Douala revealed the existence of two forms of corruption at consultation: corruption without theft and corruption with theft. An evaluation of maximizing the earnings of medical doctors using odds ratios, showed that in the pursuit of these gains and whatever the form of corruption practiced, the State agent plays not only on amounts of bribes paid, but also on users' characteristics. However, for amounts between 3,000 FCFA and 5,000 FCFA, our results revealed that the doctor will tend to practice the form of corruption without theft on men, the wealthiest, the learned and the old where he/she would draw the greatest possible gain.
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1. Introduction

In an economy, social services are often characterized by markets' failure. To correct these failures, the State intervenes through the provision, the financing and the regulation of these services. It is well known that corruption emerges as a by-product of the State's intervention (Acemuglu & Verdier, 2000). However, what remains less understood is the impact of the phenomenon on these public services.

The theoretical literature identifies three channels through which corruption negatively affects the provision of public services by the State. First of all, corruption can increase prices and decrease the amount of goods and services offered by the State (Shleifer & Vishny, 1993). Secondly, corruption can reduce investment in human capital (Ehrlich & Lui, 1999). Finally, it can reduce the State's revenues (Hindriks, Keen & Muthoo, 1999), which in turn can decrease the quality of public services offered (Bearse, Glomm & Janaba 2000). The poor quality of services discourages some individuals to use them, and reduce their willingness to payment (through tax evasion). Consequently, the tax basis decreases, as well as the ability of the State to provide quality public services (Alesina, 1999). The poor quality of public services also creates incentives that

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lead individuals to opt for services offered by the private sector. However, in countries where private markets for health and education services are limited, this situation can lead to congestion, increasing delays in obtaining public services, increasing the rent-seeking opportunities and a frequent use of the discretionary power by civil servants. Even in the case where private markets are well developed and extensive, the poor may lack the ability to pay for services and private goods (Gupta, Davoodi & Tiongson, 1998).

In particular for Shleifer & Vishny (1993), the State official in a simple monopoly situation maximizes his/her collection of bribes. With this situation, he/she may determine the amount of services to be provided, either by multiplying the appointments to users, or by simply refusing to serve them. This maximization is done in two ways: In the first case, the user pays the bribe plus the official price; this is corruption without theft, and in the second case, he/she only pays the bribe; this is corruption with theft. What this model does not explicitly shows us is that in some cases (public hospitals), the State agent in a monopoly situation can discriminate users in order to collect more possible bribes.

Empirically, Gupta, Davoodi and Tiongson applied in 1998, the model of Shleifer & Vishny (1993) for 62 countries, using corruption indices of the World Bank (World Development Report, 1997), that of CIET International and PRS / ICRG (Political Risk Services / International Country Guide). This study is instructive because it reveals that corruption negatively affects the provision's indicators as far as health and education are concerned. But it also has some limitations. First of all, as the authors themselves point out, these indices are not always reliable, because they do not necessarily capture the corrupt practices that take place between minor civil servants and ordinary citizens who daily ask for services in hospitals and public schools. Therefore, it does not identify the various forms of corruption prevailing in public services of these countries. In contrast, Yamb & Bayemi (2017) studied the forms of corruption in the provision of health care in Douala metropolis public hospitals of Cameroon, based on a survey of users of these hospitals. The importance of this study highlights two forms of corruption, namely corruption without theft and corruption with theft. However, this study is somewhat limited insofar as it does not take into account the fact that the State agent can discriminate patients according to their characteristics and the amount of the bribe paid.

Thus, the purpose of this study is to fill these gaps by showing that the State agent in a monopoly situation can discriminate patients in order to collect more possible bribes; secondly, the discrimination made by medical doctors can be illustrated through a survey of patients in nine public hospitals of the city of Douala, the Cameroon's economic capital. In particular, we will test for different amounts of bribes set, the relationship between corruption without theft and the income level on the one hand, and corruption with theft and the income level on the other. In each of these cases, we will seek to ascertain, as suggested by the theoretical models (Kaufman & Wei, 1999; Lui, 1985), whether health workers discriminate their patients based on their ability to pay. Such an argument implies that the wealthiest should be those to whom bribes are asked the most.

The importance of this study is twofold. First of all, it helps to show that the simple monopoly used by Shleifer & Vishny (1993) underestimates not only the value of bribes likely to be collected, but also the loss of income that corrupt practices cause to public services. Secondly, since the users' discrimination mechanism is at the origin of corrupt practices, this study leads us to better understand these practices.

The evaluation of the phenomenon reveals that the State agent, regardless of the form of corruption practiced, maximizes his/her earnings by playing not only on the characteristics of individuals, but also on the levels of bribe amounts. The rest of the study is organized around the following points: we secondly present the methodological aspects of the model evaluation while highlighting the estimation

methodology. Results are presented and discussed later before concluding the study.

2. The Methodological aspects of the model evaluation

The empirical evaluation of the model involves the construction of a triple entry contingency table that shows not only the different forms of corruption, but also the characteristics of the users and the different amounts of bribes paid. Thus, to highlight the users' characteristics victims of corruption with and without theft at consultation, we have preceded by an estimate through odds ratios while identifying the different amounts of bribe paid by users. The age, income, educational level and gender variables were selected for the occasion. The estimate by odds ratios were apprehended through the construction of triple entry contingency tables of the form 2x 2 x2 below for each characteristic studied:

Table 1. *Contingency table of size 2x2x2*

Amounts fixed for bribes paid (control variable)	Users' characteristics (Independent variable)	Corruption with or without theft (dependent variable)	
		No	Yes
Less than 1,000FCFA	C_j	N_{11}	N_{12}
	C_j	N_{21}	N_{12}
[1,000 ; 3,000[	C_j	N_{11}	N_{12}
	C_j	N_{21}	N_{22}
[3,000 ; 5,000[	C_j	N_{11}	N_{12}
	C_j	N_{21}	N_{22}
[5,000 ; 7,000[	C_j	N_{11}	N_{12}
	C_j	N_{21}	N_{22}

Sources: Authors'Conception

N_{12} and N_{11} represent the number of people of modality1 (C_1) of characteristic C victims or not of a particular type of corruption, given an amount of bribe paid. The same interpretation can be made for modality2 (C_2) for the numbers N_{22} and N_{21}.These different joint distributions N_{ij} were used to calculate the following conditional (partial): odds ratios:

$$\theta_{ij/c_i} = \frac{N_{11}N_{22}}{N_{12}N_{21}}$$

The different contingency tables of 2x2 dimension obtained when the amounts of bribe paid are fixed contains each, the above identified characteristics, and are divided into two modalities and the type of corruption that the user is being victim of (with or without theft).The estimates θ_{ij/c_i} of the relationship between each type of corruption and the users' characteristics, given the amount of bribe paid, are shown in Tables 6 and 7 below, together with their respective confidence intervals. When $\theta_{ij/c_i} \prec 1$, the first modality of characteristic C is more likely to be victim of a particular type of corruption than the second, and $\theta_{ij/c_i} \succ 1$ implies the opposite.

3. Hospitals' functioning and corrupt pratices[1]

As generally in Cameroon, the health sector in Douala is made up of private and public hospitals. If we stick to the latter category to which the present study is based, we essentially distinguish the reference hospitals and the district hospitals which operate under the Ministry of Health. The first two are: the Laquintinie and the General Hospitals and the latter seven are: the Deido, Bonassama, Bonamoussadi, Cité des Palmiers, New-bell, Nylon and Logbaba hospitals. The district hospitals are dedicated in particular to ensure first a better quality of care by

[1] Yamb & Bayemi (2017).

a motivated and disciplined staff, and for which the patient becomes the only concern. Then, these hospitals must ensure a better decentralized management of costs recovery on medical procedures, medications and prepayments set up for a progressive empowerment. And, finally, they must support emergency and sick internees. Reference Hospitals are above district hospitals. These are technical high level structures which in relation to specialized care provide reference and anti-reference, welcome patients from district hospitals. To ensure the reference, these two hospitals are equipped with specialized doctors and special medical equipments absent in district hospitals. However, the status of the Laquintinie hospital is a little bit different from that of the General hospital. Empowered with a legal personality and a financial autonomy, the General hospital is more independent of the Ministry of Health than the Laquintinie hospital. The first recruits its own doctors and pay them higher wages than those earned by doctors at the Laquintinie hospital and others. They are paid by the Ministry of Finance. In early 1990s, Cameroonian civil servants' salaries have declined by more than 50% as part of the structural adjustment programs enacted by the Bretton Woods institutions. Certainly, in the meantime, they have recorded some wage increases. But these have failed to regain their former standard of living, pushing them to collect wrongly or rightly non-statutory fees from users. This collection is favored by the almost non-existence of health insurance system, and the fact that each user is required to officially pay cash, the services for which he/she wants to access.

Thus, following ECAM3[2], nearly 85% of households' heads living in urban and semi-urban areas feel that the level of corruption in the health sector is high in this country. But the magnitude of the phenomenon varies from one region to another (69.8% to 61.1% in Douala and Yaoundé). For example, during consultation, corruption occurs mainly through the payment of non-regulatory fees and through the interventions of personalities to be quickly served and avoid waiting for a long time (INS, 2011, P. 84). We do not take this last aspect into account in this study. Patients in public hospitals also complain of the unavailability of medical doctors. This unavailability can be explained by the fact that private health facilities that accompany the government in the offer of health services to populations mostly have as promoters, medical doctors working in the public sector. Many patients who visit public health facilities are oriented by these doctors to their private health centers for their medical care. Thus, being interviewed on their perception of the level of corruption in the health sector as parts of the households' survey in 2007, almost six out of ten households in the city of Douala believe it is high. This reflects a general malaise. As a matter of fact, if access to basic social services including health is a constant concern for public authorities, corruption in the health sector is like a gangrene which tends to negate the efforts made by the State (INS, 2011).

4. Results and discussion

4.1. Determination and characteristics of the sample's size[3]

As we were unable to determine an approximate P value through a prior survey (because to our knowledge, no investigation about corruption in public hospitals has yet been carried out in Cameroon), that is to say, the proportion of respondents in the context of a preliminary study, we set P to 0.5, this value representing the worst case, that is to say, the value which gives the greatest possible standard deviation for the sampling distribution of $\overline{P}$. In this case, the required sample size to ensure an error margin E (in absolute value) not exceeding 5% with a confidence level of 95% will be about (Baillargeon, 1989):

[2]Survey of households by the Cameroon National Institute of Statistics (INS, 2007).
[3]The determination of the sample's size and its characteristics is inspired by the article Yamb, & Bayemi, (2015).

$$n = \frac{Z^2_{\alpha/2}(0,5)(0,5)}{E^2} = \frac{Z^2_{\alpha/2}}{4E^2} = \frac{(1,96)^2}{4(0,05)^2} = 384$$

With: E: the error margin, Z: the standard normal distribution, $\overline{P}$: The estimator of P in the preliminary study. The distribution of the number of individuals to be interviewed is done from the number of medical and paramedical staff in each hospital selected as shown in the table below:

Table 2. *The distribution of the number of patients to be interviewed by hospital*

Hospital	Staff Number	Importance of the hospital (in %)	Number of patients to be interviewed
Laquintinie	630	41	157
General	326	21	81
New-Bell	113	7	27
Bonassama	103	7	25
Cité Palmiers	100	6	25
Deido	84	5	21
Logbaba	80	5	20
Nylon	62	4	15
Bonamoussadi	57	4	14
Total	1 555	100	384

Source: Our estimates based on information collected at the Regional Health Delegation

The first column describes the type of hospital, the second column the total number of medical and paramedical staff, the third indicates the weight or importance of the personnel of each hospital as compared to the staff of all the hospitals in general, and the last column, the approximate number of people who should be interviewed by hospital, based on the weight of each hospital. We came up with a total of 384 interviewees. For prudence sake, we distributed 415 questionnaires with the assumption that all incorrectly completed questionnaires would be eliminated, this to help approximately achieve the sample's size. Thus, 407 questionnaires were filled out correctly and therefore validated. It is on the basis of these 407 questionnaires that the analysis was performed.

The table below specifies the characteristics of the patients' sample: age, school level (education), income, marital and employment status:

Regarding the age characteristic, it has been split into two categories: young people between 20 and 40 years old and the old over forty years old. This nomenclature at the age level reflects the country's socio-economic situation as concerns employment insofar as five years ago, authorities launched recruitment campaign in the public sector for the youth (25,000 in total), thus considering as young any person aged forty and less. The income characteristic also obeys to this dualistic nomenclature, that is, those with an income of 250, 000 CFA Francs and less, and those who earn more than 250,000 CFA Francs. This classification took into account the socio-economic characteristics of the respondents. This choice is justified by the fact that initially, we considered four classes of income namely less than75,000, between75,000 and 150,000, from 150, 000 to 250,000 and the class of more than 250,000. It is worth mentioning that among the 407 respondents, almost 83% have an income of 250,000 and less, and only about17% earn more than 250,000.This latter percentage represents the senior staffs in companies and businessmen/contractors, who are considered in the Cameroonian environment as people belonging to the richest social class. 80% of the first mentioned earn more than 250,000 CFA Francs, and nearly 50% of the second category as much, hence the justification for the classification in terms of income distribution in the two categories, that is, 250,000 and under, and above 250,000. This is also applied to the education variable where two categories were retained: higher level and no higher level.

Table 3. *The characteristics of users' sample*

	Male	Female	Total	% Male	% Female	Total %
Age						
40 years old and Less	134	190	324	41,4	58,6	100
More than 40 years old	52	31	83	62,7	37,3	100
Education						
Primary and secondary Education	97	145	242	40,1	59,2	100
Higher Education	89	76	165	53,9	46,1	100
Average montly Income						
Less than 75, 000 CFA Francs	78	106	184	42,4	57,6	100
Between 75,000 and 150, 000	48	52	100	48	52	100
Between 150,000 and 250, 000	26	28	54	48	52	100
More than 250,000	35	34	69	50,7	49,3	100
Matrimonial Status						
Maried	72	99	171	42,1	57,9	100
Single	74	82	156	47,4	52,6	100
Divorced	10	9	19	52,6	47,4	100
Other	30	31	61	49,2	50,8	100
Socio-professionnal Category						
Senior staff	17	7	24	70,8	29,2	100
Control Agent	21	14	35	60	40	100
Enforcement to officer	22	15	37	59,5	40,5	100
Contractor (Business man)	25	4	29	86,2	13,8	100
House Wives		55	55		100	100
Trader	25	42	67	37,3	62,7	100
Unemployed	30	29	59	50,8	49,2	100
Others (informal)	46	55	101	45,5	54,5	100
Total	186	221	407	45,7	54,3	100

Source: Our Surveys' results

We also identified for all hospitals in general some measures of position (percentiles and mode), useful in determining the characteristics of those who pay amounts of bribe. We use the table below to determine these measures:

Table 4. *Amount of bribes paid (in CFA Francs) per scale*

Amount of bribes	Classes	Number	Percentage
0 to 1,000	1	122	30.0
1,000 to 3,000	2	128	31.4
3,000 to 5,000	3	102	25.1
5,000 to 7,000	4	55	13.51
Total		407	100.0

Source: Results obtained from the survey data

This table shows the proportion of users' who pay bribes depending on amounts. It shows that the amounts mostly paid are in class 1 and 2 (below 1,000 and between 1,000 and 3,000). Class 4 meanwhile shows the proportion of the least bribe paid. From the above table, the following statistics were obtained:

Table 5. *Some descriptive statistics on amounts of bribe paid (in CFA Francs)*

Characteristics		Values	Rounded Values
Mean		2442	2500
Skewness Coefficient		0.335	0.335
Kurtosis coefficient		-0.986	-0.986
Mode		1936.29	2000
Percentiles	25	834	1000
	50	2300	2500
	75	3083.33	3000

Source: Results obtained from the survey data

This table shows the calculated real values and the rounded values. To simplify the presentation, we have rather considered the last, insofar as they more reflect the reality of the amounts of bribe paid which are usually whole numbers (round), not followed by pennies. Considering for example the average bribe, we have put it to 2,500 instead of 2,442. (In fact, it will be easier in practice for a patient to pay an amount of 2,500 instead of 2,442). The same thing goes with the median bribe

(2,500 instead of 2,300) and the mode (2,000 instead of 1936.29) and it is noticed that the mean (2,442), the median (2,300) and the mode (1939.29) are in the same class as the modal class. It therefore appears that 2,000 would be nearly the amount of bribe paid, and with a positive asymmetry (Skewness) coefficient (0.335), we came to the conclusion that the majority of bribes paid tend to larger amounts as compared to the average of bribes.

4.2. Amounts of bribe paid during consultation

As concerns corruption in consultation, the nurse who is the medical doctor's secretary takes the health parameters of each patient and writes them in the medical book which costs 1,000 CFA francs in each public hospital except the General Hospital. The purchase of this book by the patient gives him/her the right to consultation. On the contrary, at the General Hospital, consultation is 7,000 CFA francs. In both cases, the Secretary is in charge in an orderly manner, of asking patients to enter the consultation room where the medical doctor is. The normal approach is that the "first come must be consulted first." Unfortunately, in reality, this principle is flouted. The patient who puts bribe in his/her medical book is the first to be served. This is what Shleifer & Vishny (1993) called corruption without theft, since the consultation price is equal to the official price plus the bribe. This benefits to the doctor and his/her secretary at the detriment of patients. Some patients will be squeezed out of the public hospital because of rising prices. However, the investigation revealed that the "gombo"[4] varies from one hospital to another, as shown in the table below.

Table 6. *Average amounts of bribe paid during consultation*

List of Hospitals	Official amounts for consultation	Average amount of bribe paid during consultation in CFA Francs	Actual total amount for a consultation
General Hospital	7 000	1494	8 494
Laquintinie Hospital	1 000	3411	4 411
Logbaba Hospital	1 000	2095	3 095
Deido Hospital	1 000	1714	2 714
Bonamoussadi Hospital	1 000	1714	2 714
Bonassama Hospital	1 000	1636	2 636
Cité des palmiers	1 000	2462	3 462
Nylon Hospital	1 000	375	1 375
New-Bell Hospital	1 000	1500	2 500
General Average of bribe	1 665	2433	3 489

Source: Results obtained from the surveys' data.

By taking into account the official price, this last table shows that the cost of consultation is equal to the official price plus 3,411 FCFA at the Laquintinie hospital or more of 2,095 FCFA at the Logbaba hospital. In general in each of the hospitals, corruption makes more expensive the cost of consulting a sick as compare to the official price as shown in the diagram below:

[4] Term most often used to illustrate bribe

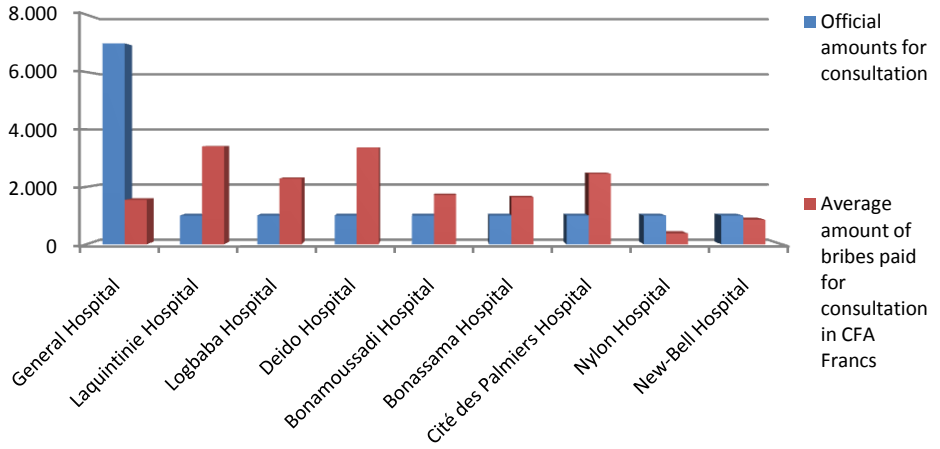

Figure 1. The official price and the average bribe during consultation
Source: Our surveys

It appears that the average bribe is more expensive than the official cost of consultation in all hospitals (except at the General and Nylon Hospitals). On average, the price of consultation is equal to the official price plus 2,433FCFA. According to Shleifer & Vishny (1993), corruption is more easily practiced when the head of medical care supply is in a monopoly situation. In this case, he/she determines both the quantity and the price of the good or service. The discretionary power held by the doctor allows him/her to reduce the quantity of service rendered, either by refusing to honor the appointment given to patients, or by simply refusing to serve them or even by discriminating them (and this is the most frequent case).

4.3. Characteristics of victims through discrimination

Two types of questions to be answered by *no* or *yes* were asked to users to illustrate corruption with and without theft namely: to be consulted, the patient only pays the bribe (corruption with theft)for the first case, and for the second case, the patient who wants to be consulted must pay the official fees plus the bribe(corruption without theft). The question that arises is therefore to know the type of corruption that would most maximize the doctor's gains for different characteristics of users, given the amount of bribe paid (conditional or partial aspect of the phenomenon). The results of estimates through odds ratios presented in the tables below allowed us to have an idea of the phenomenon's magnitude, by a simple comparison of the coefficients of both forms of corruption.

Table 7. *Corruption with theft*

AMOUNTS	Gender		Income		School level		Age	
	$\hat{\theta}_{S/H}$	Confidence Interval at 95% of $\hat{\theta}_{S/H}$	$\hat{\theta}_{R/H}$	Confidence Interval at 95% of $\hat{\theta}_{R/H}$	$\hat{\theta}_{NS/H}$	Confidence Interval at 95% of $\hat{\theta}_{NS/H}$	$\hat{\theta}_{A/H}$	Confidence Interval at 95% of $\hat{\theta}_{A/H}$
< 1,000	0.66	(0.26 ; 1.62)	0.33	(0.07 ; 1.53)	0.90	(0.36 ; 2.27)	1.02	(0.34 : 3.08)
[1,000 ; 3,000[	0.47	(0.20 ; 1.09)	0.66	(0.17 ;2.49)	1.20	(0.52; 2.76)	1.38	(0.48 ; 3.95)
[3,000 ; 5,000[	0.95	(0.40 ;2.27)	0.58	(0.17 ; 1.93)	0.88	(0.37 ; 2.09)	0.48	(0.16 ; 1.43)
[5,000 ; 7,000[	1.89	(0.54 ; 6.61)	0.97	(0.17; 5.48)	0.70	(0.20 ;2.49)	0.20	(0.02 ;1.79)
Estimate with amounts not taken into account	$\hat{\theta}_S$ =0.76	(0.48 ; 1.21)	$\hat{\theta}_R$ = 0.56	(0.28 ; 1.13)	$\hat{\theta}NS$ = 0.95	(0.59 ; 1.51)	$\hat{\theta}_A$ =0.74	(0.41 ; 1.33)

Source: Results obtained from the survey data

Table 8. *Corruption without theft*

AMOUNTS	Gender		Income		School level		Age	
	$\hat{\theta}_{S/H}$	Confidence Interval at 95% of 95% de $\hat{\theta}_{S/H}$	$\hat{\theta}_{R/H}$	Confidence Interval at 95% of $\hat{\theta}_{R/H}$	$\hat{\theta}_{NS/H}$	Confidence Interval at 95% of $\hat{\theta}_{NS/H}$	$\hat{\theta}_{A/H}$	Confidence Interval at 95% of $\hat{\theta}_{A/H}$
< 1,000	0.66	(0.31 ; 1.40)	0.73	(0.27 ; 1.94)	0.51	(0.23 ; 1.13)	1.52	(0.62 : 3.72)
[1,000 ; 3,000[	1.13	(0.49 ; 2.60)	2.41	(0.51 ;11.22)	0.92	(0.39; 2.13)	1.92	(0.52 ; 7.06)
[3,000 ; 5,000[	0.91	(0.30 ; 2.75)	4.53	(0.56 ; 36.44)	1.25	(0.42 ; 3.77)	2.70	(0.57 ; 12.82)
[5,000 ; 7,000[	1.80	(0.44 ;7.28)	0.51	(0.08; 3.12)	0.47	(0.12 ;1.81)	1.02	(0.18 ;5.70)
Estimate with amounts not taken into account	$\hat{\theta}_S$ =0.93	(0.59 ; 1.48)	$\hat{\theta}_R$ = 1.26	(0.65 ; 2.41)	$\hat{\theta}NS$ = 0.72	(0.45 ; 1.15)	$\hat{\theta}_A$ =1.71	(0.92 ; 3.17)

Source: Results obtained from the survey data

For amounts of bribe paid less than 1,000 FCFA, we find for the gender that the men are most prone to the phenomenon with a rating of about 51% (1 / 0.66 = 1.51) higher than that of women. Thus, the State agent, whatever the form of corruption practiced, maximizes his/her gains over men to the same extent.

As far as the income characteristic is concerned, our estimates show for both forms of corruption, that the least fortunate are the most victims. However, the magnitude being more pronounced for victims of corruption with theft than for victims without theft. The medical doctor maximizes his/her gains over the least fortunate by practicing corruption with theft. It is the same thing for the education characteristic, where the least educated would be more victims with a higher scope for corruption without theft (a rating of 96% compared to 11% for the form with theft). The public official takes over his/her gains on the least educated, by practicing the form of corruption without theft. Finally as concerns age, we find that whatever the form of corruption considered, the old are most victims. The State official would maximize his/her gains much on the old by practicing corruption without theft (odd of 52% against 2% for the form with theft).

For bribe amounts between 1,000 and 3,000, the results show that for gender, it is on men that the medical doctor maximizes much his/her gains by practicing the form of corruption with theft. On the contrary for the income characteristic, he/she would have interest to practice the form without theft on the wealthiest for whom the odds of maximizing his/her profits would be approximately 2.41 times higher. If the form with theft was practiced in this case on the least fortunate, his/her chances are rather most likely to the form with theft, and the least educated for a corruption without theft. The doctor then pulls more gains by practicing corruption with theft on the most educated on whom his/her chances of maximizing are 20% higher. The same thing goes with age where he/she would have nearly 92% more likely to maximize his/her gains on the old when practicing the form of corruption without theft.

For amounts between 3,000 and 5,000, our estimates show that the public official has interest in practicing the form without theft whatever the characteristic, compared to the coefficients obtained for the form with theft: thus, he/she would take much gain from men, the wealthier, the most educated and the old.

Finally, for amounts between 5,000 and 7,000, the agent would be interested in practicing the form with theft on women on whom his/her chances of maximizing would be 89% higher. However, he/she takes more gains rather by practicing the form without theft on the wealthiest on whom his/her chances of maximizing would be about 96% higher. This is also applied to the most educated on whom he/she would be about 2.12 times more likely. Finally, our estimates reveal at the age level that the State officer draws much his/her gains on the youth by practicing a form of corruption with theft on whom his/her chances of maximizing would be 5 times greater.

We can also get an idea of the evolution of the phenomenon when we do not take into account the different bribe amounts paid (marginal aspect of the phenomenon): In this case, we just assume the relationship between the

characteristics and the form of corruption practiced. By always proceeding through comparison, we note that at the gender level, the men are most likely, whatever the form of corruption, but however, with a higher scope for the form with theft. On the contrary with income, gains are much drawn from the side of the less fortunate for a form of corruption with theft, with maximizing odds for about 78% greater. As concerns the education characteristic, we notice as for the gender, that the State agent pulls more gains from the least educated, this whatever the form of corruption practiced, but with greater magnitude with the form without theft. Finally, the age characteristic reveals that by practicing a form without theft, the older people are the most victims.

The table below summarizes the discussion developed above. In fact, it reveals that to maximize his/her gains[5], the medical doctor takes into account not only the form of corruption, but also the users' characteristics and the levels of bribes' amounts. Thus, for bribes paid below 1,000FCFA, the doctor maximizes his/her gains on men and the less fortunate in the case of the form of corruption with theft, and in the case of the form without theft on the men, the least educated and the old. Similarly for bribes paid between 1,000 and 3,000, earnings will be maximized on men's characteristics and that of the most educated for a form of corruption with theft, and for the form without theft, on the wealthiest, the least educated and the old. We find that the public official has no interest in applying the form with theft for amounts of bribes paid between 3,000 and 5,000. It is rather on the form without theft that he/she has most income, especially from the men, the wealthiest, the most educated and the old. Finally, for bribes paid between 5,000 and 7,000, a form of corruption with theft are practiced on women and the youth for a maximization of gains on one hand, and on the wealthiest and the most educated for the form without theft the other.

Table 9. *Characteristics to consider in the maximization of gains by the agent with regard to the corruption form*

amount of bribe	Gender	Income	Education	Age
		Corruption with theft		
< 1,000	*Men*	*The least fortunate*		
		Corruption without theft		
	Men		*The least educated*	*The Old*
		Corruption with theft		
[1,000-3,000[	*Men*		*The most educated*	
		Corruption without theft		
		The wealthiest	*The least educated*	*The Old*
		Corruption with theft		
[3,000-5,000[				
		Corruption without theft		
	Men	*The wealthiest*	*The most educated*	*The Old*
		Corruption with theft		
[5,000-7,000[	*Women*			*The Younger*
		Corruption without theft		
		The wealthiest	*The most educated*	

Source: Results obtained from the survey data

5. Conclusion

The aim of this study was to highlight the maximization of bribes collected by the State agent from patients in public hospitals in the city of Douala, Cameroon, taking into account the characteristics of the users as well as the different amounts of bribes paid. The results obtained on users of nine public hospitals in the city of Douala reveals that unlike the simple monopoly used by Shleifer & Vishny (1993) and whatever the form of corruption practiced (with or without theft), the State agent plays on the individuals' characteristics (discrimination at the first degree) and the levels of bribes' amounts paid to maximize his/her gains. For instance, for

[5]We are talking about maximizing gains rather than profit because in this case, we are noting possession of the cost function of the medical doctor providing the service.

bribe payments between 1,000 and 3,000, the results indicate that the gains will be maximized on men, the most educated for the form of corruption with theft on one hand, and on the wealthiest, the least educated and the old for the form without theft on the other. However, for amounts of bribes paid between 3,000 and 5,000, our results show that the State agent would be interested in practicing only the form without theft for all the characteristics which he/she would draw the greatest possible gain. In maximizing gains, the study does not take into account the costs borne by the State agent when he/she sells public services, hence maximizing gains instead of profit. The State agent can also maximize its gains by segmenting markets, i.e. divert some users by sending them to seek medical care in private health facilities. This is another form of discrimination (discrimination at the third degree) not considered in this study. Future researches could be guided towards this direction.

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