1. Introduction

Corruption is the abuse of powers entrusted for private benefits, and comprises a wide variety of practices, such as bribes, fraud, embezzlement, extortion, and collusion. The manifestations of corruption are: acceptance of money and other rewards for awarding contracts, violation of procedures to advance personal interests, kickbacks from developmental programmes or multinational corporations, payoffs for legislative support, diversion of public resources for private use, overlooking illegal activities, intervening in the justice process, nepotism, common theft, overpricing, establishing non-existing projects, as well as tax collection and tax assessment frauds (UN, 1990). There have been claims that not everything is bad about corruption. Its effects can be positive too. Corruption, among other things, assists in capital formation; fosters entrepreneurial abilities; allows business interest to penetrate bureaucracy; and permits market logic to insinuate itself into transactions from which it prevents public control (Theobald, 1990).

Observably, overwhelming evidence in recent decades suggests that the impact of corruption has been and continues to be negative on all fronts. Corruption reinforces political instability and under-development (Ouma, 1991). It impedes economic growth, stifles entrepreneurialism, misuses scarce national resources, weakens administrative capacity, contributes to serious political decay, and undermines stability, democracy and national integration (Theobald, 1990). For these reasons, corruption is fought at international, regional and national levels. It is worth noting that in 2003 and 2004, the United Nations and African Union, respectively, adopted conventions that provide a global framework to prevent and criminalize corruption. Besides, aware of the impact of corruption on the national economy, African countries, under the watchful eyes of multilateral and bilateral donors, put in place national commissions to prevent corruption (Commission Economique pour l’Afrique, 2009).

Premised on the extension of the traditional presumption initiated by Becker (1968), a briber decides to engage in an act of corruption if the expected net income is positive. From this standpoint, the probability of success and the amount of the payoff resulting from the interaction between the briber and the civil servant will prompt initiating the corrupt act. Hence, we seek to identify the factors that determine the probability to refuse to pay a bribe to certain officials in Cameroon. Indeed, we identify the characteristics of the users of public services, which are central to institutional failures, such as inadequate supply of certain goods and services. The users decide voluntarily or under duress either to or not to pay bribes to the civil servants. In other words, what are the characteristics of the users of public services who do not pay bribes? This approach will allow us to provide detailed policy recommendations.
The rest of the work is organized as follows: the rest of Section 1 presents the characteristics of users of public services and the characteristics of certain public services; Section 2 discusses the results of previous studies; Section 3 develops the methodology; Section 4 presents the results; and Section 5 provides the conclusion and recommendations.

**Contextual framework: Characteristics of users of public services, and quality, availability of certain public services and types of corruption in Cameroon**

**Demographic characteristics of users of public services in Cameroon**

The proportion of the poor population in Cameroon is 39%. In 2011, seven out of every 10 Cameroonians aged 15-49 could read French or English. The under-employment rate is above 50% (INS, 2012). The average age of household heads is 41.8. This age is 39.0 in urban areas and 43.8 in rural areas. A majority of household heads have a primary level of education (32.9%) or secondary (33.9%), among which 21.5% are secondary first cycle and 12.4% are secondary second cycle. However, the proportion of those who have never gone to school is high (22.0%). The structure of the population by gender shows that men represent 49.6% and women 50.4%. This population comprises 43.7% of persons between 0 and 14 years, 53.1% between 15 and 64 years, and 3.3% aged 65 and above (INS, 2011a).

An analysis of the satisfaction of the recipients of education services with respect to the living standards of the households they belong to shows that those responding from poor households (45.1%) are less satisfied than those coming from non-poor households (39.8%). The overall gap (5.3 points) is not very large. Further, recipients from rural areas are more unsatisfied than those from urban areas (INS, 2010a).

**Quality and availability of certain public services**

In 2009, INS (2010a) notes an improvement in hospital coverage: a ratio of 118,330 inhabitants per hospital, which is logical when compared to the World Health Organization (WHO) standards, which sets a ratio of 100,000 inhabitants for a hospital. Notably, it is not sufficient to increase the number of health units without ensuring that they are functioning, and have adequate personnel and materials.

In the education sector, secondary schools supply as many seats as there are students; for example, for 60 students, there are 60 seating places. However, at the primary school level, the school system supplies fewer seats in comparison to actual demand. Indeed, for 60 students, the school system offers only about 50 seats (INS, 2011b).

Cameroon’s road infrastructure consists of over 52,000km (32,311 miles) of roads divided into two networks: priority and non-priority. On the 11,120km of priority roads, only 250km are in a good state; in other words, only 2.2% of the total, while 45.0% of the primary network is in an average or poor condition. It is important to note that 65.0% of Cameroon’s paved roads are more than 25 years old and the works carried out to date have been insufficient to maintain the quality of the network, which has continued to degrade (INS, 2011a).

Cameroon’s road density is higher than that of its peers. The density of the country’s total road network is 72km per 1,000 km², which is higher than the average for Africa’s resource-rich countries at 59km per 1,000km². However, Cameroon’s road density is still behind the level of the continent’s middle-income countries, which have an average of 31.8km per 1,000km² (Torres and Foster, 2011).

Transport costs along the main transit corridors to Chad and Central African Republic are among the highest in Sub-Saharan Africa, and transport times are abnormally long. Inefficiencies are caused by poor performance and long dwelling times at the Douala port, an excessive number of formal and illegal checkpoints, poor road quality, as well as poor governance in the management of transport services. Railway and port concessions have produced some improvements, but investment needs in the sector remain huge.

**Types of corruption in Cameroon**

Corruption spares no activity or business sector in Cameroon; it affects public and private administrations, political parties, religions, non-governmental organizations, and international organizations. According to Transparency International Cameroun (2010), the police force was the most corrupt body in Cameroon in 2010 with 4.5/5 points, followed by political parties (4 points), justice (4 points), parliament (3.7 points), army (3.5 points), education (3.5 points), and media (3 points). Generally, this corruption begins with frequent contact between the users of public services and civil servants. In these contacts, some users may improve their welfare by paying bribes, while others are victims. On the contrary, corruption provides benefits to officials who accept bribes.

**Petty corruption in Cameroon**

Every year, Cameroon’s private enterprises devote on average 0.7% of their turnover to unofficial payments. It is worth noting that four out of 10 cases of bribery are paid to avoid a problem with the authorities or an intermediary (Transparency International Cameroun, 2006). In a 1998 corruption survey, interviewees were asked why they pay bribes for free government services. About 30% responded that it was because “everyone does it” and 50% indicated it was because they “had no option”, while 20% did so because they had “no time to waste” (Manga Fombad, 2004).

Bayemi (2011) identified three forms of corruption in Cameroonian public hospitals:

1) Corruption in the doctor’s office: the forms of corruption practised are corruption in consultation, diversion of patients, and corruption in getting a medical certificate;

2) Corruption in hospitalization rooms: forms of corruption include cash trading of unpaid hospitalization expenses, and the illicit sale of drugs and other consumables, such as cotton and adhesives;
3) Corruption in specific treatment rooms: here, there is misappropriation of drugs, and direct and informal selling of medical care to patients.

Grand corruption in Cameroon

Officials are more likely to be corruptible when they have considerable monopolistic power, which actually allows them to create scarcity by instituting a bottleneck whose immediate consequence is the extension of waiting lines. This way, a service that every user is entitled to obtain for free becomes expensive. Generally, the user is obliged to pay a token to avoid the so-called red tape (Assiga, 2001). This drives us to distinguish small corruption from big corruption. The ministry in charge of the superior control of the State in 2011 sanctioned senior officials of the Cameroonian administration for several management faults, among which the most common were: division or fractioning of procurement contracts, perception of unplanned advantages, payment of undue premiums to employees, non-payment of value-added tax (VAT), signing of fictitious public market contracts, and overcharging.

Other forms of corruption in Cameroon

In reality, corruption affects all business sectors in Cameroon. At the level of political parties, for instance, corruption is manifested in cash-trading of voters during elections, and use of public resources to finance meetings and propaganda of political parties. Furthermore, Massi Gams (2010) observed the development of illegal activities, such as the unofficial circuits of sale and distribution of pharmaceutical products, misappropriation of international assistance, and proliferation of street pharmacies.

2. Literature review

Several studies have shown that institutions are the main determinants of corruption. Indeed, when institutions are weak, the incentives embodied in political, administrative, and legal institutions must be such that officials are left with an incentive to exploit their discretionary power to extract or create rents (Toke, 2003). According to Mauro (1995), countries characterized by a corrupt bureaucracy develop activities that extract incomes or allowances. Andvig and Moene (1990) argue that the higher the frequency of bureaucratic corruption, the higher the propensity for a bureaucrat to be corrupted. In their model, the equilibrium corruption level depends on both supply and demand effects. Demand effects arise because the higher the proportion of corrupt government officials, the easier it is for an agent to find a corruptible official. On the supply side, they introduce an exogenous probability of getting caught by another official, but if the supervisor is also corrupt, the official can bribe the latter in order to keep his or her job. Hence, the higher the number of corrupt officials, the stronger the incentives for an official to be corrupt (Gatti et al., 2003).

Some authors have suggested a simple positive relationship between state size and corruption or rent-seeking (Tanzi, 1994; Buchanan, 1980). The more the share of GDP redistributed by a government, the more the spoils for corrupt allocation. In larger cities, the extent of bribery may be higher because economic activity may be larger and more varied in scope, which may increase contact with the government. It can also be argued that the relationship between individuals and government officials may be less personal in larger cities in comparison to smaller ones, which may make it easier to ask for a bribe (Hunt, 2004). On the contrary, studies carried out by Johnson, et al. (1998), and Fisman and Gatti (2002) find a negative relationship between corruption and the size of the public sector. In addition, Treisman (2000), and Ali and Isse (2003) observe controversial results and further demonstrate that interventionism reduces the level of corruption.

The hypothesis of a negative correlation between corruption and income is supported by a number of studies: Brunetti and Weder (2003), Kunicova and Rose-Ackerman (2005), and Chang and Miriam (2004). Some researchers have identified that corruption is a plague caused by poverty. According to the reports of Transparency International, almost all developing countries register scores below the average in the fight against corruption. Paldam (2002), and Amanullah and Eatzaz (2006) have observed that good redistribution of national income reduces the incidence of corruption in modern societies. On quite a different plane, low competition increases the level of corruption. Indeed, profits are lower in a market economy and, as a result, enterprises do not see
The need to pay bribes (Gerring and Thacker, 2005). On the other hand, if competition is limited, profits are higher and civil servants will have the opportunity to request bribes. Ades and Di Tella (1999) used the degree of openness of an economy as an indicator of competition. Their results indicate that there exists a negative relationship between the degree of openness and the level of corruption.

The institutions of a free society, such as a free press and secondary associations, may make exposure more likely, as may the practice of electoral politics. Particular legal systems may also offer private businesses greater protection from predatory officials. Industrial organization arguments suggest that the internal structure of the state may influence the supply of corrupt services. When bureaucracies are more decentralized, with less internal discipline, bureaucrats may compete to extract maximal rents (Shleifer and Vishny, 1993). The structure of institutions is likely to change over the course of development; that is, the protection of property rights might get stronger as a country develops economically. For instance, Ades and Di Tella (1999) found that corruption is higher in countries where domestic firms are sheltered from foreign competition. Therefore, higher degrees of competition are associated with lower levels of corruption. Fisman and Gatti (2002) found corruption to be lower in countries with higher fiscal decentralization. Andvig and Moene (1990) in their model assume that the expected punishment for corruption when detected declines as more officials become corrupt, because it is cheaper to be discovered by a corrupt rather than a non-corrupt superior. Graeff and Mehlkop (2003) documented the relationship between a country’s economic freedom and its level of corruption. Brunetti and Weder (2003) found that higher press freedom is associated with less corruption. Van Rijckeghem and Weder (2001) showed that the higher the ratio of government wages to manufacturing wages, the lower the corruption in a country. In contrast, an increase in the income of a potential victim would increase the propensity to ask for a bribe. However, an increase in the quality of institutions in a country, which would increase the probability of apprehension, would in turn reduce the propensity to ask for a bribe (Mocan, 2004).

The assumption that corruption systematically lowers GDP is entirely justified in Cameroon. Indeed, because of illicit trade, the national company that manufactures textile products (CICAM) registered in 2006 a reduction in its turnover of 41%. As a result, CICAM downsized its staff by 20% in June 2006 (GICAM, 2010). In addition, corruption is associated with lower government revenues. According to Essama (2007), Cameroon recorded fiscal losses estimated at 0.608 billion dollars in 2004, about 1% of GDP. Corruption also lowers the quality of public infrastructure, since it is shown that high-level corruption distorts the entire decision-making process connected with public investment projects. Furthermore, the beneficiaries of corrupt practices are the most successful at rent-seeking in Cameroon, and not necessarily the most economically efficient. Thus, the reallocation of talents from unproductive to rent-seeking activities is posited to impact negatively on economic growth in Cameroon. However, the results of the Cameroon household survey (ECAM II) revealed that in 2001, more than 42% of households were directly affected, either as direct victims or actors of corruption (INS, 2003). In 2007, the percentage of households in which a member paid non-statutory charges is estimated at 30.59% for only five sectors (police, justice, education, health and transport). According to Manga (2004), degradation of public services, lax job performance, and the resulting inefficiency and waste have encouraged the growth of a culture of bribery and other improper practices, which can be directly linked to the increasing politicization of public services, which probably started in the early 1990s at the height of the pro-democracy demonstration.
3. Methodology

In this section, the model, the data collected by the Cameroon National Institute of Statistics, and the variables are presented.

Model

The main objective of this study is to identify the characteristics of users of public services who refuse to give bribes. Therefore, the dependent variable is a dichotomous variable; it takes the value of one if the user refuses to give a bribe, and zero if otherwise. In another scenario, the dependent four modalities: \( j = 1, 2, 3, 4 \) are assumed to take the value of one if the user paid a bribe in one sector, four if the user of public services did not pay a bribe. An appropriate econometric methodology in these cases is simple probit and ordered probit estimation, because we do not know the amount of the bribes. For this reason, we cannot explore OLS. In consequence, it is assumed that the characteristics of users of public services (age, education, religion, region) will determine probability to refuse a bribe in sector \( i \). Thus, we classified the individuals into two groups, which leads us to a dependent variable with two modalities: one, if the user of public services refuses to pay non-statutory charges in one of the following sectors – education, heath, justice, police and transport; 0 if yes. In this perspective, estimation of the determinants of corruption will be done using a simple probit model as specified in equation (1).

\[
Pr (\text{user of public services refuses a bribe in sector } i = j /X) = \int_{-\infty}^{\infty} \Phi(t) \phi(X^T \beta) \, dt = \phi(X^T \beta) \tag{1}
\]

Where: the function \( \Phi(\cdot) \) represents the normal distribution, \( X^T \) stands for the characteristics of the user of public services, \( j \) a level of corruption and \( \beta \) parameters for estimation (Greene, 2003). The level of corruption \( j=1 \), if a user of public services paid non-statutory charges in a sector \( i \), and 0 otherwise. If the user of public services paid non-statutory charges in one, two, three or four sectors, we proceed with the following classifications: the level of corruption \( j=4 \), if the user of public services paid non-statutory charges in one sector; if he/she paid non-statutory charges in two sectors, the level of corruption is \( j=3 \); and \( j=2 \), if he/she paid non-statutory charges in three sectors. The level of corruption \( j=1 \), if he/she paid non-statutory charges in four sectors. The level of corruption \( j \) of a user of public services accommodates four modalities: \( j = 1, 2, 3, 4 \). In this case, the estimation model is an ordered probit, which specifies that the probability to observe one of the modalities corresponds to the probability that the linear function between the underlying latent value with the definition of the ordered variable and explanatory variables is comprised between two thresholds. Thus:

\[
Pr (\text{corruption level of user of public services } = j) = Pr (u_{ij} < \sum_{j=1}^{4} \beta_j X_{ij} + u_t < u_j) \tag{2}
\]

Where: \( Pr (\text{corruption level of user of public services } = j) = Pr (u_{ij} < \sum_{j=1}^{4} \beta_j X_{ij} + u_t \) with \( u_t \) following a normal distribution. Estimation of the coefficients \( \beta_j \) is done simultaneously with that of the threshold values \( \mu_i \). Recall that \( \mu_0 \) tends to 0 and \( \mu_4 \) is normalized at \(+\infty\).

Variables

According to the literature review and in order to identify the real causes of corruption in Cameroon, we shall use the following variables: individual characteristics, characteristics of households, environmental, and institutional.

a) Individual characteristics of a user of public services

**Age of the user of public services:** the elderly have the benefit of long experience in private and professional spheres. Therefore, they have more friends and can pay non-statutory charges in some activity sectors. They could be more corrupt than others; since the dependent variable is the probability to refuse a bribe, the expected sign is negative.

**Marital status:** one, if the user of public services is married; zero, otherwise. The users of public services who are married generally have more children than their unmarried counterparts; they need more health and educational services. The effect of marriage on corruption is expected to be positive.

**Level of education:** two variables are considered: the variable ‘primary’, which takes the value one if the user of public services has, at most, finished primary
level of education, and zero otherwise; and the variable 'secondary', which takes the value one if the user of public services has a diploma of secondary education, zero otherwise. The level of education determines the standard of living of the household; less-educated users of public services lack the resources to pay bribes. The incidence of corruption increases with the level of education; and, as a consequence, the expected sign is positive.

Religion:

it will be represented by two variables, the variable 'Catholic', which takes the value one if the user of public services is of the Catholic denomination, zero otherwise; and the variable 'Muslim', which takes the value one if the user of public services is of the Islamic religion, zero otherwise. Religion contributes to the moral upbringing of citizens; thus the expected sign of the two variables on the probability to refuse bribe is positive.

Activity sector:

it is represented by two variables, the variable 'formal private' takes the value one if the user of public services works in the formal private sector, zero otherwise; the variable 'formal public' takes the value one if the user of public services works in the formal public sector, zero otherwise. Generally, the public sector is more corrupt than the private sector; the expected sign of the variable in the formal private sector on the probability to refuse bribe is positive and the expected effect of the formal public sector is negative.

b) Characteristics of the household

Number of children:
this is measured by the number of persons aged less than 18. Household needs will increase with household size, which sometimes urges the users of public services to resort to immoral practices; the expected sign is thus negative.

Living standard of the household: two variables will be used. The variable 'poverty' will take the value one if the household is poor, zero otherwise. We will also use the 'household expenditure per head'. The poor are generally excluded from the formal public sector and they lack resources to pay non-statutory charges. The expected sign of poverty on the probability to refuse bribes is positive, and the probability to refuse bribes should decrease with household expenditure per head.

c) Environmental variables

Area of residence:
one, if the household of the user of public services is in urban areas, zero otherwise. Corruption is more prevalent in urban areas because public services are more predominant there. Besides, the living standard is relatively high in urban centres. The expected sign of urban area on the probability to refuse corruption is negative.

Region of the household: Cameroon is sub-divided into 12 regions (Table 1), and each entity has its individual characteristics that may or may not influence the probability to pay bribes. For example, Yaoundé (political capital) and Douala (economic capital) are two regions. The two cities (Yaoundé and Douala) are generally not poor and public services are well represented. Thus, the expected sign of the variable 'region 1 and region 2' on the probability to refuse corruption should be negative. On the other hand, the sign of the other variables is ambiguous because living standards vary in these regions.

d) Institutional variables

The effectiveness of punitive action against corruption, the immunity enjoyed by the corrupted and the corrupters can cause corruption. For this reason, we shall use two indicators of the performance of the judiciary system. The first is the rate of execution of court decisions and second the percentage of complaints examined in relation to the registered complaints by region. If the value of these two variables is high, the courts of the region are efficient, and the expected effect of these variables on the probability to refuse corruption is positive.

In the health sector, we shall use: one, the average population per hospital = population health structure ratio by region; two, the percentage of private hospitals' patients
In the education sector, we shall use: one, the percentage of pupils attending private schools; two, the percentage of private schools. The expected effect of these variables on the probability to refuse corruption is positive because the practice of corruption is widespread in public schools.

In the transport and security (police) sectors, we will use the level of road traffic, estimated by the daily number of vehicles on asphaltic roads in each region. The frequent contact between drivers and police can cause corruption, thus the expected sign is negative.

Data generated in 2007 on relevant variables comes from the National Institute of Statistics and the Department of Justice.

Data and descriptive statistics

The data from the Cameroon National Institute of Statistics was created in 1992 (the Institute has long experience in the collection of primary data). In 2007, the Institute conducted a survey on households and individuals. The questionnaire had 14 sections, and one of the sections was only concerned with issues of governance. The survey was conducted in urban and rural areas. At the end of the survey, two bases were constituted: one on households and the other on individuals. We thus identify determinants of corruption on the angle of the providers of public services but on the demand. In fact, the question asked to those investigated was the following: have you voluntarily paid bribes, at least once, in one of the five business or activity sectors below: justice, police, transport, education and health during the last 12 months.

The expected effect of these variables on corruption is widespread in public schools.

<table>
<thead>
<tr>
<th>Region/Town</th>
<th>Number of users of public services</th>
<th>Education Inception %</th>
<th>Health Inception %</th>
<th>Police/justice Inception %</th>
<th>Transport Inception %</th>
<th>Total Incidence %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Douala</td>
<td>1,049</td>
<td>90</td>
<td>8.6</td>
<td>161</td>
<td>15.35</td>
<td>171</td>
</tr>
<tr>
<td>Yaoundé</td>
<td>1,022</td>
<td>90</td>
<td>8.8</td>
<td>69</td>
<td>6.75</td>
<td>141</td>
</tr>
<tr>
<td>Adamawa</td>
<td>579</td>
<td>17</td>
<td>2.9</td>
<td>29</td>
<td>5.01</td>
<td>74</td>
</tr>
<tr>
<td>Centre</td>
<td>796</td>
<td>46</td>
<td>5.8</td>
<td>71</td>
<td>8.92</td>
<td>101</td>
</tr>
<tr>
<td>East</td>
<td>587</td>
<td>30</td>
<td>5.1</td>
<td>26</td>
<td>4.43</td>
<td>80</td>
</tr>
<tr>
<td>Far-North</td>
<td>1,483</td>
<td>36</td>
<td>2.4</td>
<td>33</td>
<td>2.23</td>
<td>117</td>
</tr>
<tr>
<td>Littoral</td>
<td>637</td>
<td>60</td>
<td>9.4</td>
<td>51</td>
<td>8.01</td>
<td>37</td>
</tr>
<tr>
<td>North</td>
<td>773</td>
<td>41</td>
<td>5.3</td>
<td>38</td>
<td>4.92</td>
<td>56</td>
</tr>
<tr>
<td>North-West</td>
<td>1,462</td>
<td>45</td>
<td>3.0</td>
<td>81</td>
<td>5.47</td>
<td>114</td>
</tr>
<tr>
<td>West</td>
<td>1,294</td>
<td>113</td>
<td>8.7</td>
<td>77</td>
<td>5.95</td>
<td>114</td>
</tr>
<tr>
<td>South</td>
<td>535</td>
<td>54</td>
<td>10.1</td>
<td>60</td>
<td>11.21</td>
<td>91</td>
</tr>
<tr>
<td>South-West</td>
<td>1,154</td>
<td>74</td>
<td>6.7</td>
<td>59</td>
<td>5.11</td>
<td>162</td>
</tr>
<tr>
<td>Total</td>
<td>11,391</td>
<td>698</td>
<td>6.1</td>
<td>755</td>
<td>6.53</td>
<td>1258</td>
</tr>
</tbody>
</table>

Table 1 summarizes information on the incidence of corruption in Cameroon’s households. Out of 11,391 households interviewed, 3,484 household heads (30.6%) admitted to have paid voluntarily, at least once, bribes to a civil servant in one or more of the above-mentioned sectors. Among these sectors, justice and police (11.00%) are the most corrupt, followed by transport (6.78%), health (6.63%) and lastly education (6.10%). However, non-poor regions and towns are relatively more corrupt, notably 50.80% in Douala (economic capital); 38.2% in Yaoundé (political capital) and 49.9% in the South (one of the most developed regions in the country). On the other hand, households in the Far-North region, very Islamized and poor, are relatively less corrupt.

Tables 2 and 3 show some descriptive statistics. They show that the poverty rate is estimated at 39.86%, and the average annual expenditure per capita at the household level is US$4,982, but this expense has significant disparities because sometimes it reaches US$8,123.

Table 2: Descriptive statistics of some variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs.</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>11,391</td>
<td>38.14114</td>
<td>11.95902</td>
<td>10.58</td>
<td>533</td>
</tr>
<tr>
<td>Poverty rate</td>
<td>11,391</td>
<td>39.867091</td>
<td>14.73043</td>
<td>5.5386</td>
<td>65.879</td>
</tr>
<tr>
<td>Annual household expenditure per head (US$)</td>
<td>11,391</td>
<td>497.951</td>
<td>455.10800</td>
<td>36.33</td>
<td>5827.240</td>
</tr>
<tr>
<td>% of complaints examined</td>
<td>11,391</td>
<td>84.40232</td>
<td>8.325564</td>
<td>73</td>
<td>99</td>
</tr>
<tr>
<td>Road traffic</td>
<td>11,391</td>
<td>323.5793</td>
<td>231.8045</td>
<td>73</td>
<td>99</td>
</tr>
<tr>
<td>% of private schools</td>
<td>11,391</td>
<td>33.872221</td>
<td>1,501.434</td>
<td>8</td>
<td>58</td>
</tr>
<tr>
<td>Number of children</td>
<td>11,391</td>
<td>3.39023</td>
<td>17.62236</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Population per hospital</td>
<td>11,391</td>
<td>146.601</td>
<td>691.000</td>
<td>57.283</td>
<td>432.959</td>
</tr>
</tbody>
</table>

Source: Authors from INS (2007)

Furthermore, more than 76% of schools belong to the state. Thus, the private sector is poorly represented in the education market in Cameroon. Concerning the health sector,
in Table 2, it is shown that the average population per hospital is estimated at 146,601 people. But we observe a misallocation of health facilities in Cameroon. Indeed, in some regions, the average population per hospital is estimated at 57,283 persons against 432,959 people in others.

Table 3 presents the incidence of corruption by gender. It is observed that men are more corrupt than women since, in all, only 20.32% of women paid a bribe at least once in the five sectors considered in this study. The disparity between the sexes is most notable in the sectors of police, justice and transport. In the transport sector, for example, the incidence of corruption is estimated at 2.59% for women against 8.40% for men. It is because more than 90% of drivers in Cameroon are men.

Thus, Cameroon is among the most corrupt countries in Africa, together with Sudan, Chad, Burundi, Angola and Equatorial Guinea, with Somalia heading the list as the most corrupt nation of all those surveyed (Transparency International, 2010).

Table 3: Incidence of corruption by gender

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs.</th>
<th>Mean (%)</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>05 sectors</td>
<td>8.163</td>
<td>34.36</td>
<td>0.6966451</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Education</td>
<td>8.270</td>
<td>6.22</td>
<td>0.2414467</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Health</td>
<td>8.276</td>
<td>7.01</td>
<td>0.2553009</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Police/justice</td>
<td>8.269</td>
<td>12.98</td>
<td>0.3360615</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Transport</td>
<td>8.289</td>
<td>8.40</td>
<td>0.2773546</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Women</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>05 sectors</td>
<td>2.958</td>
<td>20.32</td>
<td>0.5268862</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Education</td>
<td>3.012</td>
<td>6.14</td>
<td>0.2401408</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Health</td>
<td>2.996</td>
<td>5.84</td>
<td>0.2345585</td>
<td>0</td>
<td>1</td>
</tr>
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<td>Police/justice</td>
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<td>6.16</td>
<td>0.2404021</td>
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<td>1</td>
</tr>
<tr>
<td>Transport</td>
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<td>2.59</td>
<td>0.1588527</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Authors from INS (2007)

4. Results of the study

The estimated results are presented in Tables 4a and 4b. The models are globally significant since the values of the Fisher statistics are higher than the theoretical values (significant at 1%).

Women users of public services are less willing to pay bribes. In fact, they have 2.37% fewer chances to pay bribes in three sectors compared to men, and 7% of chances to refuse to bribe in one sector (Table 4a). Indeed, in this table it is shown that women have 7.50% of chances to refuse to bribe in the transport sector, and 6.85% of chances to refuse to bribe in the police/justice sector. Indeed, the gender differences we observe may be attributable to socialization or to differences in access to networks of corruption or in knowledge of how to engage in corrupt practices, or to other factors. Due to poverty and illiteracy, lots of women fall prey to non-observance of these regulations, either because they cannot afford to pay the prescribed fees or they are not aware of such charges in the first instance. Other characteristics, including culture, educational opportunity, peer influence and socio-economic status, may also negatively influence women’s perception of corruption.

According to Mocan (2004), in most countries, especially developing ones, males are more active than females in the labour market and they therefore have more exposure to government officials. Further, males have more propensities to engage in criminal activity and/or more tolerance for illegal activities (Mocan and Rees, 2005). This is particularly verified in Cameroon because women shoulder more responsibility for child care, and this can make them risk-averse, and thereby more reluctant to engage in corrupt activities. Women’s limited participation in the public sphere also makes them more likely to be excluded from networks that propagate corrupt activities.

According to INS (2010c), 5.4% of men work in the public sector in Cameroon, 6.5%, 58.6% and 29.6% work, respectively, in the formal private sector, informal agricultural sector, and informal non-agricultural sector. For the women, only 2.2% of them work in the public sector: 1.9%, 68.6% and 27.3% work, respectively, in the private formal sector, informal agricultural sector, and informal non-agricultural sector. Thus, as primary caretakers for families, women have greater need for essential services such as health, education, water and sanitation. As a vulnerable group globally, women are less likely to be aware of their entitlement. Generally speaking, their income level is also lower and they lack the influence to seek alternatives to bribes. Often, these impediments result in women receiving poor quality services, or simply being denied access to essential services.
### Table 4a: Marginal effects, ordered model

<table>
<thead>
<tr>
<th>Variables</th>
<th>Column I</th>
<th>Column II</th>
<th>Column III</th>
<th>Column IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woman user of public services</td>
<td>-0.00738***</td>
<td>-0.0237***</td>
<td>-0.0387***</td>
<td>0.0714***</td>
</tr>
<tr>
<td>Age of user of public services</td>
<td>-6.75e-05</td>
<td>-0.000217</td>
<td>-0.000354</td>
<td>0.000653</td>
</tr>
<tr>
<td>Married user of public services (PS)</td>
<td>0.00536***</td>
<td>0.0173***</td>
<td>0.0285***</td>
<td>-0.0524***</td>
</tr>
<tr>
<td>Level of education of user of PS (primary)</td>
<td>-0.000254</td>
<td>-0.000815</td>
<td>-0.00133</td>
<td>0.00245</td>
</tr>
<tr>
<td>Level of education of user of PS (secondary)</td>
<td>-0.0140</td>
<td>-0.0456</td>
<td>-0.0756</td>
<td>0.0138</td>
</tr>
<tr>
<td>Religion of user of public services (Catholic)</td>
<td>0.000308</td>
<td>0.000989</td>
<td>0.00161</td>
<td>-0.00298</td>
</tr>
<tr>
<td>Religion of user of public services (Muslim)</td>
<td>0.00240</td>
<td>0.00757</td>
<td>0.0121</td>
<td>-0.0226</td>
</tr>
<tr>
<td>Urban area</td>
<td>0.00299**</td>
<td>0.00666**</td>
<td>0.0159**</td>
<td>-0.0292**</td>
</tr>
<tr>
<td>User of public services is poor</td>
<td>-0.00725***</td>
<td>-0.0249***</td>
<td>-0.0444***</td>
<td>0.0780***</td>
</tr>
<tr>
<td>Household expenditure per head of user of PS</td>
<td>0.00348***</td>
<td>0.0112***</td>
<td>0.0182***</td>
<td>-0.0338***</td>
</tr>
<tr>
<td>(Poverty) * urban area</td>
<td>0.00340</td>
<td>0.00757</td>
<td>0.0121</td>
<td>-0.0226</td>
</tr>
<tr>
<td>(Poverty) * household size of user of PS</td>
<td>-0.00560**</td>
<td>-0.0194**</td>
<td>-0.0351*</td>
<td>0.0612*</td>
</tr>
<tr>
<td>User of PS is employed (public formal sector)</td>
<td>-0.00141</td>
<td>-0.00462</td>
<td>-0.00770</td>
<td>0.0140</td>
</tr>
<tr>
<td>User of PS is employed (private formal sector)</td>
<td>-0.00637***</td>
<td>-0.0222***</td>
<td>-0.0402***</td>
<td>0.0701***</td>
</tr>
<tr>
<td>% of complaints examined by the courts</td>
<td>0.000368***</td>
<td>0.00119***</td>
<td>0.00193***</td>
<td>-0.00356***</td>
</tr>
<tr>
<td>Road traffic</td>
<td>-1.2e-05**</td>
<td>-4.07e-05**</td>
<td>-6.46e-05**</td>
<td>0.000123***</td>
</tr>
<tr>
<td>% pupils in private school</td>
<td>0.000159***</td>
<td>0.000511***</td>
<td>0.000835***</td>
<td>-0.0154***</td>
</tr>
<tr>
<td>Number of children in house of user of PS</td>
<td>-0.000851</td>
<td>-0.00275</td>
<td>-0.00451</td>
<td>0.00830</td>
</tr>
<tr>
<td>% private hospitals</td>
<td>0.000057***</td>
<td>0.00163***</td>
<td>0.00266***</td>
<td>-0.0490***</td>
</tr>
<tr>
<td>Region 1_2</td>
<td>-0.00133**</td>
<td>-0.0286***</td>
<td>-0.0528***</td>
<td>0.0911***</td>
</tr>
<tr>
<td>Region 1_3</td>
<td>0.00818*</td>
<td>0.0241*</td>
<td>0.0352**</td>
<td>-0.0694**</td>
</tr>
</tbody>
</table>

Note: In column I, the dependent variable is the probability to pay a bribe in four sectors; in column II the dependent variable is the probability to pay a bribe in three sectors; in column III, the dependent variable is the probability to pay a bribe in two sectors; in column IV, the dependent variable is the probability to pay a bribe in one sector.

Source: Our estimation

### Table 4b: Marginal effects, simple probit model

<table>
<thead>
<tr>
<th>Variables</th>
<th>Column I</th>
<th>Column II</th>
<th>Column III</th>
<th>Column IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woman user of public services</td>
<td>-0.00712*</td>
<td>0.0212*</td>
<td>0.0315**</td>
<td>-0.0015**</td>
</tr>
<tr>
<td>Age of user of public services</td>
<td>0.000412</td>
<td>0.0127</td>
<td>0.0196</td>
<td>-0.0373</td>
</tr>
<tr>
<td>Married user of public services (PS)</td>
<td>0.00018***</td>
<td>0.0271***</td>
<td>0.0440***</td>
<td>-0.0796***</td>
</tr>
<tr>
<td>Level of education of user of PS (primary)</td>
<td>0.0330***</td>
<td>0.0809***</td>
<td>0.0942***</td>
<td>-0.0218***</td>
</tr>
<tr>
<td>Religion of user of PS (Catholic)</td>
<td>0.0119***</td>
<td>0.0344***</td>
<td>0.0493***</td>
<td>-0.0085***</td>
</tr>
</tbody>
</table>

Note: In column I, the dependent variable is the probability to pay a bribe in four sectors; in column II the dependent variable is the probability to pay a bribe in three sectors; in column III, the dependent variable is the probability to pay a bribe in two sectors; in column IV, the dependent variable is the probability to pay a bribe in one sector.

Source: Our estimation

We can also observe that the rate of corruption decreases with the level of education in sectors that employ a relatively skilled labour force, such as education or health. Indeed, road users who have only primary education have 1.88% more chances to pay bribes in the transport sector. The same statistics are 2.16% and 1.65% in the sectors of health and education, respectively. But those who are graduates of secondary education have a 2.35% opportunity not to pay bribes in the sectors of justice and transport. The reason could be that when people are educated, they have better understanding and knowledge about the drawbacks of corruption. Another reason could be that the more educated person can cheat the public or nation easily. In addition, higher levels of education foster a sense of nationalism and give confidence to the community. It also raises the public’s awareness of their rights for the services of the bureaucrats.

### Table 4b Continued

<table>
<thead>
<tr>
<th>Region 1_5</th>
<th>Region 1_6</th>
<th>Region 1_10</th>
<th>Region 1_11</th>
<th>Region 1_12</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00712*</td>
<td>0.0212*</td>
<td>0.0315**</td>
<td>-0.0015**</td>
<td>0.000400</td>
</tr>
<tr>
<td>0.0127</td>
<td>0.0196</td>
<td>-0.0373</td>
<td>0.0113</td>
<td>(0.0149)</td>
</tr>
<tr>
<td>0.0440***</td>
<td>-0.0796***</td>
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<td>0.0126</td>
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<td>0.0809***</td>
<td>0.0942***</td>
<td>-0.0218***</td>
<td>0.0156</td>
<td>0.0382</td>
</tr>
<tr>
<td>0.0344***</td>
<td>0.0493***</td>
<td>-0.0085***</td>
<td>0.00875</td>
<td>0.0110</td>
</tr>
</tbody>
</table>

Source: Our estimation

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Table 4b Continued

<table>
<thead>
<tr>
<th>Variables</th>
<th>Education</th>
<th>Health</th>
<th>Police/justice</th>
<th>Transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Religion of user of PS (Muslim)</td>
<td>0.0220***</td>
<td>-0.0112</td>
<td>-0.0277**</td>
<td>-0.0177*</td>
</tr>
<tr>
<td></td>
<td>(0.00720)</td>
<td>(0.00929)</td>
<td>(0.0123)</td>
<td>(0.00963)</td>
</tr>
<tr>
<td>Urban area</td>
<td>-0.00954</td>
<td>-0.00866</td>
<td>-0.0203**</td>
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<td></td>
<td>(0.00865)</td>
<td>(0.00763)</td>
<td>(0.00959)</td>
<td>(0.00752)</td>
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<td>User of PS is poor</td>
<td>0.0263***</td>
<td>0.0206*</td>
<td>0.0311**</td>
<td>0.0251**</td>
</tr>
<tr>
<td></td>
<td>(0.00958)</td>
<td>(0.0121 )</td>
<td>(0.0152)</td>
<td>(0.0110)</td>
</tr>
<tr>
<td>Household expenditure per head of user of PS</td>
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<td>(0.00558)</td>
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<tr>
<td>(Poverty)* urban area</td>
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<tr>
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<td>(0.0262)</td>
<td>(0.0218)</td>
</tr>
<tr>
<td>(Poverty)* household size of user of PS</td>
<td>0.00850</td>
<td>0.0315*</td>
<td>0.0428*</td>
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<td>(0.0219)</td>
<td>(0.0190)</td>
</tr>
<tr>
<td>User of PS is employed (public formal sector)</td>
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<td>-0.00418</td>
<td>0.0173</td>
<td>0.0195*</td>
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<td>(0.0126)</td>
<td>(0.0129)</td>
<td>(0.0157)</td>
<td>(0.0115)</td>
</tr>
<tr>
<td>User of PS is employed (private formal sector)</td>
<td>-0.00538</td>
<td>0.00813</td>
<td>0.0441***</td>
<td>0.0489***</td>
</tr>
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<td>(0.0114)</td>
<td>(0.0115)</td>
<td>(0.0128)</td>
<td>(0.00769)</td>
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<td>% of complaints examined by the courts</td>
<td>0.00371***</td>
<td>0.00397*</td>
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<tr>
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<td>(0.00101)</td>
<td>(0.00788)</td>
<td></td>
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<td>Road traffic</td>
<td>-0.000119***</td>
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<tr>
<td>% pupils in private school</td>
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<tr>
<td>Number of children in house of user of PS</td>
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<td>0.0470***</td>
<td>-0.0776***</td>
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<td>0.0134</td>
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<td>0.0255*</td>
<td>-0.103***</td>
<td>-0.0150</td>
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<td>(0.0158)</td>
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<td>0.0159</td>
<td>0.0304**</td>
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<td>-0.00541</td>
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<td>Region 1_10</td>
<td>-0.0185</td>
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<td>0.0339***</td>
<td>0.0130</td>
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<tr>
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<td>(0.00859)</td>
<td>(0.0128)</td>
<td>(0.00997)</td>
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<td>Region 1_11</td>
<td>-0.0284</td>
<td>-0.0396*</td>
<td>-0.185***</td>
<td>-0.154***</td>
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<tr>
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<td>(0.0212)</td>
<td>(0.0227)</td>
<td>(0.0426)</td>
<td>(0.0412)</td>
</tr>
<tr>
<td>Region1_12</td>
<td>0.00266</td>
<td>0.0190</td>
<td>-0.0772***</td>
<td>-0.0191</td>
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<tr>
<td></td>
<td>(0.0111)</td>
<td>(0.0127)</td>
<td>(0.0183)</td>
<td>(0.0128)</td>
</tr>
</tbody>
</table>

Note: In each column, the dependent variable is the probability to refuse corruption.
Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1
Source: Our estimation

Concerning environmental factors, we can observe in Table 4a that corruption is more widespread in urban areas. This result is explained by the following reasons. People living in rural areas are encouraged to reject corruption premised on their customs and traditions; for example, in the northern part of the country (Adamoua, Far-North and North), corruption is less widespread because of religion. On the contrary, a number of urban dwellers have lost their customs and traditions and are now only constrained by government-imposed legal rules, most of which are weak and easily subverted. In addition, there is a dynamic aspect of corruption because certain urban dwellers tend to imitate their fellow counterparts and engage in corrupt activities. Further, public services are more common in urban areas, yet the public sector is generally more corrupt. It is shown in the relationship between individuals and government officials who are in large cities in comparison to small ones, which may make it easier for them to ask for a bribe (Hunt, 2004). Even if the size of a government is also put forward as a determinant of corruption, the causality may run in two directions. If countries exploit economies of scale
in the provision of public services, thus having a low ratio of public services per capita, those who demand the services might be tempted to bribe bureaucrats “to get ahead of the queue”. On the other hand, a large government sector may also create opportunities for corruption. A study by Fisman and Gatti (2002) shows a negative impact of government spending on corruption, while others (Ali and Isse, 2003) report the opposite.

Regarding corruption by region, we observe that corruption is less widespread in the northern part of the country (Adamoua, Far-North and North). Indeed, enrollment rates and the demand for social services are low in these regions (INS, 2010c). For this reason, the social sectors are less vulnerable to corruption. But in cities such as Yaoundé and Douala, and in the regions of Centre and South, the incidence of corruption is particularly high in the sectors of transport, police/justice and health. Two main factors explain these results: populations in the southern part of the country are relatively less poor; and, demand for public goods and services is high, while supply of these goods and services is insufficient or limited.

For the institutional variables, we observe that corruption decreases with the proportion of complaints examined by the judicial system. For example, according to our results, the incidence of corruption decreases in the sectors of police and justice when the proportion of complaints dealt with increases by one unit. However, the incidence of corruption increases with the traffic and market share of private hospitals. In other words, lack of adequate public health facilities causes corruption in the health sector. But in the education sector, corruption decreases with the market share of private schools. Thus, when demand for certain goods and social services exceeds supply, the underlying sectors (health and transport) become prone to corruption. Indeed, most corrupt acts involve a bargain between the official and some private actors. The official uses the powers of office to create concentrated gains for the private partner beyond those he/she could earn without state intervention. Tanzi (1998) explains this result and, according to him, sometimes and because of limited supply, rationing or queuing becomes unavoidable. Excess demand is created and decisions have to be made to ration the limited supply. These decisions are often made by public employees. Those who want these goods (the users) would be willing to pay a bribe to get more of what the government is providing.

5. Conclusion and recommendations

In this study, we examined the determinants of corruption in five activity sectors in Cameroon: police, justice, transport, health and education. We used data from the National Institute of Statistics to identify the determinants of corruption in Cameroon in the sectors in question. With these data, we used ordered and simple probit models to identify the characteristics of users of public services who refuse to participate in corrupt activities. Thus, we find that corruption in Cameroon is caused by a limited supply of certain public goods and services. It is also more rampant in big cities and in more developed regions of the country, and affects the police and justice sectors more. Essentially, aged, educated household heads, especially those from the grand south who work in the formal public sector, are observed to be more corrupt.

Thus, to fight corruption in Cameroon, the government should do the following:

- Promote respect for the law and rules of operation of the central administration, the police and justice sectors;
- Limit contact between users and government officials, as is the case in the field of customs with the introduction of information and communication technology (ICT) and the purchase of adequate heavy equipment such as container scanners. It is, therefore, necessary to introduce ICT and other technologies in various segments of government administration to minimize contact;
- Establish health insurance by professional category in order to secure patients and health care, and reduce the phenomenon of corruption in the health sector;
- Increase private provision of education in order to limit the phenomenon of corruption in the education sector; and
- Continuously control the police and gendarmerie with a requirement of compliance with the law (e.g. by ensuring drivers have all pertinent documents) in order to limit corruption in the transport sector.

The government can also develop a professional code of conduct in all critical service sectors, the main objective being to enhance the commitments, dedication and efficiency of services among members of the profession by formulating a set of recognized ethical standards to which all members of the profession must adhere to; provide self-disciplinary guidelines for members of the profession by creating norms for professional conduct; and ensure that the community supports and has confidence in the profession by emphasizing the social responsibilities of the profession towards the community.
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