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Juvenile Delinquency in Education: A Case Study of Cameroonian Schools

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Abstract

This study investigates the factors contributing to juvenile delinquency in public and private schools in Cameroon. Utilizing a quantitative approach, the research analyzes data from 478 participants. Findings reveal significant disparities across gender, religion, and educational systems. Male students exhibit higher rates of sexual offenses, while Muslim students demonstrate higher rates of aggression. Students in the Francophone education system exhibit higher rates of substance abuse compared to their Anglophone counterparts. Furthermore, the study highlights the influence of the COVID-19 pandemic, with increased instances of aggression and violence observed during the period of online learning. Drawing on theories of social interaction, human capital, and incentive, the study emphasizes the need for a multi-faceted approach to address juvenile delinquency. This approach should encompass individual-level interventions, such as personal development programs, alongside improvements to the school environment and collaborative efforts between educators, parents, and the community.

Keywords

Juvenile Delinquency, Social Behavior, Students, Public and Private Schools, Cameroon

1. Introduction

Juvenile delinquency in schools is a complex problem, combining individual, family, academic, and social factors. Among these dimensions, the individual characteristics of students appear to be major causes of delinquent behaviors which in-

fluence not only the frequency but also the nature of the offenses committed. With the advent of technology, social media, and multiplicity of technological gargets such as android phones, smartphones, tablets, and fluent internet connection, many kids and learners have developed the habits of going to school with their personal mobile phone. This causes them not only to be distracted during lessons but to watch irrelevant contents that incentivize their characters and behaviors (Tabifor & Nkongho, 2024; Welsh, Farrington, & Taheri, 2022).

The installation of computer labs in both private and public schools to improve the learning outcomes of learners exposes them to the use of gadgets such as laptops and desk stops. This causes some to copy movies and content from home that is not suitable for their learning into USB keys and watch even in these labs when not monitored by a teacher. Worst off is the case of Cameroon where sanctions against juvenile acts are not punishable by teachers nor school heads unless they have adequate authorization from a legal entity such as police. This has affected the school milieu in Cameroon as many learners tend to fight their teachers, stab to dead teachers, insult and even brutalized some teachers knowing fully well they are not to be sanctioned by the school authorities unless after a long period following up for legal permission to sanction a delinquent child (Heller et al., 2017; Lilly, Cullen, & Ball, 2013; Tabifor & Nkongho, 2024).

Despite these despicable school structures in the study context, limited works however have paid attention to scholarly documenting the motives, causes, sanctions, and/or number of cases that have occurred in the country in the past decades. Thus, the objective of this paper is to explore the individual causes of student juvenile delinquency in Cameroon's private and public schools from a micro-economic perspective.

2. Theoretical Background and Hypothesis Development

The analysis of the causes of juvenile delinquency in schools has developed considerably in economic literature since the pioneering work of Becker (1968) on the economics of crime. This literature, initially dominated by sociological and criminological approaches, has been enriched by microeconomic analyses that allow us to better understand the decision-making mechanisms that lead to delinquent behavior among young people in schools (Freeman, 1996). This literature review aims to synthesize current knowledge on the causes of juvenile delinquency in schools according to a microeconomic vision. It is structured around two complementary points. The first subsection examines the theoretical foundations through the different explanatory models developed in the economic literature. The second subsection presents a synthesis of empirical studies, with an emphasis on work carried out in developing countries, particularly in sub-Saharan Africa, to better contextualize our subsequent analysis of the Cameroonian case.

2.1. Stealing Behaviors among Students in and within Schools

Scholars have extensively examined the phenomenon of student stealing in schools, often framing it within various theoretical perspectives. According to Becker's

(1968) rational choice theory, students engage in stealing when they assess that the perceived benefits such as material gain or social status outweigh the potential costs, such as disciplinary actions or legal repercussions. Therefore, from Becker (1968) perspective, stealing is when students intentionally take properties without permission from the owner(s). Matsueda (1992) supports this notion by demonstrating that adolescents evaluate these costs and benefits before committing delinquent acts, indicating a calculated decision-making process. Furthermore, McCarthy and Hagan (2005) highlight the influence of school environments on delinquent behavior, noting that effective monitoring systems and clear sanctions significantly reduce incidents of theft. Their research shows that schools implementing surveillance measures experience a 45% decrease in delinquency, suggesting that perceived risks can deter stealing.

Additionally, social learning theory posits that stealing is learned behavior, influenced by peers and social contexts (Akers, 2017). When students are surrounded by peers who normalize or encourage theft, they are more likely to engage in such behavior. This view is echoed by Lochner (2004), who emphasizes that engagement in prosocial activities can mitigate the likelihood of delinquency, as students with strong social ties and commitments to school are less inclined to steal. Thus, we hypothesis that.

H_1: Student stealing behaviors in schools are influenced by peer dynamics, the school environment, and insufficient security measures.

2.2. Exploring Student Consumption of Psychoactive Substances in Schools

Studies on student consumption of psychoactive substances in schools highlight a complex interplay of individual, social, and environmental factors. The consumption of psychoactive substances among students can be defined as the intentional use of drugs or alcohol that alters cognitive or physical functions, influenced by a complex interplay of individual, social, and environmental factors. One key perspective is provided by the social learning theory, which posits that substance use is often learned through interactions with peers and the normalization of drug use within social groups (Akers, 2017). Students may be more likely to consume substances if they are surrounded by peers who engage in similar behaviors, reinforcing the perception that such actions are acceptable or desirable. Furthermore, rational choice theory suggests that students weigh the perceived benefits of substance use such as social acceptance and stress relief against potential costs, including health risks and disciplinary actions (Becker, 1968). Research by Mocan and Rees (2005) indicates that limited economic opportunities can exacerbate substance use, as adolescents in deprived environments may view drug use as a coping mechanism or a means of achieving social status.

Additionally, environmental factors play a significant role in substance consumption. Studies show that schools with ineffective disciplinary measures or a lack of supportive resources are more likely to see higher rates of substance use

among students (Trinidad et al., 2020). Conversely, schools that promote positive engagement through extracurricular activities can reduce substance use, as involvement in structured programs often provides healthier outlets for stress and socialization (Han et al., 2017). Hence, we posit with the assumption that.

H_2: The consumption of psychoactive substances is influenced by peer pressure, the academic period, and the section of education students are enrolled in.

2.3. Assault and Murder among Students within and outside School Milieus

Research on student assaults and murders within and outside of schools emphasizes the interplay of individual, social, and environmental factors that contribute to violent behaviors. Assaults refer to intentional acts of aggression that cause physical harm or the threat of harm to another individual. While murder on the other hand, involves the intentional taking of another person's life, often driven by factors such as social status, revenge, or retaliation (Ehrlich, 1973a). Social learning theory posits that students learn aggressive behaviors through interactions with peers and media influences, which can normalize violence as a means of conflict resolution (Akers, 2017). Research indicates that exposure to violence, whether in the home or through media, increases the likelihood of aggressive behavior among adolescents (Huesmann et al., 2003).

Additionally, the rational choice theory suggests that students may engage in assaults or even homicides after weighing the perceived benefits against the costs. Factors such as social status, revenge, or retaliation can drive violent acts when individuals perceive that the benefits outweigh potential consequences (Becker, 1968). For instance, studies have shown that students involved in gang activities may resort to violence to assert dominance or protect their territory (Klein, 1999). Environmental factors also significantly impact student violence. Schools with inadequate resources, poor management, and ineffective disciplinary measures often report higher rates of assaults (McCarthy & Hagan, 2005). Furthermore, the presence of supportive relationships with teachers and peers can mitigate violent behaviors, as strong social ties are associated with lower rates of aggression (Hirschi, 1969). Positing from the narrative, we assume that.

H_3: Assaults and murders in schools are primarily influenced by the type of institution, particularly in public schools, whether they are technical or general.

2.4. Sexual Offenses among Students: Influences and Preventive Strategies

Research on sexual offenses among students, both in and outside of schools, reveals a multifaceted interplay of individual behaviors, social norms, and environmental influences. Sexual offenses among students are defined as unlawful acts that involve sexual conduct without consent. Social learning theory posits that sexual offenses are often learned through peer interactions and cultural norms that may trivialize such behaviors. For instance, Wang et al. (2015) found that peer dynamics significantly influence adolescents, with acceptance of risky sexual behaviors leading to

higher incidences of sexual offenses. Additionally, Moffitt (2017) emphasizes that many adolescents engage in impulsive behaviors without fully understanding the consequences, contributing to the prevalence of sexual misconduct.

Environmental factors also play a critical role in shaping behaviors related to sexual offenses. Finkelhor (2009) highlight that schools lacking comprehensive sexual education and effective disciplinary measures often report higher rates of sexual offenses among students. Conversely, supportive school environments that promote open communication about sexual health can mitigate these risks (Finkelhor, 2009). Empirical studies indicate that programs providing education on consent and healthy relationships can significantly reduce instances of sexual offenses among adolescents, emphasizing the need for effective preventive measures in educational settings (DeGue et al., 2014). Overall, addressing sexual offenses in schools requires a holistic approach that combines educational initiatives with an understanding of the social contexts in which these behaviors occur. Thus, we hypothesize that.

H_4: Sexual offenses are primarily driven by inadequate institutional qualities, gang involvement among students, and gender-related factors.

These discussions provoke a comprehensive graphical presentation of student juvenile delinquency in school milieus. By addressing the interplay of individual, social, and environmental factors, an effective preventive strategy(ices) and interventions can be proposed.

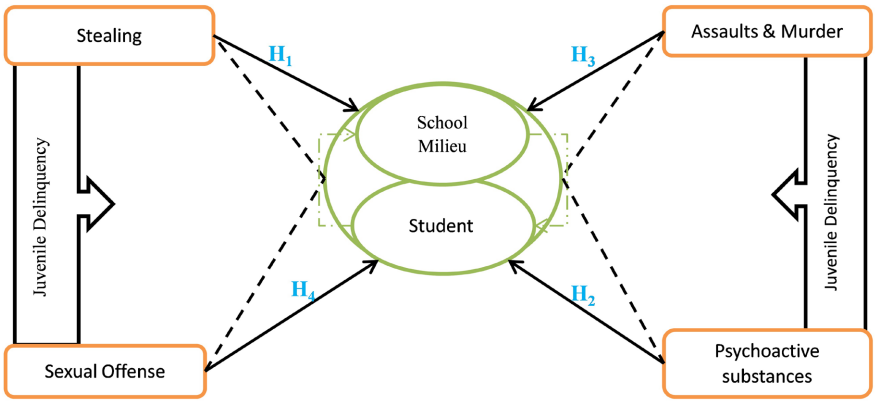

Figure 1. Conceptual modeling of Juvenile Delinquency within schools.

Figure 1 shows that students are found within the school milieu, and we cannot separate the child from the school as his/her behavior is observed within these premises. Stealing, sexual offences, psychoactive substance consumption, assaults and murder influence students' behaviors in schools (juvenile delinquency).

3. Methodology

3.1. Data Source

The data used in this study is mainly secondary. Data come from the Compagnie de Sécurisation des Établissements Scolaires des Établissements Scolaires et

Universitaires (CSESU), a specialized unit of the Cameroon National Police. This unit collects and centralizes information from security operations carried out in schools, as well as from denunciations made by school managers and parents. These actions include patrols, raids, body searches and infiltrations in areas identified as criminogenic in the school environment.

In our database, we have identified 478 individuals (delinquent students or suspects) who were apprehended as part of CSESU operations. This secondary data is enriched by contextual information concerning the students, the schools attended and the family and security environment. Variables include individual characteristics such as gender, age, religion, gang affiliation, cycle and study section, family characteristics such as parents' marital status, school characteristics such as educational subsystem (French/English), type of education and level of study, environmental characteristics like number of security posts in school district, and time variables which included year and trimester of incident.

In addition, four types of delinquent behavior are most frequently encountered in schools: theft, assault and battery (including murder), sexual offences and the use, sale or possession of psychoactive substances. The validity of the data is based on several essential criteria. Firstly, the data comes from a reliable institutional source: CSESU, recognized for its expertise in making schools safer. Secondly, the sample is representative, with 478 students from various secondary schools in the Mfoundi department, reflecting a diversity of contexts. What's more, the relevance of the variables studied is noteworthy, incorporating individual, school, family and environmental characteristics that are essential for an in-depth analysis of the causes of delinquency.

Finally, temporal exhaustion is guaranteed by considering data collected over several years and quarters, thus offering a longitudinal and evolutionary vision of the phenomenon. Although the CSESU database represents a valuable resource for the analysis of juvenile delinquency, it does have certain limitations. Firstly, it may be marked by institutional bias, as the data are mainly derived from police interventions and denunciations, potentially reflecting subjective perceptions or biased practices in the identification of delinquents.

Moreover, a lack of qualitative contextualization limits in-depth understanding of the motivations and social dynamics behind delinquent acts. Furthermore, the restricted geographical focus on the Mfoundi department reduces the scope of the results, making it difficult to generalize nationwide. Finally, the exclusion of cases not reported to or detected by the authorities may lead to an underestimation of the true scale of the phenomenon. Data reprocessing in this study followed a rigorous process to ensure consistency and optimal use.

Variables were reformulated and coded to be compatible with the requirements of statistical analysis tool (STATA v18), while respecting the categorization standards defined by the methodological framework. This recording made it possible to transform raw data into categories that could be used for statistical interpreta-

tion. Next, data correction and completion techniques were used to deal with any inconsistencies or missing information. Where data was incomplete or ambiguous, it was cross-checked with other secondary sources, or eliminated if it did not meet validity criteria. This reinforced the quality and accuracy of all the information used in the study.

3.2. Econometric Strategy

Modeling students' delinquent behavior can be inspired by the random utility model (Greene, 2012; Wooldridge, 2015). When faced with a criminal opportunity, a student can choose between two alternatives: 1) commit a crime, or 2) not commit a crime. In principle, the student rationally chooses the alternative that provides the greatest utility, all other things being equal. Let Ua and Ub be the respective utilities derived by the student from the alternatives "committing a crime" and "not committing a crime". These utility functions can be formulated since the linear random utility model is as follows:

$$U^a = X'\beta_a + \epsilon_a \tag{1}$$

$$U^b = X'\beta_b + \epsilon_b \tag{2}$$

where X' is the transpose of the matrix of variables determining students' utility levels when faced with the choice of committing a crime, β is the coefficient matrix and ε is the error term.

However, students' utilities are not observable; only the choice or decision to commit a crime (D = 1) or not to commit a crime (D = 0) taken by the student is observable. The observed indicator is therefore:

$$\begin{cases} 1, si U^a > U^b \leftrightarrow U^a - U^b > 0 \\ 1, si U^a \leq U^b \leftrightarrow U^a - U^b \leq 0 \end{cases} \tag{3}$$

It is therefore possible to estimate the probability of students committing a crime. We can write:

$$\begin{aligned} Pr\left[D = 1 \middle| X\right] &= Pr\left[U^a > U^b\right] \\ &= Pr\left[X'\left(\beta_a - \beta_b\right) + \epsilon_a - \epsilon_b > 0 \middle| X\right] \\ &= Pr\left[X'\beta + \epsilon > 0 \middle| X\right] \end{aligned} \tag{4}$$

Equation (4) can be estimated using the Logit model, which preserves the logistic distribution of the error term. We can then write:

$$Pr\left[D = 1 \middle| X\right] = \frac{e^{X'\beta}}{1 + e^{X'\beta}} = \wedge\left(X'\beta\right) \tag{5}$$

We also need to clarify the unit of observation used in the estimation model. There are two possibilities. The unit of observation can be either the pupil (Goudriaan, Wittebrood, & Nieuwbeerta, 2006), or the offence committed (Chaussebourg, Creusat, & Carrasco, 2011). In the first case, the model's dependent variable is explicitly the probability that the pupil is a delinquent, whereas in the second case, it is the probability that a pupil commits an offence. This distinction is

fundamental, as the results differ according to the type of observation unit. Using the pupil as the observation unit has at least three drawbacks. Firstly, it is not possible to envisage an analysis by category of offence, by grouping together specific types of offence, for example the category of theft, sexual offences.... In this case, it seems impossible to model the decision to commit an offence by merging the explanatory factors relating to each type of offence, in particular the characteristics of an offence (criminals' modus operandi, costs of the offence, etc.).

Secondly, using the pupil as the unit of observation does not take advantage of the fact that the data show that the same pupil can commit several types of offence, thus increasing the sample size of the analysis models. Finally, modelling the decision to commit an offence using the pupil as the unit of analysis is subject to a selection bias linked to experience of delinquency, since only delinquent pupils express an opinion on the probability of committing an offence. It is not easy to correct for this bias using the instrumental variables method, as it seems difficult to identify exclusion variables if many causes of delinquency are retained (Justus & Scorzafave, 2014). Given these limitations, the econometric modelling in this study uses the offence committed by the student as the unit of observation.

4. Presentation of Results

4.1. Descriptive Analysis of Students' Delinquency in Schools

Table 1 includes, on the one hand, the main characteristics of school delinquency and offender profiles: The study covers 478 cases and reveals that school delinquency mainly involves theft (92.7%), followed by offences involving psychoactive substances (74.1%), assault and battery (67.2%) and sexual offences (47.1%). The typical offender profile is predominantly male (85.8%), in puberty (64.2%), Christian (83.5%) and a gang member (72.6%).

These students are mainly enrolled in secondary school (65.5%) and attend school in the French-speaking section (88.9%). The dominant family structure is that of parents in couples (52.7%), although a significant proportion comes from separated families (31.8%) or single-parent families (15.5%). Institutional and temporal characteristics: The schools concerned are predominantly French-speaking (52.1%) or bilingual (39.1%), with a predominance of the public sector (48.7%) followed by private secular (34.9%). General education predominates (69.9%) over multi-skill (17.4%) or technical (12.8%) training. The temporal distribution shows a concentration of cases in 2021 (64.9%), with a predominance in the second quarter (49.6%). Security arrangements vary considerably by zone, with an average of 8.15 security posts per arrondissement, ranging from 1 to 14 posts. This institutional and temporal structure suggests an uneven distribution of incidents of delinquency, both geographically and temporally, with peaks in activity identifiable during certain periods of the school year.

Table 1. Description, definition, and statistics.

Variables	Definitions	N	Mean	Std	Min	Max
Stealing	1. If the student stole; 0. otherwise	478	0.927	0.261	0	1
Psychoactive Substances (SPA)	1. if the student sold, consumed or held SPAs; 0. otherwise	478	0.741	0.439	0	1
Assault and Murder (CBM)	1. if the student has inflicted blows, injuries, and/or committed murder; 0. otherwise	478	0.672	0.47	0	1
Sexual offenses (DS)	1, if the student committed a sexual offense; 0. otherwise	478	0.471	0.5	0	1
Individual characteristics						
Gender	1. if the student is male; 0. if the student is female	478	0.858	0.35	0	1
Age	1. if the delinquent student involved is in puberty. 0. Otherwise	478	0.642	0.48	0	1
Christian	1. if the student is Christian; 0. otherwise	478	0.835	0.372	0	1
Muslim	1. if the student is Muslim; 0. otherwise	478	0.069	0.254	0	1
Animist and other	1. if the student is animist or other; 0. Otherwise	478	0.096	0.295	0	1
Gang	1. if the student belongs to a gang; 0. Otherwise	478	0.726	0.447	0	1
Student cycle	1. if the student is in the second cycle; 0. Otherwise	478	0.655	0.476	0	1
Student Section	1. if the student is from the French-speaking section; 0. Otherwise	478	0.889	0.314	0	1
Characteristics of the school establishment						
English subsection	1. if the establishment where the student attends have the English-speaking subsection only; 0. Otherwise	478	0.088	0.283	0	1
Bilingual subsection	1. if the establishment where the student attends have the English-speaking subsection and the French-speaking subsection; 0. Otherwise	478	0.391	0.489	0	1
French speaking subsection	1. if the establishment where the student attends have the French-speaking subsection only; 0. Otherwise	478	0.521	0.5	0	1
Private denominational	1. if the establishment where the student attends is private denominational; 0. Otherwise	478	0.163	0.37	0	1
secular private school	1. if the establishment where the student attends is secular private; 0. Otherwise	478	0.349	0.477	0	1
Public school	1. if the establishment where the student attends is public; 0. Otherwise	478	0.487	0.5	0	1
Technical education	1. if the establishment where the student attends have technical education only; 0. Otherwise	478	0.128	0.334	0	1
General education	1. if the establishment where the student attends have general education only; 0. Otherwise	478	0.699	0.459	0	1
Polytechnic education	1. if the establishment where the student attends have technical and general education; 0. Otherwise	478	0.174	0.379	0	1
Family characteristics						
Single parents	1. if the student's parents are single; 0. Otherwise	478	0.155	0.362	0	1
Separated parents	1. if the student's parents are divorced or widowed; 0. Otherwise	478	0.318	0.466	0	1
Parents in a couple	1. if the student's parents are married or cohabiting; 0. Otherwise	478	0.527	0.5	0	1
Environmental characteristics						
Security posts	The number of police stations and brigades in the district where the school the student attends is located	478	8.151	4.987	1	14
Temporal characteristics						
Year	1. if the student information is from 2021; 0. if it is from 2022	478	0.649	0.478	0	1
First trimester	1. if the student information is from the first trimester; 0. Otherwise	478	0.165	0.372	0	1
Second trimester	1. if the student information is from the second trimester; 0. Otherwise	478	0.496	0.501	0	1
Third trimester	1. if the student information is from the third trimester; 0. Otherwise	478	0.339	0.474	0	1

Table 2 shows the CHI2 test between the dependent and independent variables used in our study. It allows us to predict the existence of a dependency link between juvenile delinquency in schools and the various characteristics of students, their school, their family and even temporal characteristics, as various theories maintain.

Table 2. A priori interdependence of the commission of an offence.

Variables	Stealing	SPA	CBM	DS
Age	5.633*	0.901	0.001	0.009
Student's religion	6.519*	5.081*	6.811*	1.618
Gang	0.393	0.223	1.701	3.679*
Student cycle	0.001	0.031	1.132	2.184
Student Section	3.043*	1.168	3.951*	1.327
Establishment Section	11.098**	5.715*	14.487**	7.566*
Type of establishment	10.229**	21.302***	36.859***	8.224*
Teaching order of the establishment	14.923**	11.250**	5.695*	8.918*
Marital status of parents	3.065	2.256	12.949**	2.502
Year	0.229	16.495***	50.451**	4.5222*
Trimestre	5.987*	11.969**	1.015	17.215***

Source: From data from the Cameroon National Police. Notes: ***, ** and * indicate significance at 1%, 5% and 10% respectively. Robust standard errors in parentheses. The reference categories are: Christian (Religion), Bilingual Subsection (Section of the establishment), Public School (Type of establishment), Polytechnical Education (Order of education of the establishment), Parents in a relationship (Marital status of parents), Third trimester (trimester).

Indeed, it examines the priori interdependence between various explanatory variables and four types of offences committed by pupils, namely: Theft, SPA (Psychoactive Substances), CBM (Blow, Injury, Murder) and DS (Sexual Offences). The coefficients show the relationship between these variables and the probability of a student being involved in these crimes, considering statistical significance. Reference modalities include Christian religion, bilingual sub-section for school, type of public school (PU), polytechnic order of education, parents in a couple, and third school term.

The significant variables by type of crime are 1) in terms of stealing we have significant variables such as age (5.6325, $p < 0.01$), student religion (6.5191, $p < 0.01$), student section (3.0426, $p < 0.01$), and school term (5.9872, $p < 0.01$), 2) in terms of Psychoactive Substances (SPA) we have the most influential factors to be school type (21.3016, $p < 0.01$), student religion (5.0810, $p < 0.01$), and school section (5.7145, $p < 0.01$), 3) while in terms of Blows, Injury, Murder (CBM) we have year (50.4508, $p < 0.1$), school type (36.8593, $p < 0.01$), and student section (3.9505, $p < 0.01$) to be significant variables, 4) in terms of Sexual Offenses (DS),

we have significant variables such as school type (8.2237, $p < 0.01$), school term (17.2150, $p < 0.01$), and gang membership (3.6794, $p < 0.01$). The results highlight the importance of institutional characteristics (type of school and organization of sections), cultural influences (religion), and social dynamics (gangs) in explaining students' deviant behavior. Overall, the results confirm the existence of a dependent relationship between delinquency and the various explanatory variables.

4.2. A Logistic Modelling of Students' Delinquency in Schools

Logistic model analysis explores the determinants of juvenile delinquent behavior using advanced statistical approaches. This section includes an explanation of delinquent behavior through a generalized logit model and a multivariate probit model, as well as an in-depth discussion of the results obtained to better understand the underlying dynamics. The negative influence of peer dynamics (OR = 0.352) suggests that positive peer relationships can reduce stealing behaviors. Additionally, the strong likelihood of stealing among students in technical (OR = 7.921) and general education (OR = 3.819) indicates that the school environment significantly impacts these behaviors. While the effect of security measures is less pronounced (OR = 0.914), it still suggests a potential deterrent effect. Overall, the evidence supports the first hypothesis (H_1) by demonstrating that both peer dynamics and the school environment are critical factors in student stealing behaviors.

The academic period has a strong positive influence on substance consumption, with a coefficient of 2.048, resulting in an odds ratio of 7.753, indicating that as students' progress through the academic year, their likelihood of consuming psychoactive substances increases significantly. Additionally, students in general education show a positive coefficient of 0.725 (OR = 2.065), suggesting they are more likely to engage in substance use compared to their peers in other educational sections. Conversely, students in technical education have a negative coefficient of −1.040 (OR = 0.353), indicating they are less likely to consume psychoactive substances. While significant effects were found for the academic period and the section of education, peer pressure did not show a significant influence on substance consumption. Thus, the second hypothesis (H_2) is supported in part but not fully validated.

Still from Table 3, the significant coefficient for the variable "Student Section" shows a positive influence (coefficient = 0.537, OR = 1.711), indicating that the type of educational institution affects the likelihood of assaults and murders. Additionally, the notable differences between technical (coefficient = −1.040, OR = 0.353) and general education suggest that the type of institution plays a critical role in these violent behaviors. Therefore, the evidence supports the third hypothesis (H_3) that assaults and murders are indeed influenced by the type of educational institution. Also, the student section shows a significant negative coefficient (−1.105, OR = 0.331), indicating that the type of educational institution influences the likelihood of sexual offenses. However, there is no significant evidence in the

provided statistics specifically supporting gang involvement or gender-related factors. Therefore, while the influence of institutional qualities is evident, the fourth hypothesis (H_4) lacks comprehensive support regarding gang involvement and gender factors, leading to a partial acceptance of H_4.

Table 3. Logistic modeling approach of students' juvenile delinquency.

VARIABLES	Model 1		Model 2		Model 3		Model 4	
	Stealing		Psychoactive substance		Assault & Murder		Sexual Offense	
	Coefficient	OR	Coefficient	OR	Coefficient	OR	Coefficient	OR
Sexe	−1.288 (0.793)	0.276	−0.240 (0.359)	0.787	−0.360 (0.379)	0.697	1.350 (0.340)***	3.859
Age	1.073(0.462) **	2.925	−0.101 (0.278)	0.904	0.218 (0.272)	1.243	−0.445 (0.245)*	0.641
Muslim	−1.334 (0.598) **	0.263	−0.333 (0.421)	0.717	1.228 (0.505)**	3.415	0.124 (0.400)	1.132
Friends and others	−1.045 (0.758)	0.352	0.335 (0.528)	1.398	0.334 (0.384)	1.397	0.409 (0.382)	1.505
Gang	−0.037 (0.481)	0.963	0.339 (0.255)	1.403	0.362 (0.254)	1.436	−0.553 (0.231)**	0.575
Student cycle	−0.208 (0.499)	0.812	0.210 (0.275)	1.233	−0.322 (0.273)	0.725	0.181 (0.244)	1.199
Student Section	0.708 (0.541)	2.03	0.537 (0.350)	1.711	−1.105 (0.411)***	0.331	0.703 (0.335)**	2.02
English subsection	−2.698 (0.935)***	0.067	0.440 (0.521)	1.552	1.489 (0.774)*	4.431	0.255 (0.505)	1.29
French subsection	−0.024 (0.630)	0.977	1.017 (0.317)***	2.765	0.187 (0.301)	1.206	−1.165 (0.274)***	0.312
School _PC	0.833 (1.034)	2.301	−0.580 (0.465)	0.559	0.864 (0.613)	2.372	−0.193 (0.437)	0.825
School _PL	−0.254 (0.682)	0.776	−0.038 (0.345)	0.967	−1.611 (0.316)***	0.199	0.383 (0.289)	1.467
Technical education	2.070 (1.129)*	7.921	−0.685 (0.429)	0.504	−1.040 (0.459)**	0.353	0.279 (0.407)	1.322
General education	1.340 (0.640)**	3.819	0.725 (0.376)*	2.065	−1.124 (0.401)***	0.325	−0.834 (0.339)**	0.434
Single parents	1.539 (0.872)*	4.66	−0.277 (0.413)	0.759	0.228 (0.337)	1.256	−0.249 (0.333)	0.779
Divorced parents	−0.321 (0.455)	0.726	0.234 (0.262)	1.264	−0.165 (0.280)	0.848	−0.323 (0.238)	0.724
Security posts	−0.089 (0.046)**	0.914	−0.010 (0.025)	0.99	0.036 (0.026)	1.036	0.061 (0.022)***	1.063
Year	0.327 (0.602)	1.387	−0.899 (0.364)**	0.407	2.048 (0.333)***	7.753	0.048 (0.293)	1.049
First quarter (term)	−0.415 (0.805)	0.661	−0.841 (0.397)**	0.431	−1.012 (0.411)**	0.364	1.567 (0.374)***	4.792
Second quarter (term)	−0.944 (0.587)	0.389	−0.751 (0.305)**	0.472	0.616 (0.287)**	1.851	0.330 (0.260)	1.39
Constant	3.419 (1.488)**	30.54	0.873 (0.788)	2.393	1.415 (0.819)*	4.116	−1.197 (0.707)*	0.302
Observations	478		478		478		478	
LR Chi2	58.66***		57.90***		134.3***		82.07***	
Pseudo R2	0.234		0.106		0.222		0.124	
Log (pseudo) likelihood	−95.854424		−244.67821		−235.46055		−289.46643	

The results of Table 3 as well highlight the significance of other various factors in explaining juvenile delinquency in schools, categorizing them into individual, school-related, family-related, and time-related characteristics. Individual factors such as gender and age are critical, with boys being more likely to engage in sexual offenses and older students showing a higher propensity for theft but lower likelihood for sexual offenses. Religion also influences behavior, as Muslim students

are more prone to assaults but less likely to steal compared to their Christian peers. The school environment plays a crucial role; students in secular private schools are less likely to exhibit physical aggression than those in public schools, while those in technical education are more likely to steal but less likely to commit assaults.

Family structure emerges as a significant risk factor, with students from unstable families being more inclined to delinquency. Finally, the timing of offenses indicates that students are generally less likely to commit drug-related offenses in the earlier academic quarters compared to later ones, although the likelihood of physical assaults increases in the second quarter. It is interesting to see whether there's a link between the four different variables in school juvenile delinquency. juvenile delinquency in schools. To this end, the tests of independence (chi-square) are summarized in Table 4.

Table 4. Test of dependence between explained variables.

Offenses		CBM		DS		SPA	
		Yes	No	Yes	No	Yes	No
CBM	Yes	25.52%	6.48%	1.25%	6.07%	0.63%	6.69%
	No	32.01%	60.67%	51.67%	40.00%	25.31%	67.36%
		Chi2 (1) = 7.8532* **		**Chi2 (1) = 19.4121*** **		**Chi2 (1) = 5.9309** **	
DS	Yes			9.62%	43.31%	2.51%	30.33%
	No			23.22%	23.85%	23.43%	43.72%
				Chi2 (1) = 52.3944* **		**Chi2 (1) = 40.7442*** **	
SPA	Yes					4.39%	48.54%
	No					21.55%	25.53%
						Chi2 (1) = 87.0652* **	

Source: From Cameroon National Police data. Notes: ***, ** and * indicate significance at 1%, 5% and 10% respectively. Robust standard errors in parentheses.

Analysis of Table 4 reveals statistically significant associations between all pairs of offences studied. The strongest relationships are observed between DS and SPA (Chi2 = 87.065***), between CBM and DS (Chi2 = 52.394***), and between CBM and SPA (Chi2 = 40.744***), all significant at the 1% level. Thefts also show significant links with other crimes, but of more moderate intensity (Chi2 ranging from 5.931** to 19.412***). In terms of co-occurrence, we note that 25.52% of cases of stealing are associated with MBC, while other associations are less frequent, ranging from 0,63% à 9,62%. These results, based on data from the Cameroon National Police, suggest that these different types of crime do not occur in isolation, but tend to intersect, with variable but statistically significant patterns of co-occurrence. There is a strong dependency between the different juvenile delinquency variables. This leads us to prefer the multivariate probit model to the simple logit model.

The multivariate probit results are presented in Table 5. The likelihood ratio test performed after estimating the multivariate Probit model leads to a 1% rejection of the hypothesis of independence of the four equations. This proves that estimation by a multivariate Probit is preferable to estimation by four independent simple logits. At the same time, the positive correlation coefficients obtained at the end of the estimation show the existence of complementarity between the protection strategies. What's interesting is that different offences can be substituted for each other. These relationships corroborate the statistics obtained previously by the chi-square test. However, the results do not contradict the previous logit findings, and individual, school, family, environmental and even temporal characteristics can still be justified as causes.

Table 5. Multivariate probit model.

VARIABLES	Model 1	Model 2	Model 3	Model 4
	Stealing	Psychoactive Substance	Assault & Murder	Sexual Offense
Gender	−0.544 (0.350)	−0.165 (0.212)	−0.123 (0.216)	0.767 (0.189)***
Age	0.487 (0.241)**	−0.107 (0.166)	0.099 (0.163)	−0.192 (0.152)
Muslim	−0.654 (0.321)**	−0.184 (0.261)	0.556 (0.278)**	0.184 (0.252)
Animist and other	−0.512 (0.374)	0.088 (0.267)	0.144 (0.252)	0.292 (0.236)
Gang	0.060 (0.243)	0.285 (0.149)*	0.228 (0.156)	−0.208 (0.133)
Student cycle	−0.091 (0.257)	0.134 (0.162)	−0.229 (0.167)	0.059 (0.145)
Student Section	0.368 (0.287)	0.329 (0.211)	−0.526 (0.219)**	0.301 (0.190)
English subsection	−1.227 (0.464) ***	0.252 (0.318)	0.663 (0.407)	0.325 (0.302)
French-speaking subsection	0.026 (0.294)	0.630 (0.181)***	0.152 (0.182)	−0.782 (0.158)***
Denominational School	0.254 (0.455)	−0.305 (0.284)	0.378 (0.347)	−0.070 (0.260)
Secular School	−0.278 (0.322)	0.070 (0.198)	−0.899 (0.192)***	0.386 (0.166)**
Technical School	0.993 (0.494)**	−0.433 (0.262)*	−0.417 (0.270)	0.458 (0.238)*
General education school	0.670 (0.317)**	0.426 (0.223)*	−0.526 (0.233)**	−0.399 (0.197)**
Single parent	0.905 (0.459)**	−0.098 (0.223)	0.117 (0.217)	−0.218 (0.208)
Divorced Parent	−0.246 (0.233)	0.150 (0.155)	−0.087 (0.164)	−0.222 (0.139)
Security post	−0.042 (0.023)*	−0.006 (0.015)	0.020 (0.015)	0.040 (0.013)***
Year	0.377 (0.296)	−0.450 (0.206)**	1.082 (0.196)***	0.017 (0.183)
First trimester	−0.082 (0.383)	−0.529 (0.233)**	−0.429 (0.239)*	0.949 (0.207)***
Second trimester	−0.282 (0.272)	−0.468 (0.171)***	0.328 (0.170)*	0.291 (0.152)*
Constant	1.486 (0.719)**	0.390 (0.458)	0.594 (0.482)	−0.925 (0.413)**
Observations	478	478	478	478
Wald chi2(76)	238.31***			
Log (pseudo) likelihood	−764.26934			
LR test of rho21 = rho31 = rho41 = rho32 = rho42 = rho43 = 0.000	P-value = 0,0000***			

Source: Based on data from the Cameroon National Police. Notes: ***, ** and * indicate significance at 1%, 5% and 10% respectively. Robust standard errors in parentheses. The reference categories are: Christian (Religion), Bilingual Subsection (Section of the establishment), Public School (Type of establishment), Polytechnical Education (Order of education of the establishment), Parents in a relationship (Marital status of parents), Third trimester (trimester).

5. Discussion

The results of descriptive statistics reveal significant trends in school delinquency, illustrating how school delinquency, illustrating how individual student characteristics strongly influence the manifestation of delinquent behavior, and confirming links with the theories of the economics of crime mobilized. The most frequent offences, such as theft (92.7%) and the use of psychoactive substances (74.1%), reflect material and social needs likely to be rationally evaluated by students according to Becker (1968) theory of rational choice. These behaviors may result from a cost-benefit calculation where immediate gains (stolen objects, effects of substances) outweigh perceived sanctions.

This logic is accentuated by gang affiliation (72.6%), which offers not only protection, but also opportunities to commit crimes while minimizing individual risks. The prevalence of violent behavior (assault and battery at 67.2%, sexual offences at 47.1%) reflects differentiated exposure to institutional incentives and constraints. For example, the significant influence of establishment type ($p < 0.01$ for sexual offences and violence) can be explained by Levitt (1998) incentive theory, which emphasizes the role of rules and disciplinary measures in moderating behavior. Students in public or secular schools, where supervision may be less strict, seem more likely to adopt delinquent behavior, a finding consistent with the dynamics described by this theory.

Ehrlich's time allocation theory (1973b) sheds further light on the relationship between temporal context and delinquent behavior. The concentration of offences in the second term (49.6%) can be explained by an intensification of academic stress or a drop in institutional vigilance in the middle of the year. Statistical analysis, which highlights variables such as school term ($p < 0.01$ for theft and sexual offences), suggests that certain times of the year amplify opportunities to commit offences. The individual profile of offenders—male (85.8%), of puberty age (64.2%), and often from separated or single-parent families (47.3% combined), validates the contributions of de Lochner (2004) human capital theory. Students with particularly vulnerable family or social backgrounds appear less invested in their education and more inclined to adopt short-term behaviors aimed at immediate gratification, to the detriment of investment in their educational future.

Furthermore, the dominance of French-speaking sections (88.9%) and the second cycle (65.5%) in the offenders' profile reflects an institutional segmentation where cultural and structural differences influence behavior. Thus, the results confirm that individual student characteristics, combined with institutional and temporal factors, play a decisive role in the manifestation of offending in the school environment. Economic theories provide a better understanding of these mechanisms, revealing an underlying rationality in the choices made by delinquent students, influenced by their immediate environment and the opportunities it presents. These observations reinforce the hypothesis that individual characteristics are a fundamental cause of school delinquency.

Logistic model analysis enables us to examine the probability of occurrence of

different types of school delinquency as a function of students' individual, institutional and temporal characteristics. The results of the estimated models confirm the importance of individual, school, family, and temporal characteristics in explaining juvenile delinquency in schools in Cameroon. Individual variables, such as gender and age, play a decisive role: boys are 3.859 times more likely to commit sexual offences than girls, while post-pubescent pupils are more likely to steal, but less likely to commit sexual offences. These observations can be explained by the theory rational choice theory (Becker, 1968) and time allocation theory (Ehrlich, 1973b), according to which individuals adapt their behavior according to opportunities and perceived returns. Furthermore, religion also influences delinquent behavior: Muslim students are more likely to commit assaults but less likely to steal than Christian students. This may reflect differences in the social and moral norms inculcated within religious communities, which shape perceptions of the costs and benefits associated with deviant acts.

The school and family environment reinforce these behavioral dynamics. Students from single-parent families, for example, are more likely to commit thefts, highlighting the impact of family instability on deviant behaviors, as supported by human capital theory (Lochner, 2004). Similarly, the type of school attended influences offenses: students in secular private schools are less likely to commit physical assaults, while those enrolled in technical schools are more likely to steal. These results are consistent with incentive theory (Levitt, 1998), which links delinquent choices to the institutional environment and the opportunities it offers. Finally, temporal variations reveal that delinquent behaviors fluctuate according to periods of the school year: offenses related to psychoactive substances decrease in the first and second quarters, while physical assaults increase in the second quarter. These trends show how academic and social context influences behavior, providing a valuable perspective on juvenile delinquency in the Cameroonian context.

The analysis conducted in this essay highlights the influence of individual characteristics of students on the manifestation of delinquency in schools. It mobilizes microeconomic theories such as rational choice theory, incentive theory, time allocation theory and human capital theory. We have demonstrated that delinquent behavior is not a matter of chance, but of rational arbitration influenced by personal, social and economic factors. The empirical results clearly support the hypothesis that individual characteristics of students are a determining cause of school delinquency. Variables such as gender, age, religious background and family structure play a major role in students' propensity to adopt delinquent behavior. For example, boys, post-pubescent students or those from single-parent families are more likely to commit certain types of offenses. In addition, the religious and educational environment also influences these behaviors.

These findings confirm that the dynamics of juvenile delinquency can be understood from a rational and economic approach, where each student responds to the incentives, constraints and opportunities of his immediate environment. However, while this analysis validated the importance of individual characteris-

tics, it did not explore in depth the role of context and school environment. The police data used, while useful for quantifying delinquent acts, did not provide sufficient details on the complex interactions that involve victims within schools. These limitations justify the need for a second essay that specifically addresses this issue. Entitled "Teachers as victims of student delinquency: a contextual or environmental analysis", this next chapter adopts a new, more suitable data source and deepens its contextual analysis. It enriches our understanding of the dynamics of juvenile delinquency while integrating the experiences of victims.

6. Conclusion and Study Implication

With the aim of examining the causes of juvenile delinquency in both public and private schools in Cameroon, this study makes use of an empirical sample size of 478 across Cameroon's schools. By leveraging several analytical strategies, descriptive statistics of mean, standard deviation, and characterizing them over a logistic model and multivariate probability, we found pertinent insights about the causes of students' juvenile delinquencies in Cameroon. Findings show that, male students across Cameroon are more liable to commit sexual offenses compared to female learners. While in terms of religion, Muslims are more prone to fight, injure, and murder compared to animist and Christians. Also, findings show that the francophone system of education learners is more liable to consume psychoactive substances (SPA) compared to the English system of education learners. In terms of the type of school establishment, we found that technical school students are less liable to stealing and psychoactive substance consumption compared to those of the general system of education. Likewise, during the COVID-19, particularly, during the 2021-2022 academic year, the cases of juvenile delinquency increased around fighting, injuries and murder. This could be accustomed to the fact that learners were used to online learning with their gadgets than being in schools and controlling or removing these gadgets from them led to an increase in such actions.

Indeed, juvenile delinquency in school milieus remains an actual aspect of sociologist, psychologist, social science and economics. Drawing from several theoretical underpinning, we have shown how incentive theory (Gaviria & Raphael, 2001; Heller et al., 2017), the social interaction theory (Sampson & Wilson, 2013; Tabifor & Nkongho, 2024; Welsh et al., 2022), the human capital theory (Becker, 1968) influences learners' behaviors and actions in schools within Cameroon. This study draws at the end that juvenile delinquency in schools is a complex and multifactorial phenomenon. Individual characteristics play a fundamental role, but it is essential to consider the environment, institutional, and social context in which these behaviors are manifested. It is therefore imperative to adopt a global approach that integrates individual, social, and contextual factors to better prevent and treat delinquency in schools.

6.1. Practical Implications

Practically, this study has demonstrated that where security post (police post)

is found around schools, the rate of stealing reduces while the level of sexual offenses instead increases. This practically means that the emotional learning aspect of learners influences their actions and thus deviant behaviors (Becker, 1968; Chetty et al., 2020; Heller et al., 2017; Lilly et al., 2013). Equally, this study calls to the attention of all stakeholders involved in the educational sphere of learners, parents, guardians, teachers, schools' administrators, police force, and policy makers to re-enforce strategies that can remedy juvenile actions in our school milieus.

Also, an integrated prevention policy should be implemented that focuses on three complementary areas: individual interventions, school environment improvements, and collaboration with institutional actors. On an individual level, tailored programs should be developed to support at-risk students, emphasizing personal development, emotional management, and violence prevention. These programs should cater to the specific needs of different student demographics, particularly targeting male students who exhibit higher rates of delinquency.

Moreover, enhancing the school environment is crucial. Schools should foster a positive atmosphere by implementing comprehensive anti-bullying policies, promoting peer support networks, and ensuring access to counseling services. Additionally, the presence of security personnel should be balanced with educational initiatives that address the root causes of delinquency, rather than solely focusing on punitive measures. Stakeholders, including parents, teachers, and policymakers, must work collaboratively to create safe and supportive school environments while addressing the challenges posed by external influences, such as the impact of online learning during the COVID-19 pandemic. Finally, ongoing research and data collection should be prioritized to continually assess the effectiveness of these interventions and adapt strategies as necessary, ensuring a proactive approach to reducing juvenile delinquency in schools.

6.2. Limitations and Future Perspectives

Future research on juvenile delinquency in schools should focus on longitudinal studies to track behavioral development over time, helping to identify how individual and environmental factors influence delinquency throughout various educational stages. Comparative analyses between different educational systems, such as the francophone and anglophone systems in Cameroon, could provide insights into specific risk factors and effective interventions. Additionally, examining the long-term impacts of increased screen time and reduced in-person interactions during the COVID-19 pandemic is crucial for understanding how technology influences student behavior and social dynamics.

Moreover, there is a need for more in-depth studies on the cultural and socioeconomic factors that affect delinquent behavior, including family structure and community resources. Evaluating the efficacy of targeted interventions—like emotional management programs and peer mentoring—can help refine strategies for reducing delinquency. Incorporating perspectives from a broader range of stake-

holders, including parents and community leaders, along with addressing mental health considerations, will create a comprehensive framework for understanding and mitigating juvenile delinquency in schools. Nevertheless, mixed method studies will be more beneficial as the voices of students, school administrators, parents and stakeholders need to be heard and scholarly documented. In a nutshell, our model captures a range of individual, school-related, family-related, and time-related characteristics, yet they may not encompass all potential confounding variables. For instance, socioeconomic status, mental health issues, and exposure to violence or crime outside of school are significant factors that can influence delinquency but may not be included in the analysis. These unmeasured variables could skew the results, making it appear that certain characteristics have a stronger or weaker effect than they do. Just to as well indicate that both national and international organizations are called upon to invest funds in the study context to fight against such juvenile acts within school milieus—the Education Endowment Foundation (EEF), Gates Foundation, UNICEF, UNISCO, Effective Basic Services (eBASE) Africa, the International Network For Education in Emergencies (INEE), among others needs to support the fight for decent and quality education for Cameroon students and youths in the Global South in general—hence, adhering to sustainable development goal number 4.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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