Corporal Punishment and Learning Outcomes: Evidence from Primary Schools in Uganda.

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Abstract

This paper examines the impact of corporal punishment on learning outcomes in primary schools in Uganda. Using nationally representative pupil and school-level data linked to household information, I exploit exogenous variation in awareness campaigns as an instrument for corporal punishment to identify causal effects. On average, exposure to corporal punishment reduces the probability of being proficient in English by 6.6 percentage points and in mathematics by 7.7 percentage points. Moreover, the negative effect of corporal punishment is strongest in communities in which corporal punishment is socially disapproved, while it is comparatively smaller in areas in which corporal punishment is normalized. These findings underscore the need to pair enforcement with interventions that shift social norms and promote non-violent discipline in schools.

Key words: Corporal punishment, learning outcomes, educational policy, primary school

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I. Introduction

Schools are meant to be safe and transformative environments that promote children's learning and development (UNICEF, 2021). However, across Africa, corporal punishment remains widespread in schools despite increasing legal prohibitions against the practice. Estimates show that approximately 70% of children in sub-Saharan Africa experience corporal punishment during their school years, making the region one of the most affected globally (UNESCO & UNICEF, 2019). In Uganda, 70% of primary schools report using corporal punishment as a disciplinary measure (Uwezo Uganda, 2024). Children who experience corporal punishment in school are more likely to miss school due to injuries and fear (Awoniyi, 2021 ; World Health Organization, 2025) but also suffer mental health issues such as aggressive behaviour which can persist even into adulthood (Visser, Van der Put & Assink, 2022; Gershoff, Sattler & Holden, 2019).

The United Nations Committee on the Rights of the Child defines corporal punishment as any physical punishment intended to cause bodily pain for the purpose of correcting a child's behaviour (United Nations Committee on the Rights of the Child, 2007). Corporal punishment manifests in different forms such as caning, paddles, excessive exercise drills, or requiring students to assume painful body positions in homes, schools, or in the court system (Gershoff & Font, 2016). In a school setting, corporal punishment was mostly perpetuated by teachers who considered it an effective measure for correcting misbehaviour (Oganda Portela & Pells, 2015).

A growing literature has examined the effects of corporal punishment on children's outcomes, with mixed evidence across contexts. Several studies have documented negative consequences for academic performance, school attendance, and socio-emotional development. For instance, using longitudinal data from the Young Lives study in the state of Andhra Pradesh in South India, Maiti (2021) found that exposure to physical violence reduced early grade reading and mathematics performance. Similarly, Barker-Henningham et al (2009) showed that violence in twenty-four schools in Kingston, Jamaica, undermined children's socio-emotional and learning outcomes. Oganda Portela and Pells (2015) further documented both short- and long-term negative effects of corporal punishment on well-being among children aged 8-12 across Ethiopia, Vietnam, and Peru. Evidence from three

states in Northern Nigeria also indicated that exposure to household violence among children and youth aged 13-24 was associated with lower school attendance, which in turn translated into poorer literacy and numeracy skills.

In high-income settings, MacKenzie et al. (2013) found that frequent spanking at age five predicts lower vocabulary scores at age nine. On the other hand, some studies suggest that corporal punishment may, in certain contexts, induce short-term compliance or improve classroom order (Gershoff, 2010; Stewart-Tufescu, 2023). Despite this mixed evidence, there remains limited rigorous empirical evidence from low-income, high-corporal-punishment-prevalence settings in which institutional conditions and norms around discipline differ substantially.

For example, Psaki, Mensch, and Soler-Hampejsek (2017) found that corporal punishment reduced absenteeism and improved mathematics scores among girls in rural Malawi, whereas Devries et al. (2014) showed that short-term benefits for boys and negative effects for girls in Uganda. However, causal evidence on corporal punishment effects on learning in low-income and high-prevalence settings based on nationally representative data remains limited, constraining the generalizability of existing findings. Moreover, while prior research shows that negative social norms contribute to the persistence of corporal punishment (Lokot et al., 2020), far less is known about how community-level norms shape the impact of corporal punishment on learning outcomes.

Understanding how corporal punishment interacts with local social norms is critical for explaining heterogeneity in its effects on learning and informing targeted interventions to address school violence. Evidence shows that areas with strong negative social norms in communities often override formal policies and legal prohibitions (Heckert et al., 2025; Cislaghi & Heise, 2019; Thornberg & Jungert, 2013). Interventions have been most effective when communities collectively reject the practice and simultaneously employ multi-level strategies that combine legal reform with community engagement, teacher training, and norm-focused programs, achieving larger and more sustained reductions in violence than legal bans alone (Jewkes, Flood & Lang, 2015).

Uganda provides a compelling context in which to study the impact of corporal punishment on learning outcomes. Despite the comprehensive ban under the Ugandan

Children Act of 2016, corporal punishment remains widespread, with rates[1] well above regional and global averages (Smarrelli et al., 2023; UNICEF, 2023a), reflecting deeply entrenched social norms that frame corporal punishment as an effective disciplinary tool (Ministry of Education and Sports, 2015); Ogwang, 2023; Matovu, 2024). The 2022 Uganda Demographic and Health Survey reports that 53% of adults approve of beating as an effective way to raise or educate a child (Uganda Bureau of Statistics, 2023). Moreover, Uganda's cultural and linguistic diversity, encompassing fifty-six ethnic groups, generates substantial variation in community norms, providing a unique setting to study how differences in social norms interact with corporal punishment to shape educational outcomes.

This research addresses two critical research questions: i) How does corporal punishment affect learning outcomes as measured by numeracy and reading abilities of children? ii) How do social norms in communities in which schools were located reinforce or mitigate the effect of corporal punishment on learning outcomes? To address these questions, I analyzed the two rounds of the Uwezo national representative survey data in 2016 and 2024. The Uwezo survey tracked children's learning progress in English literacy and mathematics and captured their household and school characteristics. To estimate the causal effect of corporal punishment on learning outcomes, I employed a two-stage least squares instrumental variable approach, exploiting variation in exposure to community-based anti-child-violence campaigns as an instrument for corporal punishment. This strategy leveraged exogenous differences in campaign intensity across communities to isolate variation in corporal punishment that was plausibly unrelated to other determinants of educational outcomes.

The analysis shows that exposure to corporal punishment was highly prevalent in Ugandan schools, with 65% of schools reporting it as a disciplinary measure. I found that exposure to corporal punishment led to modest declines in academic performance; reduced the probability of mathematics proficiency by eight percentage points, while the probability of proficiency in English scores declined by 6.7 percentage points on average. These effects were further moderated by local social norms regarding corporal punishment. More

[1] Data show that the prevalence of corporal punishment in the previous twelve months was highest in Uganda (39% of boys and 31% of girls), compared to Malawi (30% each), Nigeria (17% of boys and 23% of girls), Zambia (9% of boys and 10% of girls), and Zimbabwe (3% of boys and 5% of girls).

specifically, negative association between corporal punishment and test scores was smaller in communities in which corporal punishment was socially accepted compared to areas in which it was less tolerated. I also documented gender-specific effects, which show that corporal punishment reduced the likelihood of proficiency in mathematics by nine percentage points relative to boys (5.7 percentage points), whereas likelihood of decline in English proficiency scores was similar across genders (seven percentage points).

This research makes two contributions to the literature. First, it provides context-specific, nationally representative evidence on corporal punishment and learning outcomes from Uganda, a low-income country with one of the highest corporal punishment rates globally. Causal evidence from settings such as India (Maiti, 2021) and Bangladesh (Islam, Hossain & Haque, 2025) was often based on samples drawn from specific states or districts, which may not have fully captured broader variations across regions and communities. Moreover, these contexts tend to exhibit lower rates of corporal punishment compared to Uganda, where the practice remains widespread. This limits the external validity of findings and constrains the examination of heterogeneity in the effects of corporal punishment across high-prevalence environments. Multi-country panels like the Young Lives study have provided cross-national comparisons but have offered limited within-country coverage; where within-country information is provided, it is often taken from settings in which the prevalence of corporal punishment is moderate (Jones & Pells, 2016). Localized studies in Ghana, Kenya, and Somalia offer valuable contextual insights but cannot capture national variation (e.g., Abdi-Idris, 2023). This analysis was based on a nationally representative survey that covered multiple schools and regions and therefore allowed analysis of variations in both exposure to corporal punishment and in community and school settings.

Second, I report here the first causal evidence that community-level social norms moderate the impact of corporal punishment on learning—a finding with direct implications for evaluating the adequacy of legal bans. Prior work has documented that corporal punishment persists due to entrenched and gendered norms, with boys punished for aggression and girls for perceived submission (Legros & Cislaghi, 2019; Hart, 2021; Barker & Nascimento, 2010; Ministry of Education and Sports, 2015). Studies also highlight that

teachers view corporal punishment as a means to earn respect in the learning environment (Wamimbi, 2018).

II. An Overview of Uganda's Primary Education System

The Ugandan education system follows a four-tier structure: pre-primary (three years), primary (seven years), secondary (six years), and tertiary education (three to five years). However, pre-primary education is not mandatory and is largely provided by the private sector. The primary school level is divided into three stages: lower primary (Grades 1-3), a transition year (Grade 4), and upper primary (Grades 5-7). The standard entry age is six years, and children typically complete primary education by age 13. Completion of Grade 7 is followed by the Primary Leaving Examination, which determines eligibility for secondary school.

After Uganda introduced Universal Primary Education in 1997, enrolment grew from 3,000,000 to 5,300,000 pupils, while the average Pupil-Teacher Ratio nearly doubled from 38:1 in 1996 to 60:1 in 1998 (World Bank Group, 2024). While the new policy successfully expanded enrolment, evidence shows that it came at the expense of quality standards. For instance, despite a sharp increase in public spending on primary education following the introduction of Universal Primary Education, from 40% to 65% of the education budget between 1996 and 2004, schools continued to face resource shortages, overcrowded classrooms, and poor learning conditions. To address teacher shortages, the government recruited contract and volunteer teachers, many of whom lacked formal training in classroom management and child development (UNESCO, 2020). In response to rising dropout rates, an automatic promotion policy was introduced. While the policy increased grade progression, it also advanced underprepared learners, contributing to persistent learning gaps, low student motivation, and weak learning outcomes (Ahmed & Mihiretie, 2015).

The Uwezo National Learning Assessment showed that only 23% of Grade 7 pupils could read a Primary Two-level story in English, highlighting persistent literacy deficits (Uwezo Uganda, 2024). Similarly, the National Assessment of Progress in Education by the Ministry

of Education and Sports reported that almost half (47.3%) of Grade 3 pupils lacked proficiency in foundational literacy and numeracy (Ministry of Education and Sports, 2025). These findings suggest that learning challenges emerge early and persist throughout the primary cycle. International comparisons further highlight these gaps. While Ugandan children can expect to complete seven years of schooling by age 18, the quality-adjusted learning they attain is equivalent to only 4.5 years, a deficit of 2.5 years (World Bank Group, 2019). Moreover, learning gaps were larger across regions and along the rural-urban divide, reflecting disparities in teacher quality, school resources, and broader socioeconomic conditions (Mugume & Bulime, 2024; Kakuba et al., 2021).

Beyond resource constraints, the Ugandan school environment and disciplinary practices also shape students' learning experiences. In many schools, discipline is enforced through punitive approaches that can affect students' engagement, attendance, and psychological well-being. One prominent example is school violence, particularly corporal punishment. Corporal punishment is legally prohibited in schools under the Children Act (1997) and guidelines from the Ministry of Education and Sports. In addition, Uganda is a signatory to international child-protection frameworks, such as the UN Convention on the Rights of the Child. More recently, the amended Children Act of 2016 explicitly bans corporal punishment in all schools.

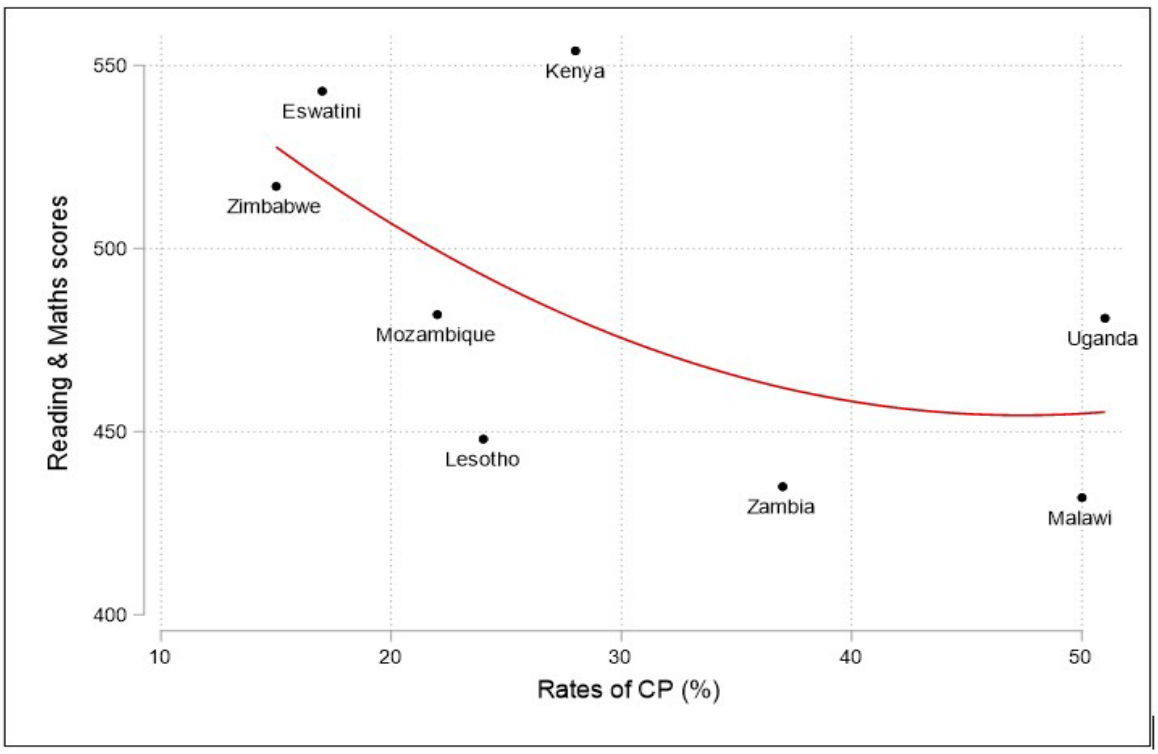
Despite this formal prohibition, the practice has remained widespread, largely reflecting weak enforcement by authorities. While corporal punishment is outlawed in schools, the law still permitted a "reasonable" level of corporal punishment in the home under the doctrine of reasonable chastisement. This creates a policy contradiction whereby a practice criminalized in schools remains legally acceptable in households, reinforcing social norms that view corporal punishment as a legitimate disciplinary method and undermining the intended impact of the school ban.

The Uwezo survey reports that 70% of primary schools still practice corporal punishment as a disciplinary measure (Uwezo Uganda, 2024). Teachers may view corporal punishment as a disciplinary tool and as a method to enforce academic achievement, particularly when preparing students for high-stakes exams such as the Primary Leaving Examination (Jones & Pells, 2016; Vanner, 2018). Poor student performance can result in

teachers being transferred or dismissed.

The Uganda Violence Against Children Survey by the Ministry of Gender, Labour, and Social Development (2018) reported that schools were the second most common setting for physical violence after homes, with 36% of girls and 43% of boys reporting that they had experienced physical violence at school, most often administered by teachers. Figure 1 illustrates the negative link between corporal punishment prevalence and learning outcomes. Across Sub-Saharan Africa, countries with higher rates of corporal punishment tend to have lower literacy and numeracy scores.

Figure 1: The Prevalence of Physical Violence among Children and Learning Outcomes in Selected SSA countries



Source: The corporal punishment prevalence data was obtained from several National Violence Against Children surveys while performance data in reading and mathematics were from Southern and Eastern Africa Consortium for Monitoring Educational Quality assessments, which provide learning progress statistics across thirteen African countries. The scores were scaled to have an international average value of 500 and a standard deviation of 100 points. This means that 68% of scores can be expected to fall within 100 points of 500, and 95% of scores can be expected to fall within 200 points of 500. Reading ability level benchmarks established by the Consortium offer some understanding of the ability levels associated with different score levels.

III. Conceptual Framework

I adopted the education-production-function framework (Hanushek, 1995), which conceptualizes learning as the cumulative outcome of school, teacher, family, and child-specific inputs. Within this framework, corporal punishment represents a negative school-level input that reduced the efficiency with which other educational inputs are transformed into learning. Exposure to physical punishment lowers children's motivation, attention, and emotional security, thereby diminishing the effectiveness of complementary inputs such as teacher effort and instructional time.

The literature identifies several key mechanisms through which corporal punishment undermines child development and learning. Broadly, these mechanisms operate through three interrelated domains: cognitive processes, socio-emotional development, and school participation. Corporal punishment weakens learning outcomes by disrupting each of these channels, highlighting its role as a harmful and inefficient input in the educational production function. First, corporal punishment impairs cognitive outcomes by reducing active classroom participation, inhibiting social learning, and eroding the teacher-student relationship. These effects tend to be stronger for language-related domains, such as verbal and reading comprehension, in which classroom engagement and emotional safety are critical, whereas numeracy appears relatively less sensitive (Lloyd, 2018; Gershoff, 2017; Straus, 2009; Maiti, 2021).

Second, corporal punishment undermines socio-emotional and behavioral development by increasing stress, anxiety, aggression, and depressive symptoms. These psychological responses reduce attention, motivation, and self-regulation, thereby constraining learning productivity. The effects are especially pronounced among girls, children with disabilities, and those living with HIV/AIDS, who were more vulnerable to internalized stress (Cooley-Strickland et al., 2009; Stentiford, Koutsouris & Allan, 2021; Burani et al., 2021). Third, corporal punishment indirectly reduced learning through its impact on attendance and persistence. By contributing to absenteeism, school transfers, repetition, and dropout, corporal punishment disrupts continuity in learning and weakens peer and teacher networks essential for progress (Carson, Esbensen & Taylor, 2013).

3.1 Data and Summary Statistics

I utilised a unique, nationally representative dataset from the Uwezo survey, which captured educational data from a considerably large sample of schools in 2010-2024. Using a probability-proportional-to-size technique, the survey followed a multi-stage sampling approach in thirty villages selected within each district. Consequently, twenty households were selected based on the systematic sampling technique from each village, and each child within the target population in a household was surveyed and tested at the child's home, regardless of whether the child was enrolled in school or not.

For this study, I used two repeated cross-sectional rounds of the Uwezo survey 2016 and 2024 because the other years of the survey did not capture information on corporal punishment, which was the main independent variable of interest. The uniqueness of this survey was that it allowed school and children's household data to be linked.

At school, the head teacher or deputy Head Teacher responded to questions regarding school enrollment, school structures (number of classrooms, toilets) number of teachers by sex and their level of training, health information (whether children had first aid facilities, feeding programs, etc.), and disciplining of children. The household questionnaire was answered by the parents and covered aspects such as household size, parents' education level, and the schooling status of the children aged 6-16, among others. The survey also captured aspects of parental discipline of children as well as parents' perceptions of child discipline.

Children in the survey were administered standardized tests to assess their literacy and numeracy. The children were also interviewed in a household setting to reduce bias from teachers. It was important to note that this analysis included only children currently enrolled in the surveyed schools; children who had dropped out were excluded. Although the survey employed a multi-stage sampling design, sampling weights were not applied, as unweighted estimates remained consistent and may have been more efficient than weighted estimates in causal analysis, particularly in the presence of clustered error structures (Solon, Haider & Wooldridge, 2015).

3.2 Corporal Punishment

Information on corporal punishment was captured at two levels during the survey: at school and household levels. At the school level, a Head Teacher at the school was a key respondent to school-level questions regarding their school. The questions include: how do teachers discipline children? This question has options that include (i) caning, slapping, or hitting them; (ii) suspending them; (iii) talking to them; (iv) giving them work as a punishment; (v) insulting them; (vi) demanding an apology from them; (vii) sending them to the disciplinary committee; (viii) other options not mentioned above. Based on the definition of corporal punishment as physical punishment (United Nations Committee on the Rights of the Child, 2007), I considered corporal punishments to be Option (i), to which I assigned code 1 "corporal punishment," while other options were assigned code 0 "no corporal punishment."[2]

3.3 Learning Outcomes

Progress in learning among students interviewed in the Uwezo survey was captured by asking children to assess basic learning questions in numeracy and literacy. Specifically, children were assessed based on a Grade-2-level curriculum that coincided with the age at which children were expected to have mastered basic literacy and numeracy skills.

The questions covered three areas of learning: literacy, which involved a child's ability to comprehend a story in English and the local language; numeracy, which involved the ability to answer questions on numerals from (0-99), matching, addition, subtraction, division, and multiplication, and ethnomathematics, which involved questions on the relationship between mathematics and culture and two bonus questions. At the end of the standardized test, the marks were categorised as follows: For English literacy, grading was five ordinal rankings: (i) non-reader, (ii) letter reader, (iii) word reader, (iv) paragraph reader, and (v) story reader.

[2] Four questions specifically focused on parental discipline of children were posed at the household level, with parents as the primary respondents. The structured responses included options such as caning, denying meals, talking to them, withholding things they love, doing nothing, resorting to abuse, using hurtful names, suspending them from school, and providing counseling. For purposes of this study, which aims to examine the effect of corporal punishment in schools on learning outcomes, I used data solely from the school-level survey to capture instances of corporal punishment in that setting.

Children were considered to have passed the literacy tests if they satisfactorily answered questions from all five categories.

For numeracy, the survey ranks the participants in these categories; (i) non-numerate, (ii) matching, (iii) numerate (10-99), (iv) subtraction, (v) addition, (vi) multiplication, and (vii) division. In ethnomathematics, the survey ranked children in two categories: "can do," implying the ability to relate mathematics to culture, and "cannot do," meaning they could not relate mathematics to culture. Based on the above indicators, the survey accorded percentage marks in literacy and numeracy. Overall, children was considered proficient in numeracy if they were able to satisfactorily answer questions in all six categories.

3.4 The Social Norms Index on Corporal Punishment

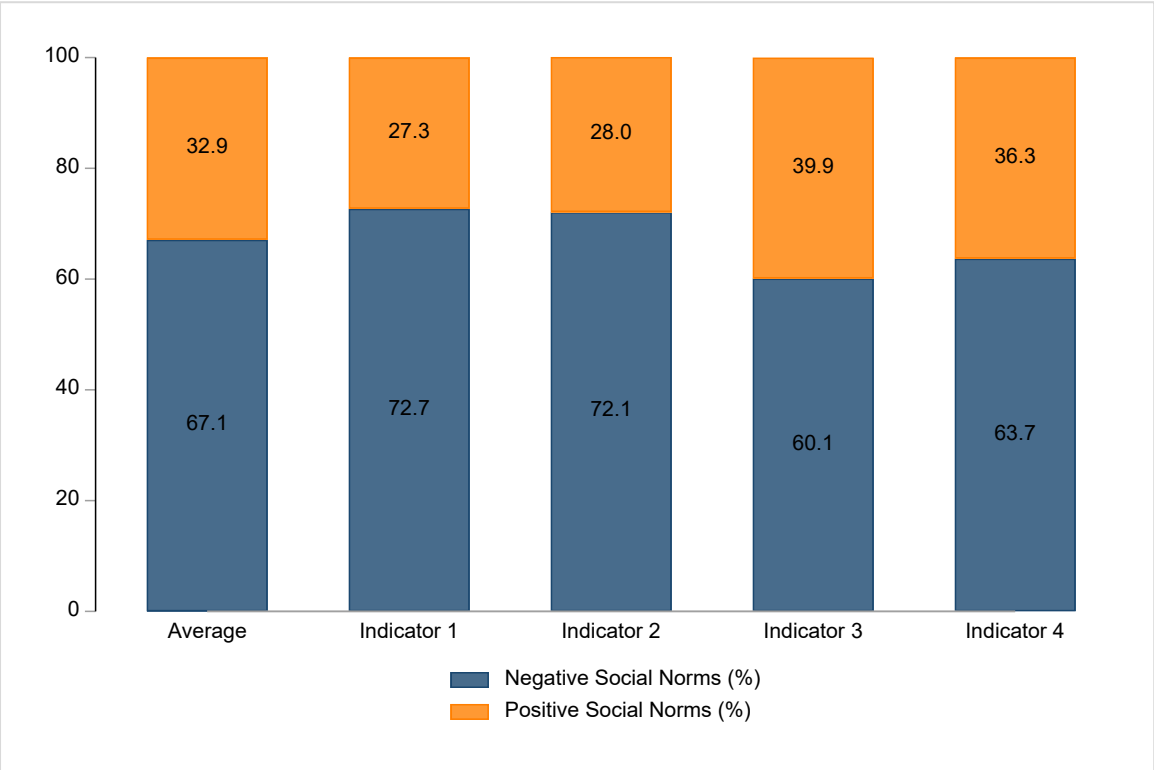
Evidence shows that schools are microcosms of society that can either mirror and reinforce or challenge gender-discriminatory attitudes and social norms (Hart, 2021; Carrell & Hoekstra, 2010). As a result, attitudes and beliefs held within households often carry over into schools through both teachers and students, including beliefs that either support or oppose corporal punishment. Accordingly, I considered questions (indicators) from the household questionnaire that reflected parents' perceptions regarding the discipline of children. These included (i) there are times when parents need to beat their children to make them listen; (ii) when a child misbehaves, the best response is to talk to that child; (iii) sometimes teachers must beat children to make them learn; (iv) it is important for students to fear teachers, and (v) schools must never allow teachers to beat their children.

Responses to these questions (indicators) were measured using a Likert scale: strongly disagree, disagree, agree, and strongly agree. Following the approach of constructing the Social Norms Index based the United Nations Development Programme (2023), I constructed a corporal punishment Social Norms Index in which the responses "strongly agree" and "agree" to questions (i) and (iii) indicated negative social norms (i.e., acceptance of corporal punishment) and choices "strongly disagree" and "disagree" represented positive social norms (i.e., lack of acceptance of corporal punishment), as did the responses "strongly agree" and "agree" to questions (ii) and (iv). On the contrary, choices "strongly disagree" and

"disagree" for questions (ii) and (iv) represented negative social norms. According to the United Nations Development Programme (2023) definition, the corporal punishment Social Norms Index was the percentage of parent/community respondents with at least one negative bias among the five indicators.

To obtain an average estimate that summarized the extent of social norms from the respondents based on the choices, the approach first coded the Social Norms Index as a binary (1=negative social norms and 0=positive social norms). To obtain the total Social Norms Index for each observation, I averaged, ending up with an index whose values ranged between 0-1 (but could also be expressed as a percentage). For example, the higher the index, the more acceptable corporal punishment was (i.e., evidence of negative social norms), while the lower the index, the less acceptable corporal punishment was (i.e., evidence of positive social norms). Based on this definition, the Social Norms Index on corporal punishment is 0.671 (67.1%) on average (Figure 2). This is consistent with the findings of the Uganda Demographic and Health Survey, which shows that 60% of the adult Ugandans supported the use of corporal punishment in instilling discipline among children (Uganda Bureau of Statistics, 2023). Consequently, I constructed village-level Social Norms Index as the arithmetic mean of individual Social Norms Index scores within each village, using all individual interviews conducted in each enumeration area.

Figure 2: Social Norms Index Distributions Based on Survey Questions



Source: Author's computation based on the United Nations Development Programme (2023), the 2016 and 2024 Uwezo surveys, and Mukhopadhyay, Rivera, and Tapia (2019) on the measurement of social norms. Description: Indicator 1: There are times when parents need to beat their children to make them listen. Indicator 2: When a child misbehaves, the best response is to talk to that child. Indicator 3: Sometimes teachers must beat children to make them learn. Indicator 4: Schools must never allow teachers to hit or cane students for any reason.

3.5 Covariates

Past research indicates that individual, household, and school factors influence both learning outcomes and disciplinary practices. As such, omitting these from the analysis may have biased estimates of the effects of corporal punishment. Accordingly, I included these control variables, as highlighted in literature as key determinants of children's academic performance, as summarized in Appendix Table A1.

At the individual level, I controlled for the child's sex because gender differences in cognitive development, classroom participation, and teacher expectations influence learning outcomes, with boys and girls performing differently across subjects in low-income settings (Barker & Nascimento, 2010; Oganda Portela & Pells, 2015). The place of residence (rural vs.

urban) was included because rural children typically face structural disadvantages such as poorer school infrastructure, longer travel distances, and fewer learning resources that translate into lower learning outcomes.

At the school level, I controlled for Pupil-Teacher Ratio, Pupil-Classroom Ratio, and the proportion of teachers who were women. A large body of literature has shown that lower Pupil-Teacher Ratios allow teachers to provide more individualized attention, manage classrooms effectively, and deliver higher-quality instruction (Glewwe et al., 2011; Duflo, Dupas & Kremer, 2015; Hanushek., 2010). Similarly, lower Pupil-Classroom Ratio reduces classroom congestion, enhances student engagement, and facilitates interactive teaching, which positively affects learning outcomes (UNESCO, 2019; World Bank, 2018). Relatedly, the proportion of women teachers as captured by the Female Teacher Ratio is included because a higher share of female teachers fosters more supportive classroom environments, improves student-teacher interactions, and is particularly beneficial for younger learners and girls (Dee, 2007; Hart, 2021). Controlling for these variables ensures that differences in school quality, classroom conditions, and teacher composition were accounted for, reducing potential confounding factors.

IV. Summary Statistics

Table 1 presents summary statistics on various information variables. The results show that, on average, about 65% of schools reported the use of corporal punishment as a form of discipline. A gendered analysis in Appendix Table A2 shows that boys were somewhat more likely to report having experienced corporal punishment (64.4%) compared to girls (63.9%). This evidence may indicate that boys experience more corporal punishment than girls to address their perceived "stubbornness" and involvement in casual fighting in class as suggested in studies by Oganda-Portela and Pells (2015) and Barker and Nascimento (2010).

Regarding academic performance, only 31% of the children demonstrated proficiency in numeracy, compared to 20% in literacy. These results indicate that the majority of students were falling below the minimum expected learning standards. Regardless of the gender of

the school children, parents supported the use of corporal punishment as a way of promoting morals and learning. Specifically, about 78% of the boys' parents and 77% of the girls' parents believed corporal punishment was justified. Most children in the survey were in Grades 4 or below because the Uwezo survey was largely focused on early learning levels of primary level. The results also show that most Head Teachers were men (78%).

Table 1: Summary Statistics

Variables	N	Mean	SD	Min	Max
Corporal punishment	2,492	0.65	0.48	0	1
Pupil-Classroom Ratio (Pupil-Classroom Ratio)	2,492	102.3	88.35	0	1,218
Pupil-Teacher Ratio (Pupil-Teacher Ratio)	2,492	55.3	27.16	0	726
Head Teacher = Woman	2,492	0.22	0.41	0	1
Ratio of Women Teachers	2,492	0.37	0.20	0	10
Government school	2,492	0.94	0.24	0	1
Private school	2,492	0.05	0.22	0	1
Community school	2,492	0.01	0.11	0	1
Individual level variables					
Mathematics proficiency	36,434	0.31	0.46	0	1
English Proficiency	36,434	0.20	0.40	0	1
Age of the child	36,434	10.55	2.88	5	16
School grade	36,434	3.30	1.79	1	7
Sex (Male=1)	36,434	0.50	0.50	0	1
Urban	36,434	0.09	0.28	0	1
Asset Index	36, 434	0.43	0.21	0	1
Social Norms Index (Social Norms Index)	36,434	0.64	0.26	0	1
Disability status	36,201	0.07	0.25	0	1
School Attendance (Last week)	35,544	0.79	0.41	0	1
Awareness campaign	36,434	0.39	0.49	0	1

Source: Author's computations based on the Uwezo survey.

Figure 3 presents average mathematics and English scores by gender and exposure to corporal punishment, with error bars indicating confidence intervals. Panel A shows that, for both girls and boys, learners not exposed to corporal punishment achieved higher average mathematics scores compared to their counterpart schools in which corporal punishment was practiced. Boys exhibited slightly higher mathematics scores than girls within each exposure category, although the gaps were relatively small. Panel B reveals a similar pattern for English scores. Both boys and girls in non-corporal-punishment environments outperformed those exposed to corporal punishment, with a somewhat more pronounced gap among boys. Overall, the data suggest a negative association between exposure to corporal punishment and learning outcomes in both mathematics and English, with relatively similar patterns across genders.

Figure 3a: Exposure to Corporal Punishment and Mathematics Scores by Gender (Panel A)

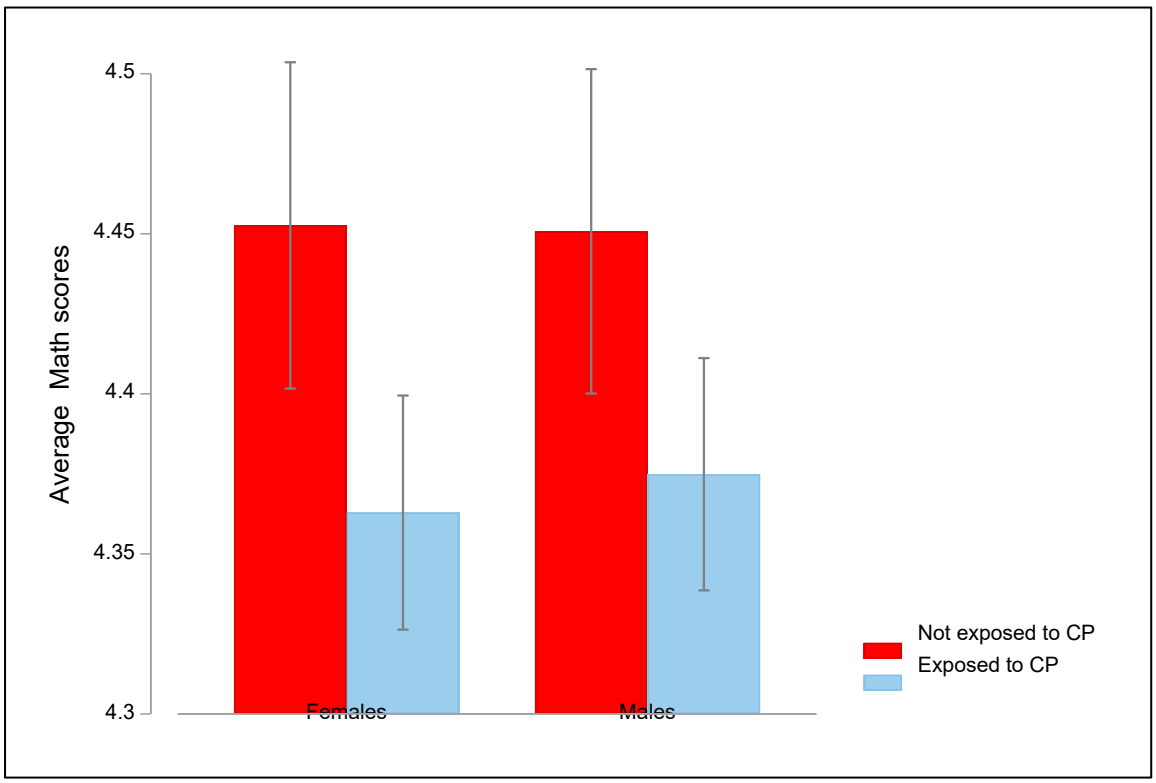
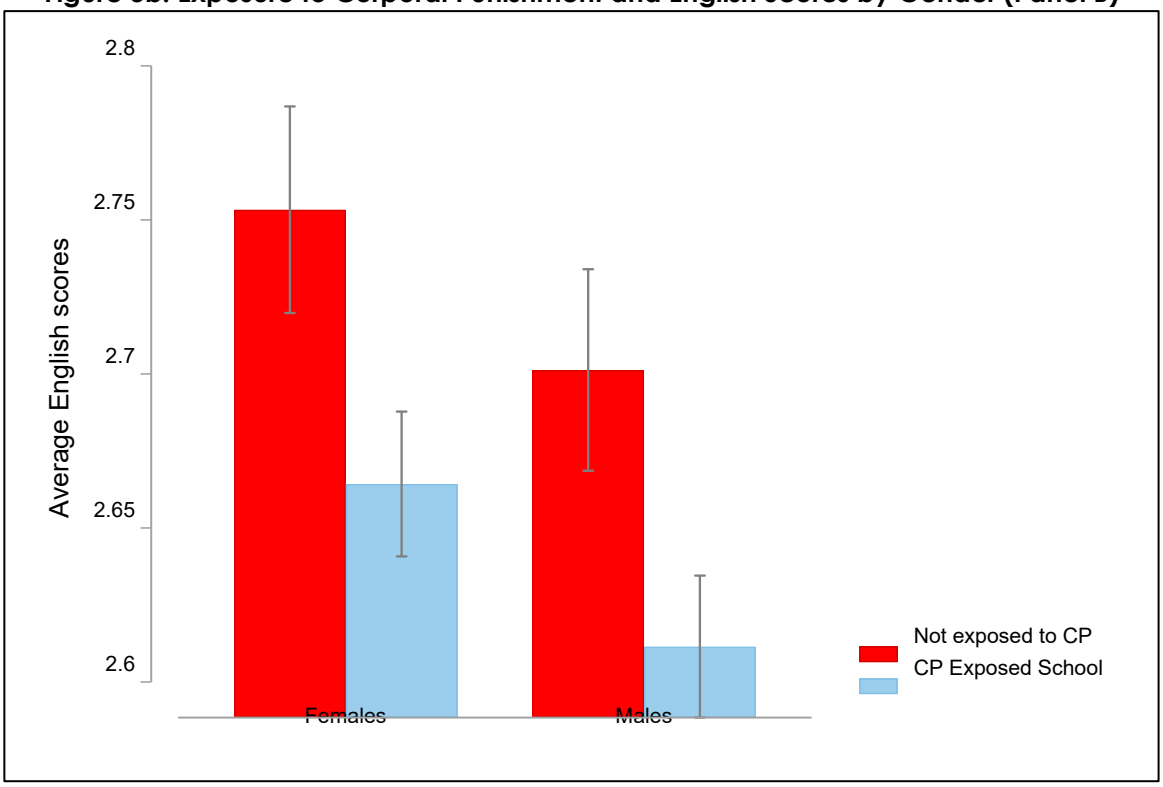


Figure 3b: Exposure to Corporal Punishment and English Scores by Gender (Panel B)



Note: Average mathematics and English scores were computed from ordinal proficiency categories. English literacy was ranked from non-reader to story reader, while numeracy was ranked from non-numerate to division. Higher values indicate higher proficiency in a subject.

Table 2 shows that boys were more likely to experience corporal punishments than were girls. This may be largely because boys tend to be involved in casual fights (Oganda Portela & Pells, 2015; Barker & Nascimento, 2010). Girls were punished by controlling their behaviour, encouraging submission and timidity, and reinforcing traditional gender roles (Barker & Nascimento, 2010; Hart, 2021).

Schools in the Northern region reported the highest level of corporal punishment (71.5%) compared to other regions. These disparities were largely attributed to the decade-long impact of war and violence under the Lord's Resistance Army in the North, which disrupted education in schools and communities, leading to the normalization of violence in these settings (Kazibwe, 2023). Also, teachers in Northern Uganda, if they can't easily control their tempers during class instruction, may unintentionally transfer post-war conflict trauma to children in the classroom.

With respect to the types of school, the results show that community schools reported the highest rates of corporal punishment (82.5%), compared to private schools (64.8%) and government schools (63.8%). The persistence of corporal punishment in community schools could be attributed to limited adherence to government regulations on school discipline, which creates room for discretionary and informal disciplinary practices. On the other hand, government schools tended to enforce stricter compliance with the 2016 ban on corporal punishment and hence reported lower rates of corporal punishment. The analysis also shows that schools in which men served as head-teachers were more likely to report the use of corporal punishment than those headed by females. This finding could reflect a gendered pattern in which men in school leadership positions were more inclined toward punitive and authoritarian discipline while women leaders tended to favor dialogue-based, non-violent approaches.

Table 2: Prevalence of Corporal Punishment across Socioeconomic Characteristics

Variable	Category	Value
Region	Central	54.4
	East	64.8
	North	71.5
	West	57.7
Sex of the child	Boys	64.5
	Girls	63.9
School type	Government	63.8
	Private	64.8
	Community	82.5
Sex of the Head Teacher	Women	67.1
	Men	67.6
Observations	(N)	27,192

Source: Author's computations based on the Uwezo survey.

V. Empirical Strategy

To examine the relationship between corporal punishment exposure and learning outcomes of the children, I estimated the following relationship:

$$Y_{ij} = \alpha_0 + \gamma CP_{ij} + \delta_0 X_{ij} + \varepsilon_{0i} \quad (1)$$

where Y_{ij} is a binary outcome that captures whether child i in school j is proficient in mathematics or English, CP is a binary variable that shows whether the school j where child i attends uses corporal punishment as a disciplinary measure or not; X is a vector of child, school and household level controls and ε_i is the unobserved individual error term. Equation (1) is estimated using a linear probability model. The key parameter of interest in the equation (1) is γ, the coefficient of CP. This provides insight into the relationship between exposure to corporal punishment and learning outcomes.

However, identifying the precise effect of corporal punishment was challenging because the use of corporal punishment was not random and was subject to several sources of bias. First, selection bias arises because children with lower academic ability or perceived misbehaviour were more likely to be subjected to corporal punishment than their better-performing peers. Devries et al. (2014) reported that nearly 90% of teachers justified using corporal punishment as a means of disciplining pupils they considered "stubborn" or "weak"

academically. Similarly, some parents in Uganda preferred strict discipline and deliberately enrolled their children in schools in which corporal punishment was practised, which may, in turn, have influenced academic outcomes (Naker, 2005; Uwezo Uganda, 2018; Gershoff, 2017).

Second, even after controlling several factors, unobserved household and community-level factors may still confound the relationship between corporal punishment and learning outcomes. For example, parents' use of harsh discipline at home may be reinforced by similar practices at school, jointly shaping children's academic performance. These factors, therefore, suggest that the corporal punishment variable was endogenous because of simultaneity. To address this endogeneity, I estimated a linear two-stage least squares specification. The first stage was given as follows:

$$CP_{ij} = \alpha_1 + \emptyset_i Z_{ij} + \delta_1 X_{ij} + \varepsilon_{ij} \quad (2)$$

where X_i is the same set of covariates as in equation (1); Z_i is the instrumental variable, α_1, $\emptyset$, and δ_i are the sets of parameters to be estimated and ε_{ij} is the error term. The second stage regression equation is as follows.

$$Y_{ij} = \alpha_2 + \beta_i \widehat{CP}_{ij} + \delta_2 X_{ij} + \varepsilon_{2i} \quad (3)$$

For the instrument to be valid, two conditions must hold. First, the relevance condition requires that the instrument be correlated with exposure to corporal punishment, that is, $\phi \neq 0$. Second, the exogeneity (exclusion restriction) condition requires that the instrument be uncorrelated with the second-stage error term, formally $E(\varepsilon_{2ij} \mid Z_j) = 0$. In addition to addressing simultaneity and omitted-variable bias through the IV strategy, I control for a rich set of covariates that capture student, household, community, and school-level characteristics, thereby further mitigating concerns about confounding factors.

To address the potential endogeneity of corporal punishment, I exploited variation in exposure to community-level anti-child violence campaigns as an instrumental variable. These NGO campaigns were rolled out by several NGOs across districts and generated plausibly exogenous variation in exposure to messages discouraging corporal punishment in homes and schools. The interventions focused on sensitizing communities about positive discipline practices and discouraging the use of physical punishment. I therefore hypothesize

that exposure to these campaigns reduced the social acceptability of corporal punishment as a disciplinary method.

The Uwezo survey provided information about whether the communities in which sampled schools were located had been exposed to such campaign messages and the frequency of exposure. I constructed a binary indicator that captured whether the community was exposed to these messages; further details on intervention coverage are presented in Appendix Table A4. First, I assessed the relevance of anti-child-violence campaigns as a credible instrument. The results in the first stage two-stage least squares-IV specification show that exposure to campaigns strongly predicted reductions in corporal punishment, with F-statistics above the conventional threshold of 10 (Table 4) which confirms that campaign awareness was a strong instrument. Relatedly, evidence shows that anti-child violence awareness campaigns, which include Raising Voices' Good School Toolkit ("Raising Voices," n.d.), reduced school-based physical violence by 42% (Devries et al., 2018).

The second key identifying assumption, the exclusion restriction, requires that exposure to anti-child violence campaigns affect learning outcomes only through its impact on corporal punishment. This assumption was plausible because, by design, these campaigns primarily focus on reducing physical violence and do not provide direct educational inputs such as classrooms, textbooks, or teacher training.

A potential concern regarding exclusion restriction was that exposure to anti-child violence campaigns may have influenced broader parental behaviors beyond corporal punishment, such as the adoption of non-violent discipline practices or increased emotional support. These changes could independently improve children's learning outcomes, thereby violating the exclusion-restriction condition. A related concern was that the campaign was not randomly implemented and may have targeted communities with higher levels of violence and poverty. That, in turn, may have affected learning outcomes through factors other than corporal punishment.

This limitation was common among education-sector interventions in which programs disproportionately targeted deficient or lowly resourced regions (e.g., Duflo, 2001). If true, these concerns could confound the effect of corporal punishment on learning. Although residual confounding cannot be entirely ruled out, the central question is whether

confounding is sufficiently strong to invalidate the Two-Stage Least Squares-IV estimates. To verify this, I implemented a series of sensitivity analyses to evaluate the robustness of the findings to potential confounding bias.

VI. Results and Discussion

Table 3 reports on the relationship between exposure to corporal punishment and student achievement in English and mathematics, respectively, while controlling for household and school variables. The data consist of repeated cross-sections with different schools sampled each year. As such, the analysis did not track the same schools over time. To address unobserved heterogeneity, all specifications included district-fixed effects, ensuring that identification came from variation across schools within the same district. This approach controlled for both time-invariant district characteristics and district-specific shocks, allowing for a more credible comparison of schools that did and did not implement corporal punishment within the same local context.

Across both specifications, being in a school that used corporal punishment reduced the probability of being proficient, with larger associations observed for mathematics than for English. School exposure to corporal punishment reduced the likelihood of proficiency in mathematics and English by 0.9 percentage point and 1.1 percentage points respectively.

The findings further indicate that corporal punishment has a more detrimental impact on children's numeracy abilities than on their reading skills. This aligns with prior research from Ethiopia, India, Peru, and Vietnam, which shows that children who experienced corporal punishment at age eight had significantly lower mathematics scores later in childhood, after controlling for a range of covariates (Oganda Portela & Pells, 2015). Mathematics learning is more vulnerable to fear, stress, and reduced classroom engagement induced by punitive discipline than are reading or language skills (Gershoff, 2002; Gershoff & Grogan-Kaylor, 2016). In Uganda, UNICEF field data from primary schools show that children were more likely to be physically punished for failing mathematics, increasing anxiety toward the subject and the risk of dropout (UNICEF, 2023b).

Table 3: Linear Probability Model Results

Variables	(1)	(2)
	English	Mathematics
Corporal punishment	-0.009**	-0.013**
	(0.005)	(0.005)
Child's age	-0.036***	0.038***
	(0.005)	(0.005)
Head Teacher = Woman	0.005	-0.001
	(0.005)	(0.005)
School Type (Private School)	0.135***	0.103***
	(0.011)	(0.012)
School Type (Community School)	0.002	-0.051**
	(0.019)	(0.021)
Log Pupil-Classroom Ratio	-0.007	-0.009*
	(0.005)	(0.005)
Log Pupil-Teacher Ratio	-0.067***	-0.034***
	(0.006)	(0.008)
Log FTR	0.042***	0.033***
	(0.004)	(0.004)
Disability status (1=Yes)	-0.028***	-0.019**
	(0.008)	(0.009)
Household Head Woman = 1	0.011***	0.013***
	(0.004)	(0.005)
Asset index	0.018*	0.098***
	(0.011)	(0.012)
Size of household	-0.002***	-0.002**
	(0.0007)	(0.0008)
Urban	0.086***	0.077***
	(0.008)	(0.008)
Social Norms Index	-0.041***	-0.023**
	(0.009)	(0.011)
F-Statistic	558.3***	771.6**
R-squared	0.203	0.215
District Fixed effects	Yes	Yes
Observations	33,320	33,320

Note: Coefficients were reported. Standard errors in parentheses. *, **, *** indicate significance at the 90%, 95% and 99% level, respectively: The reference category for school type variable is "government school." Standard errors were clustered at the clustered at school level.

The results also show that negative social norms are negatively associated with learning outcomes. Specifically, a one-unit increase in the Social Norms Index reduces the likelihood of proficiency by 4.1 percentage points in English and 2.4 percentage points in mathematics. This was consistent with past studies, which show that negative social norms increased the prevalence of corporal punishment, which negatively affected learning

outcomes (Bishop et al., 2022; Visser, van der Put & Assink, 2022). Furthermore, consistent with literature, private school attendance (Hanushek, 2003; Glewwe & Kremer, 2006); household asset ownership, urban residence (World Bank, 2018) and lower pupil-teacher ratios (Glewwe & Kremer, 2006) were positively associated with achievement, while disability status, socioeconomic disadvantage, and larger household size were associated were linked to lower test scores (UNESCO, 2019).

Table 4 reports the Two-Stage Least Squares-IV estimates identifying the causal effect of exposure to corporal punishment on student achievement. Column 1 presents the first-stage results, while Columns 2 and 3 report the corresponding second-stage estimates. The first-stage results show that exposure to anti-child violence campaigns was a strong predictor of reduced use of corporal punishment in schools. The negative and statistically significant coefficient suggests that the intervention shifted behavioural norms. The associated first-stage F-statistic of 29.9 exceeds the conventional threshold ($F>10$) indicating that the instrument was sufficiently strong and addressed concerns about weak identification.

The second-stage estimates were consistent with the LPM results reported in Table 3, confirming a negative causal effect of corporal punishment on learning outcomes. Students exposed to corporal punishment in schools performed significantly worse, with larger effects observed in mathematics than in English. Specifically, exposure to corporal punishment reduced English proficiency by 6.7 percentage points and mathematics proficiency by 7.7 percentage points. The reduced form results in Columns 4 and 5 show that campaigns increased the likelihood of mathematics proficiency by 1.8 percentage points and two percentage points in English and mathematics respectively.

The difference between OLS (ATE) and IV (LATE) estimates can be explained by how primary schools in Uganda operate with respect to enforcement of government regulations. The IV approach identifies the effect of reducing corporal punishment only for schools that change their behaviour in response to the anti-corporal punishment campaign. These were "complier" schools—those in which disciplinary practices were not fixed and could still respond to policy efforts. This was common in many government-aided primary schools compared to community schools (Table 2). Although corporal punishment has been officially banned, enforcement is often weak, school inspections are limited, and physical discipline is

still socially accepted. As a result, teachers often have discretion in how they discipline students. Notably, whereas the Ministry of Education and Sports (2015) requires all schools to end violence against children, this directive has not been adopted in all schools. For example, survey evidence shows that about 40% of schools do not have a Violence Against Children in Schools coordinator, suggesting that many schools were following the rules only in part (Uwezo Uganda, 2021).

Because of this situation, the anti-corporal punishment campaign is more likely to change behavior in schools in which practices were still flexible, rather than in schools in which corporal punishment was deeply rooted or not used. The IV estimate therefore captures the effect of reducing corporal punishment in these more responsive schools. This also explains why IV estimates were larger than OLS/reduced form estimates. OLS and reduced form averaged the effect across all schools, including those that did not change at all. In contrast, IV focused only on the schools in which change actually happened. If reducing corporal punishment had bigger benefits in these responsive schools, then the IV estimate (LATE) would have been larger than the reduced form estimates (ATE).

Further, the differences may be attributed to attenuation bias in capture of corporal punishment prevalence in schools. Since measurement of corporal punishment rely on self-reported information from schools, it may be underreported to avoid not putting their schools and management under scrutiny by government. If such misreporting were correlated with such school characteristics as management quality or academic performance, this would introduce non-classical measurement error that could bias the estimated relationship between corporal punishment and learning outcomes. In particular, the estimates may understate the true negative effects of corporal punishment.

Table 4: Instrumental Variable (Two-Stage Least Squares-IV) Results

	First stage	Two-Stage Least Squares-IV	Two-Stage Least Squares-IV	Reduced form	Reduced form
Variables	(1) corporal punishment	(2) English	(3) Mathematics	(4) English	(5) Mathematics
Awareness campaign	-0.027***			-0.018***	-0.021***
	(0.004)			(0.004)	(0.005)
Corporal Punishment (Intervention)		-0.066***	-0.077***	-0.037***	0.038***
		(0.018)	(0.022)	(0.005)	(0.006)
Age	0.005	-0.034***	0.042***	0.004***	0.002***
	(0.006)	(0.006)	(0.007)	(0.000)	(0.000)
Head Teacher = Woman	-0.078***	-0.046***	-0.061***	0.006	-0.000
	(0.005)	(0.016)	(0.018)	(0.005)	(0.006)
Private School	0.082***	0.188***	0.165***	0.134***	0.101***
	(0.011)	(0.021)	(0.023)	(0.009)	(0.011)
Community School	0.029	0.019	-0.030	0.001	-0.052**
	(0.024)	(0.027)	(0.029)	(0.019)	(0.022)
Log Pupil-Classroom Ratio	0.0145**	0.002	0.008	-0.007	-0.010*
	(0.005)	(0.006)	(0.073)	(0.005)	(0.005)
Log Pupil-Teacher Ratio	0.007	-0.063***	-0.028***	-0.068***	-0.034***
	(0.008)	(0.009)	(0.009)	(0.007)	(0.008)
Log FTR	0.062***	0.082***	0.079***	0.041***	0.031***
	(0.004)	(0.012)	(0.015)	(0.004)	(0.004)
Disability status	-0.013	-0.037***	-0.029**	-0.028***	-0.019**
	(0.009)	(0.010)	(0.012)	(0.008)	(0.009)
Household Head Woman = 1)	-0.005	0.009*	0.0102*	0.012***	0.014***
	(0.005)	(0.005)	(0.006)	(0.004)	(0.005)
Asset index	0.002	0.014	0.093***	0.012	0.092***
	(0.012)	(0.013)	(0.015)	(0.010)	(0.012)
Size of household	0.002**	-0.001	-0.097	-0.002***	-0.002***
	(0.0008)	(0.009)	(0.011)	(0.001)	(0.001)
Urban	0.029***	0.103***	0.097***	0.084***	0.075***
	(0.009)	(0.011)	(0.012)	(0.007)	(0.008)

Social Norms Index	0.237***	-0.039***	-0.022	-0.040***	-0.023**
	(0.042)	(0.0121)	(0.0139)	(0.009)	(0.011)
F-Statistic	29.9	28.34***	27.9***		
Correlation		0.156	0.368		
District fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	33,320	33,320	33,320	33,320	33,320

Note: Coefficients reported. Standard errors in the parentheses. *, **, *** indicate significance at the 90%, 95% and 99% level, respectively: The reference category for school type variable is "government school." Standard errors were clustered at the clustered at school level

A key assumption is that exposure to the campaign is essentially random, or at least not related to pre-existing factors that could directly influence learning. Here, I report balance tests to assess whether exposure to awareness campaigns correlated with observable characteristics. While not a formal test of instrument validity, these comparisons provide descriptive evidence on whether campaign exposure was plausibly exogenous. Appendix Table A5 presents mean differences and t-tests for key child, household, and school characteristics between treated and untreated communities. The results show that the differences between control and intervention communities across all variables were small and statistically insignificant, except gender of household head. This suggests that the two groups were broadly comparable. These results show that selection into treatment was not systematically correlated with observable baseline characteristics.

VII. Sensitivity Tests

Unobserved confounders from non-random targeting of the intervention could potentially have biased the estimated effect of corporal punishment on learning outcomes—and particularly so if these factors were correlated with targeting of the anti-awareness campaigns and academic performance as outlined in Section 5.

To assess robustness to omitted variable bias, I implemented sensitivity analysis using the sensemakr framework by Cinelli and Hazlett (2020). This framework quantifies the robustness of OLS estimates to omitted variable bias. The key metric was the Robustness Value (RV), which measures the minimum strength—in terms of partial R^2 with both the treatment and the outcome—that an unobserved confounder would need to have to fully explain away the estimated effect. These values were benchmarked against observed covariates to assess whether confounders of plausible strength could overturn the results. Table 5 reports estimates on this analysis. The analysis shows that corporal punishment reduced mathematics proficiency by 2.1 percentage points, observable factors explaining 6.5% of the residual variation in mathematics proficiency. To fully eliminate the corporal-punishment effect, unobserved confounders would need to account for at least 14.3% of the

variation in treatment (corporal punishment) and mathematics proficiency, and 9.2% to render it statistically insignificant at the 5% level.

Considering the bounds estimates, the robustness value exceeds the corresponding benchmark bounds. This implies that omitted confounders would need to be substantially stronger than the variable urban covariate to explain away the estimated effect. Therefore, the point estimate for the impact of corporal punishment on mathematics proficiency appears robust to plausible levels of unobserved confounding.

Similarly, corporal punishment reduced English proficiency by 1.8 percentage points, with the treatment explaining 5.5% of the residual variation in English proficiency. Sensitivity analysis indicated that unobserved confounders would need to explain 15.9% of the residual variation in both the treatment and English proficiency to eliminate the estimated effect, and 11.5% to render it statistically insignificant under a more extreme scenario. Using the urban-rural location benchmark, the bound values were both below the robustness value . This suggests that confounders as strong as urban-rural location would not be sufficient to explain away the observed point estimate. Overall, the estimated effect of corporal punishment on English proficiency appears robust to plausible levels of unobserved confounding.

Table 5: Minimal Sensitivity Analysis Reporting

Treatment	Est.	S.E	t-value	$R^2_{Y\sim D\mid X}$	$RV_{q=1}$	$RV_{q=1,\alpha=0.05}$
corporal punishment (mathematics)	-0.021	0.004	-4.484	0.065	0.143	0.092
corporal punishment (English)	-0.018	0.046	-4.542	0.057	0.159	0.115
Bounds (urban-mathematics)					0.113	0.084
Bounds (urban-English)					0.081	0.04

Source: Results were based on Cinelli and Hazlett (2020) and implement the sensemakr procedure.

7.1 Heterogeneity Analysis

7.1.1 Social Norms

Table 6 presents the differential impact of corporal punishment on mathematics and English across communities with different levels of social acceptance, measured by a Social Norms Index. Specifically, I classify low-Social Norms Index communities to have Social Norms Index values below 0.5, and high-Social Norms Index communities above 0.5. As

earlier highlighted in section 3.3, low-Social Norms Index communities are defined as those in which social norms weakly endorse corporal punishment, while high-Social Norms Index communities are those in which corporal punishment is widely accepted, socially endorsed, and commonly perceived as a legitimate disciplinary practice.

Results using the Two-Stage Least Squares-IV specification show that corporal punishment reduced English and mathematics proficiency in all communities, however the adverse effects were larger in communities with low tolerance for corporal punishment (low Social Norms Index). The estimates show that exposure to corporal punishment reduced the likelihood of English proficiency by 9.7 percentage points in low-Social Norms Index compared to 4.3 percentage points in high-Social Norms Index communities. Similarly, the likelihood in mathematics proficiency falls by seventeen percentage points in low Social Norms Index communities compared to 4.6 percentage points in areas in which corporal punishment was tolerated (high Social Norms Index). These findings were consistent with cross-country evidence showing that the effects of corporal punishment depend on how children interpret disciplinary practices within their cultural context (Lansford et al., 2005; Lansford & Dodge, 2008; Baumrind, Larzelere & Owens, 2010). In societies in which corporal punishment was more normative, its harmful effects tend to be moderate, as children may be less likely to perceive it as hostile. However, this cultural acceptance does not eliminate its adverse consequences (Lansford et al., 2010).

In line with this argument, my results suggest that, in high-Social Norms Index communities, children may interpret corporal punishment as a conventional form of discipline, resulting in smaller negative effects on learning. In contrast, in low-Social Norms Index settings in which corporal punishment is less socially accepted, children may experience stronger psychological distress, leading to more pronounced declines in learning outcomes.

Table 6: The Role of Social Norms (Two-Stage Least Squares-IV Estimates)

Variables	Low Social Norms Index (1) English	High Social Norms Index (2) English	Low Social Norms Index (3) Mathematics	High Social Norms Index (4) Mathematics
Corporal punishment	-0.097**	-0.044**	-0.1651***	-0.047**
	(0.038)	(0.185)	(0.447)	(0.212)
F-Statistic	16.38**	19.58***	16.38***	19.58***
Observations	15,495	18,227	15,495	18,227
District fixed effects	YES	YES	YES	YES
Controls	YES	YES	YES	YES

Note: Coefficients reported. Standard errors in the parentheses. *, **, *** indicate significance at the 90%, 95% and 99% level, respectively. The model control for all individual, household and school characteristics considered in Table 4 and Table 5. Standard errors were clustered at the clustered at school level.

7.2 Gender of the Child

The results in Table 7 indicate that exposure to corporal punishment significantly reduced learning outcomes among both girls and boys, though these effects were more pronounced among girls. Specifically, girls in schools in which corporal punishment was used were likely to have experienced a decline in English proficiency by 7.4 percentage points compared to a 5.5 percentage point decline for boys. In mathematics, corporal punishment reduced the likelihood of proficiency by 9.2 percentage points among girls and by 5.7 percentage points among boys, indicating a stronger adverse effect on girl students.

These results confirm broader evidence that suggests that corporal punishment is associated with more detrimental internalizing behaviour problems such as anxiety, depression, and withdrawal among girls than boys (Chaplin, Cole & Zahn-Waxler, 2005; Xing & Wang, 2013). Such internalized behaviours were closely linked to reduced academic concentration, classroom participation, and learning engagement (Okano et al., 2020; Levkovich, Yatzkar & Shenaar-Golan, 2025).

Table 7: Gendered Effect of Corporal Punishment on Learning Outcomes: Two-Stage Least Squares-IV Estimates

Variables	Girls		Boys	
	(1) English	(2) Mathematics	(3) English	(4) Mathematics
Received corporal punishment	-0.074***	-0.091***	-0.055**	-0.057*
	(0.025)	(0.029)	(0.028)	(0.032)
F-statistic	14.3***	14.6***	14.9***	15.2***
Controls	YES	YES	YES	YES
Observations	16,534	16,534	16,786	16,786

Note: Coefficients reported. Standard errors in the parentheses. *, **, *** indicate significance at the 90%, 95%, and 99% level, respectively. Standard errors were clustered at the clustered at school level.

7.3 Potential Mechanisms

One of the ways in which corporal punishment may affect learning outcomes in Ugandan schools is through absenteeism. I have hypothesized that exposure to corporal punishment in school generates fear toward the school environment, thereby discouraging regular attendance which then affects learning (Carson, Esbensen & Taylor, 2013; Smarrelli et al., 2023). In addition, corporal punishment may result in physical injuries or psychological distress that impair children's health and well-being and further affect the presence of unobserved confounders (Cuartas et al., 2021). These pathways were further confirmed in Uganda's Violence Against Children survey (Ministry of Education and Sports, 2014) which showed that one in four students (25%) who experienced corporal punishment by a teacher subsequently missed school as a result (Ministry of Gender, Labour, and Social Development, 2018).

To empirically test this mechanism, I exploited survey information on absenteeism at both the child and school levels. At the school level, the survey recorded a headcount of children in attendance on the survey day and compared this to total enrolment reported in the school register. At the child level, the survey captured whether the child attended class on the previous Friday, providing a direct measure of attendance consistency. I estimated the effects at both the child and school levels, with results reported in Table 8.

The child-level estimates in Column 1 indicate that exposure to corporal punishment increased absenteeism by 3.5 percentage-points. Consistent with this, school-level analysis

showed that corporal punishment was linked to a two-percentage-point decline in attendance. Absenteeism is, in turn, strongly associated with poorer learning outcomes. At the child level, a one-percentage-point increase in absenteeism reduced proficiency in English by 8.5 percentage points compared to 7.9 percentage points in mathematics. Similarly, at the school level, higher absenteeism reduced English and mathematics performance by 0.36 and 0.28 percentage points, respectively, as shown in Columns 6 and 7. Overall, these results strongly suggest that the effect of corporal punishment on learning operates through reduced school attendance.

Table 8: The Effect of Corporal Punishment on School Attendance and of Attendance on Learning (Two-Stage Least Squares-IV Model)

	First stage	Two-Stage Least Squares-IV	Two-Stage Least Squares-IV	First stage	Two-Stage Least Squares-IV	Two-Stage Least Squares-IV
Dependent variable	Missed school	English	Mathematics	Missed school	English	Mathematics
	(1)	(2)	(3)	(5)	(6)	(7)
Awareness campaign	0.0346**			0.019**		
	(0.0162)			(0.009)		
Missed school		-0.085***	-0.079***		-0.365***	-0.289***
		(0.005)	(0.005)		(0.069)	(0.102)
Constant	0.989***	0.284***	0.302***	0.836***	4.302***	5.274***
	(0.052)	(0.025)	(0.029)	(0.049)	(0.172)	(0.253)
R-squared	0.147	0.210	0.260	0.05	0.193	0.089
District Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
IV F-Statistic	50.8			33.3		
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	32,533	32,533	32,533	2,307	2,305	2,301

Note: Coefficients are reported, with standard errors in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. This table controls for all school and household characteristics listed in Tables 4 and 5. Columns 1-3 present child-level attendance estimates, while Columns 5-7 present school-level estimates. School-level absenteeism is measured using enrolment versus headcount attendance on the day of the survey. In Columns 6 and 7, school-level absenteeism is regressed on school-level learning outcomes, defined as a binary variable representing the proportion of children proficient in mathematics and English. In Columns 2 and 3, school-level absenteeism considers individual attendance. Standard errors are clustered at the clustered at school level.

VIII. Conclusions and Policy Recommendations

This study examines the effect of corporal punishment on learning outcomes in primary schools in Uganda. Using nationally representative pupil and school-level data linked to household information and identifying the effect through an IV-Two-Stage Least Squares-IV approach, I find that children exposed to corporal punishment are likely to perform worse in both mathematics and English. On average, exposure to corporal punishment in schools reduces the probability of being proficient in English by 6.6 percentage points and in mathematics by 7.7 percentage points. The negative effect is stronger for mathematics than for English, partly because children in Uganda are more likely to be punished for failing mathematics and partly because mathematics learning is more sensitive to anxiety, fear, and stress induced by corporal punishment.

The results also indicate that corporal punishment has a larger detrimental effect on girls, even though boys are more frequently subjected to corporal punishment for aggressive behaviour. These findings highlight both subject-specific anxiety and gendered responses in shaping how corporal punishment affects learning outcomes in Ugandan primary schools.

The heterogeneity analysis indicates that the adverse effect of corporal punishment on learning outcomes was smaller in environments in which corporal punishment was more socially accepted. More specifically, in settings with low acceptance of corporal punishment, the effect on learning outcomes was strongly negative. These results suggest that social norms shape how children experience and respond to disciplinary practices. This moderating effect should not be interpreted as evidence that corporal punishment was beneficial in some contexts. Instead, it suggests that, when corporal punishment is widely accepted, it may

cause less immediate disruption to learning. This could be because children are more likely to follow the rules, expect such punishment, see it as fair, or respond differently to authority.

These findings have important implications for policy in Uganda. The persistence of corporal punishment as a disciplinary measure in schools reflects deeply entrenched social norms and beliefs that depict physical punishment as a necessary for discipline. As a result, policies that rely solely on formal bans are unlikely to be effective unless they are accompanied by efforts to shift attitudes and practices. Complementary approaches such as community and teacher engagement; training in positive, non-violent discipline; and interventions like the Good School Toolkit that promote child-friendly learning environments are more likely to reduce corporal punishment and improve learning outcomes for all children.

Several avenues for future research remain. First, although the data used in this study were nationally representative, they were limited by their cross-sectionality, and they did not follow the same students over time. As a result, they could not fully capture individual-level exposure to corporal punishment within schools or its cumulative effects. Future studies could leverage longitudinal data to better understand how repeated exposure to corporal punishment affects learning. Second, the study focused on short-term effects of corporal punishment on learning, but this disciplinary measure can also affect long-term effects of children on future education and labour-market outcomes, given that corporal punishment could affect cognitive and psychological development. Finally, future research could explore the effects of corporal punishment on learning outcomes given different settings under which corporal punishment may occur, for example, school vs. home environments.

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Appendix

Appendix Table A1: Variables and Their Description

Variable	Description	Level
School-Level Variables		
Corporal punishment	Indicator equal to 1 if the surveyed school reports corporal punishment and 0 otherwise	School
Government school	Indicator equal to 1 if the school is government-owned, 0 otherwise	School
Private school	Indicator equal to 1 if the school is privately owned, 0 otherwise	School
Community school	Indicator equal to 1 if the school is community-owned, 0 otherwise	School
Ratio of Women Teachers	Proportion of female teachers in the school	School
Head Teacher = Woman	Indicator equal to 1 if the Head Teacher is a woman, 0 otherwise	School
Pupil-classroom ratio	The ratio of enrolled pupils to the number of classrooms in the school	School
Pupil-teacher ratio	The ratio of enrolled pupils to the number of teachers in the school	School
Household- and Child-Level Variables		
Mathematics proficiency	Indicator equal to 1 if the child is proficient in the mathematics test and 0 otherwise	Child
English proficiency	Indicator equal to 1 if the child is proficient in the English test and 0 otherwise	Child
School grade	Current grade level of the child	Child
Rural	Indicator equal to 1 if the household resides in a rural area, 0 otherwise	Household
Social Norms Index	Composite index capturing attitudes toward corporal punishment and disciplinary norms; higher values indicate stronger pro-corporal punishment norms	Household
Age of the child	Age of the child in completed years	Child
Household size	Total number of household members	Household
Female household head	Indicator equal to 1 if the household head is female, 0 otherwise	Household
Asset index	Household wealth index constructed using PCA	Household
Central region	Indicator equal to 1 if the household is located in the Central region, 0 otherwise	Region
East region	Indicator equal to 1 if the household is located in the Eastern region, 0 otherwise	Region
North region	Indicator equal to 1 if the household is located in the Northern region, 0 otherwise	Region
West region	Indicator equal to 1 if the household is located in the Western region, 0 otherwise	Region

Appendix Table A2: Definitions of Negative Social Norms By indicator

No.	Indicator	Choices	Definition of negative social norms
1	There were times when parents need to beat their children to make them listen.	Strongly agree, agree, disagree, strongly disagree	Strongly agree, agree
2	When a child misbehaves, the best response was to talk to that child	Strongly agree, agree, disagree, strongly disagree	Strongly disagree, disagree
3	Sometimes teachers must beat children to make the learn	Strongly agree, agree, disagree, strongly disagree	Strongly agree, agree
4	Schools must never allow teachers to hit or cane students for any reason	Strongly agree, agree, disagree, strongly disagree	Strongly disagree, disagree

Source: Mukhopadhyay, Rivera, and Tapia (2019).

Appendix Table A3: Summary Statistics Disaggregated by Pupils' Sex

Variable	Boys		Girls		t-statistic
	Mean	SD	Mean	SD	
School level variables					
Corporal punishment	0.644	0.48	0.639	0.48	1.19
Government school	0.90	0.30	0.90	0.30	1.44
Private school	0.08	0.27	0.08	0.27	-1.41
Community school	0.02	0.14	0.02	0.14	-0.36
Ratio of Women Teachers	0.37	0.19	0.37	0.21	-1.94*
Head teacher = Woman	0.22	0.003	0.216	0.41	1.23
Head Teacher = Man	0.78	0.42	0.78	0.42	-1.33
Pupil Classroom Ratio	100.1	66.8	103.3	85.4	1.21
Pupil Teacher Ratio	56.3	27.2	56.0	20.9	0.35
Child and Household-level variables					
Mathematics proficiency	0.311	0.310	0.301	0.458	1.93*
English proficiency	0.196	0.397	0.201	0.401	1.19
School grade	3.4	1.79	3.41	1.78	-0.78
Rural	0.91	0.28	0.90	0.29	2.16**
Social Norms Index (Social Norms Index)	0.78	0.35	0.77	0.35	1.11
Age of the child	10.57	2.92	10.47	2.88	3.39***
Household Size	7.48	3.02	7.45	2.97	0.93
Household head = Male	0.42	0.49	0.39	0.49	4.78***
Household head = Woman	0.58	0.49	0.61	0.49	4.78***
Asset index	0.45	0.19	0.45	0.19	0.53
Central region	0.14	0.35	0.14	0.35	0.03
East region	0.33	0.47	0.34	0.48	2.54***
North region	0.34	0.48	0.32	0.47	5.21***
West region	0.19	0.39	0.19	0.39	3.17***
Observations (N)	20,590		20,235		

Source: Author's computations based on the Uwezo survey.

Appendix Table A4: Anti-Child Violence Awareness Campaign Coverage

Category	Percent (%)
Message Exposure	
Not heard message	39.3
Heard the message	60.7
Source of Messages	
TV	5.1
Radio	3.8
Newspapers	22.9
Community event	68.2
Frequency of Hearing Messages	
Once	11.9
Twice	19.8
Thrice	15.4
Four or more times	52.9
Institution (NGO) that created the message	
Raising Voices	47.7
Save the Children	35.7
UNICEF	10.7
Plan International	6.0

Source: 2016 and 2024 Uwezo surveys.

Appendix Table A5: Covariate Balance by Treatment Status—Anti-child-violence campaigns

Variable	Control	N	Treatment	N	Difference	t-value
Age of the child	10.494	22,119	10.448	14,315	0.046	0.201
Gender (Boy=1)	0.522	22,119	0.494	14,315	0.028	1.091
Asset Index	0.443	22,119	0.419	14,315	0.024	1.329
Pupil-Teacher Ratio	49.402	22,034	51.4	14,298	-1.998	-0.364
Pupil-Classroom Ratio	85.648	21,440	86.43	14,010	-0.782	-0.061
FTR	0.393	22,007	0.367	14,287	0.026	0.68
Household head = Woman	1.58	22,056	1.647	14,241	-0.067	-2.421**
Social Norms Index	0.51	22,119	0.523	14,315	-0.013	-1.134
Household size	7.387	22,119	7.01	14,315	0.377	1.326
Grade	3.339	22,119	3.215	14,315	0.123	0.771
Urban	0.106	21,992	0.07	14,209	0.036	0.668
Sex	0.522	21,992	0.494	14,209	0.028	1.091
Disability	0.068	21,992	0.073	14,209	-0.005	-0.306

Note: Based on the Uwezo survey