International COCOA Initiative

Education quality and child labour

Evidence from cocoa-growing communities in Côte d'Ivoire and Ghana

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CONTENTS

Acknowledgments

This report was written by Anna Brüderle, on behalf of the International Cocoa Initiative. It draws on primary data collected by the *Institut National de la Statistique du Côte d'Ivoire (INS)* in Côte d'Ivoire, and by the *Institute of Statistical Social and Economic Research (ISSER)* in Ghana.

SUMMARY OF FINDINGS

This study explores the link between child labour incidence and the quality of education in cocoa-growing communities in Côte d'Ivoire and Ghana. In both countries, better access to schooling is clearly associated with lower rates of child labour, after accounting for the community's level of remoteness and economic development. If schools are present, we find that better educational quality measured by a range of easily observable indicators are related to lower rates of child labour in the community. Regarding indicators of school infrastructure, we find rates of child labour to be lower when the number of pupils per classroom is smaller, and when schools are equipped with toilet facilities (associated most strongly with the rate of working adolescents). Regarding indicators of school management and school-related services, child labour rates tend to be lower when schools operate canteens or school feeding programmes; when members of the school management committee (SMC) have received training for their role; when teacher attendance is monitored by the SMC; and when children at secondary school level receive scholarships (these correlations are not statistically significant at conventional levels given the relatively small sample size). Importantly, these relations hold after accounting for communities' level of remoteness and economic development.

The negative association between educational quality and child labour prevalence is most clearly visible when we condense the different indicators into a single index to reflect a community's overall level of educational quality. In the Côte d'Ivoire sample, the 20% of communities with the lowest score on the quality education index have an average child labour prevalence of 29%; whereas the 20% of communities with the highest score on the index have a child labour prevalence of 10% (not controlling for other community characteristics).

It should be noted that the education-related information available in the data set used (ICI's Protective Cocoa Communities Framework, a community assessment tool focussing on community development and empowerment, child protection, gender and education) provides a very incomplete picture of the quality of local schools and captures only part of the multiple facets of educational quality.

In addition, our findings show correlations, but not causality. In order to better understand the causal dimension of the quality education—child labour nexus, dedicated research studies with experimental designs, or carefully designed evaluations of ongoing programmes and projects, are warranted. To date, very few studies exist that provide causal evidence of the effect of improved educational quality on child labour (Annex II of this paper provides an overview of experimental research on how interventions related to educational quality affect school participation and school attainment, and the few studies that also analyse impacts on child labour). To address the gap in the existing evidence and to better understand how improvements of educational quality can help to reduce child labour incidence in cocoa-growing communities, collaborative efforts between researchers, industry, civil society and government agencies mandated with education and child protection will be needed.

INTRODUCTION

Returns to education, both private and social, are driven not only by the schooling level that pupils attain, but also by the quality of the education they receive. If the quality of education affects private returns to education, it should also affect parents' decision to invest in their children's education, and to allocate children's time between work and school (Figure 1). While in theory a causal link between quality of education and the prevalence of child labour seems evident,[1] empirical evidence to substantiate this link is very scant to date. Several experimental studies have explored how improvements in educational quality or educational inputs affect children's participation in schooling (see Annex II for an overview of this literature); but very few of these studies have also measured effects on children's participation in the labour market.[2] Hence, our understanding of the role of educational quality in determining child labour and child employment in rural contexts is very limited to date.

This study aims to address the gap by exploring the link between a set of indicators of educational quality, and local child labour prevalence rates, in a sample of cocoa-growing communities in Côte d'Ivoire and Ghana.

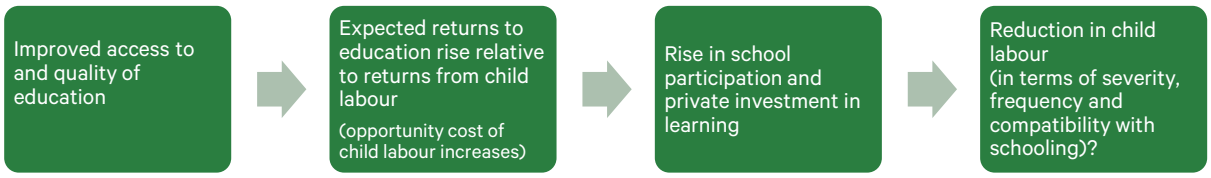

Figure 1: Theory of change: expected effects of increased quality of education on school participation & child labour.

DATA AND INDICATORS

Data sources

The analysis is based on two data sources: (i) a **child labour prevalence survey**, administered to 5,200 households across 130 cocoa-growing communities in Côte d'Ivoire, and to 3,000 households across 128 cocoa-growing communities in Ghana;[3] and (ii) data **from ICI's Protective Cocoa Community Framework**

[1] For a review of the theoretical models of household decision making on allocation of children's time, see Basu, K. "Child Labor: Cause, Consequence, and Cure, with Remarks on International Labor Standards", Journal of Economic Literature, vol. 37, no. 3, 1999, pp. 1083–1119.

[2] A related analysis conducted by ICI uses the 2016 UNICEF Multi-Cluster Indicators Survey (MICS) data for Côte d'Ivoire to explore the link between various household-level indicators of child rights with child labour incidence in cocoa-growing communities; see Annex III for a short description of method and findings.

[3] The child labour prevalence surveys were implemented by the *Institut National de la Statistique du Côte d'Ivoire (INS)* in Côte d'Ivoire, and by the *Institute of Statistical Social and Economic Research (ISSER)* in Ghana. The surveys comprised interviews with the head of household, and with all children between 5 and 17 years of age living in the household. Along with the incidence of child labour, the survey collected socio-economic and demographic characteristics of the household and its members.

(PCCF) assessment tool, administered in the same communities. The PCCF collects community-level information on key indicators and proxies related to community development, community empowerment, education, child protection, gender and livelihoods, through group discussions and key informant interviews. Child labour prevalence rates were calculated from the household data for each community and merged with the community level data. All data was collected in 2017.

Child labour indicators

We consider 4 different indicators of child labour, aggregated at community level: (i) the child labour rate amongst all children between 5 and 17 years of age; (ii) the child labour rate amongst children between 5 and 13 years of age; (iii) the rate of children between 14 and 17 years of age in employment; and (iv) the child labour rate amongst children between 14 and 17 years of age. A child between 5 and 13 years of age is considered in child labour if he/she has worked for at least one hour in any economic activity for pay or without pay, for profit, or in a family business during the reference week. A child between 14 and 17 years of age is considered to be in employment if he/she has worked for at least one hour in any economic activity during the reference week; and is considered to be in child labour if he/she has worked in hazardous activities, or has worked more than the allowable hours for a child of this age during the reference week, as per the national legislation (40 hours per week in Côte d'Ivoire, 42 hours per week in Ghana).[4]

Quality of education indicators

The PCCF is a tool for measuring a community's level of development and child protection, and therefore also covers aspects of education. However, it is **not designed to capture a complete picture of the quality of education** available in a community. This is an important caveat to keep in mind when interpreting the findings presented. The data used offer some insights on how indicators of school infrastructure and school management are related to child labour prevalence; **they cannot, however, shed light on how other dimensions of educational quality – such as the quality of teaching and learning, the safety and accessibility of learning spaces, and the appropriateness of the curriculum and learning materials – are related to child labour.**

That this report focusses on infrastructure- and management-related education indicators does not mean that these aspects are more clearly linked with child labour; it is simply due to the PCCF data being limited to these dimensions.

In the PCCF assessment, information related to education is collected through structured interviews with headteachers or teachers at each of the schools in the community. In Côte d'Ivoire, the data used for this study relates to primary

[4] In Ghana, questions about hazardous activities were only asked to the sub-set of children who replied "yes" to a preceding question on whether they had been working in agriculture. Hence, the distinction between child employment and child labour could only be made for these children. We use the child labour rate calculated for this sub-set of children in the 14 to 17 years age group as a proxy for the child labour rate amongst all children in this age group.

education, since the large majority of communities in the sample had only primary schools. In Ghana, the education data used covers primary and junior secondary school level (up to grade 9).

Indicators of school infrastructure available in the PCCF data are:

- the presence of toilet facilities at school;
- the condition of school infrastructure as assessed by the teacher, on a scale from 1 ("very bad") to 4 ("excellent");
- the pupil classroom ratio.

Indicators of school management are:

- the pupil teacher ratio;
- whether the school operates a school feeding programme;
- whether the school has a canteen;
- whether a school management committee (SMC) exists;
- whether members of the SMC have received a specialised training relevant to their role;
- whether one of the activities of the SMC is to monitor teacher attendance.

Many of these indicators are binary and capture whether certain infrastructure or services are in place. However, they do not cover the quality of infrastructure or services, nor whether capacity is appropriate for the size of the school. This is another caveat to keep in mind when interpreting the findings.

We also construct a *quality of education index*, which captures all these dimensions in a single score, giving equal weight to each.[5]

METHOD OF ANALYSIS

The main research question we are interested in answering, is **how does the quality of education affect the incidence of child labour** in cocoa-producing communities in Côte d'Ivoire and Ghana? When observing quality of education on the one hand, and child labour prevalence on the other hand, in a set of communities at a given point in time, both may in fact be driven by other underlying community characteristics ("omitted variables"), such as the community's overall level of economic development or its level of isolation. In poorer or more remote communities, resources for schooling may be more limited,

[5] To derive this index, we first invert the pupil classroom and pupil teacher ratios into teacher pupil and classroom pupil ratios, so that higher values indicate better quality of education, as is the case for the other indicators of educational quality. Next, we standardize each of the individual indicators related to school infrastructure and school management (subtract means and divide by standard deviations) in order to align scales. We then add up, for each community, the standardized values of all nine indicators across and divide the sum by nine. The merit of this quality of education index is that it measures a community's overall educational quality in a single score. On the other hand, the nominal score of this index has no interpretation per se; it is a relative rather than an absolute measure, and it masks differences in the various dimensions of educational quality across communities.

and less qualified teachers may be available; and at the same time, household poverty may reinforce the incidence of child labour.

The method of analysis used in this study is **multiple linear regression, with the prevalence of child labour (or child employment) in the community as the outcome variable, and indicators of educational quality in the community as the main explanatory variables.** In order to address the expected bias in this relationship described above, we **control in these regressions for a number of potential correlates of both the quality of education and the incidence of child labour**.

Specifically, we control for:

- household poverty (average monthly income of households, from the household survey; whether some households have to reduce meals during certain times of year);
- physical infrastructure in the community (mobile network coverage; access to the electricity grid);
- the level of isolation of the community (distance to the nearest vocational school; distance to the nearest secondary health centre; whether the community is accessible by road; whether the community is accessible all year round); and
- the level of education of adult men and women, from the household survey;
- the total population of the community.

Controlling for these community characteristics allows us to shed some light on the possible effect of educational quality on child labour. We cannot however rule out that other unobserved community characteristics may confound the relationship between quality of education and child labour. The results presented here should therefore be interpreted as **indications, but not as evidence**, of how quality of education affects child labour prevalence.

DESCRIPTIVE STATISTICS

In the communities covered by the study, the child labour rate amongst children between 5 and 17 years of age is 20.9 percent in Côte d'Ivoire, and 19.5 percent in Ghana. For younger children from 5 to 13 years of age, the child labour rate is 17.6 percent in Côte d'Ivoire, and 17.4 percent in Ghana. Among older children aged 14 to 17, both employment and child labour are considerably more prevalent in both countries: 46.3 percent are in employment and 37.3 percent in child labour in Côte d'Ivoire; and 37.6 percent in employment and 25.6 percent in child labour in Ghana.

While a harmonized methodology was used, a cross-country comparison of these figures is not meaningful, given that the survey instruments were developed independently by local institutes, and the data were collected at different seasons.

As regards the quality of education offered in the surveyed communities, there are some striking differences between Côte d'Ivoire and Ghana. While in Côte d'Ivoire,

only 48 out of 114 communities (less than half) have toilet facilities at schools, in Ghana toilets were present in 91 out of 116 communities (a large majority). In Côte d'Ivoire, the average number of pupils per classroom is around 40, while in Ghana it is around 30.

School feeding programmes, offering free meals for pupils, reach a larger share of communities in Côte d'Ivoire (51 out of 115) than in Ghana (37 out of 116), whereas school canteens, where paid meals are served, are more common in Ghana (present in 34 out of 111 communities) than in Côte d'Ivoire (23 out of 114 communities). School management committees (SMC) are present in almost all communities in Côte d'Ivoire, which is why we exempt this indicator from the analysis for Côte d'Ivoire; in Ghana, there are 18 communities in the sample that do not have a SMC in place.

Another salient difference across the countries relates to access to secondary school (in both countries, secondary school starts at grade 7). While in the Côte d'Ivoire sample, a junior secondary school is present in only 7 communities, a large majority of 101 communities in Ghana have a junior secondary school. The average distance to the nearest junior secondary school in Côte d'Ivoire is 14 km. Average distance to the nearest senior secondary school is 22 km in Côte d'Ivoire, but only 8 km in Ghana.

Table 1 in Annex I provides an overview of the summary statistics of the indicators used for analysis.

FINDINGS ON THE LINKAGES BETWEEN EDUCATION AND CHILD LABOUR

Access to school and child labour

As a first step, we analyse how the prevalence of child labour is correlated with **access to schooling**. The **presence of a primary school** in the community is associated with a lower rate of child labour in both countries. The child labour rate is lower by approximately 14 percentage points in communities of Côte d'Ivoire with a primary school in place, and by 8 percentage points in Ghana, after basic infrastructure, community size and adult education levels are controlled for (statistically significant for both countries; see Table 2 and Table 3 in Annex I). In Ghana, child labour decreases with the distance to the nearest junior secondary school, and also to the nearest senior secondary school (see Table 4 and Table 5 in Annex I), but we cannot find the same correlation for Côte d'Ivoire. Child labour also increases with distance to vocational schools, and this relationship is most evident in the 14 to 17 years age group, in both countries (see Table 6 and Table 7 in Annex I).

School infrastructure and child labour

Next, we analyse the relationship between indicators of **school infrastructure** and child labour prevalence. On average in the Côte d'Ivoire sample, an increase in the

number of pupils per classroom by 10 (where the average pupil classroom ratio is 40) is associated with an increase in the child labour rate by 2 percentage points when controlling for indicators of community development (but this correlation is not statistically significant; see Table 8 in Annex I). For the Ghana sample, no relationship is detected between pupil classroom ratio and child labour.

In Côte d'Ivoire, the child labour rate increases with better quality of school infrastructure as rated by the teacher or head master, contrary to what one would expect, but the relationship is not statistically significant. In Ghana, the relationship (also not statistically significant) goes in the opposite direction, i.e., communities with better rated school infrastructure present lower child labour rates. However, we should point out that the subjective rating of school infrastructure may potentially be confounded by the level of qualification or professional aspiration of the teacher responding. In view of these inconclusive results, we exclude the infrastructure rating from the quality of education index analysed in the last section.

In both countries, child labour rates are lower when the schools have **toilet facilities**. The relationship is relatively weak when considering all children below 18 years of age (around one percentage point difference in child labour rate depending on whether toilets are in place; see Table 9 and Table 10 in Annex I). However, the importance of toilet facilities becomes more pronounced when considering adolescents between 14 and 17 years of age: In both countries, the employment rate in this age group is lower by between 3 and 4 percentage points when toilets are in place, after community development indicators are controlled for. Neither of these relationships are statistically significant.[6]

School management and child labour

Second, we focus on the role of **school management and school-related services**. We find that on average in our sample in Côte d'Ivoire, the child labour rate is lower (by 5.5 percentage points, and by 6.5 percentage points among young children aged 5 to 13) if primary schools run a **school canteen** (see Table 11 in Annex I); is lower by 4.7 percentage points if **members of the SMC have received training for their role** (see Table 13 in Annex I); and is lower by 2.7 percentage points if **teacher attendance is monitored by the SMC** (see Table 14 in Annex I), when controlling for indicators of community development (none of these correlations is statistically significant). In communities of Côte d'Ivoire where children at **secondary school level are receiving scholarships**, the child labour

[6] It is interesting that we find child labour amongst children aged 14 to 17 to be correlated with the quality of infrastructure and services at primary schools in the sample communities in Côte d'Ivoire (recall that secondary schools are not present in these communities), where the official school age for primary school is 6 to 12 years. This is likely due to the fact that in reality, primary schools are also attended by children aged 13 or older in rural communities where secondary schools are not accessible and due to poor learning conditions, many children's educational achievements lag behind curriculum.

rate is lower by 9 percentage points (see Table 15 in Annex I; not statistically significant).[7]

For Ghana, we do not find child labour to be correlated with the presence of school canteens, or the qualification SMC and its involvement in teacher monitoring after community development is controlled for. When the primary school operates a school feeding programme, the child labour rate is on average lower by 1.4 percentage points (see Table 12 in Annex I; not statistically significant). Also, communities in Ghana where children at secondary level are receiving scholarships have a child labour rate 2 percentage points lower (see Table 16 in Annex I; not statistically significant).[8]

Overall, the regression results are also in line with previous research which has shown that an important determinant of child labour is the level of education among adults: We find that child labour rates at community level decrease as the level of education among adults in the community increases, and this association is statistically significant in most regressions (see Tables 2-18 in Annex I).

Quality of education index and child labour

Finally, we regress child employment and child labour on an index which combines all indicators of educational quality in one score.[9] We now find a statistically significant negative relationship between child labour prevalence and quality of education in Côte d'Ivoire (see Table 17 in Annex I). In other words, **child labour is lower in communities which offer higher quality of education**, after accounting for differences in community size, physical infrastructure, household economic welfare, isolation and adults' education level. In descriptive terms, the 20% of communities with the lowest score on the quality education index have an average child labour prevalence of 29 percent; whereas the 20% of communities with the highest score on the index have a child labour prevalence of 10 percent.

For Ghana, we also find a negative association, but less pronounced and not statistically significant, between the quality of education index and the child labour

[7] Interestingly, the relationship between secondary-level scholarships is stronger with child labour among young children at primary school age (10 percentage points, statistically significant) than with child labour amongst secondary school age children (3 percentage points, not statistically significant). There are two possible interpretations of this: either the effect is driven by children between 11 and 13 years of age; or the younger children in the community, notably younger siblings, benefit from scholarships received by older children.

[8] Our data also confirm previous evidence showing that child labour prevalence decreases as the level of education of adult women and men in the household increases for both countries. The relationship between women's education and child labour tends to be estimated at higher levels of statistical significance.

[9] The index contains the following set of indicators: pupil classroom ratio; presence of toilet facilities; teacher pupil ratio in primary school, whether the primary school operates a school feeding programme, whether the primary school operates a canteen, whether secondary school children receive scholarships, whether there is a SMC, whether SMC members have been trained for their role, whether the SMC monitors teacher attendance.

rate among all children, and among children below 14 years of age, but not among children between 14 and 17 years of age (see Table 18 in Annex I).

CONCLUSIONS

The analysis has shown that better quality of education is associated with lower prevalence of child labour, after taking into account that both education quality and child labour may be driven by a community's level of economic development, isolation and other factors. Child labour tends to be lower in communities with a lower number of pupils per classroom (in Côte d'Ivoire); when schools have toilet facilities (in both countries, and this is particularly relevant for employment of teenagers); when schools operate a school canteen (in Côte d'Ivoire) or a school feeding programme (in Ghana); when members of the school management committee (SMC) have received training for their role (in Côte d'Ivoire); when teacher attendance is monitored by the SMC (in Côte d'Ivoire); and when scholarships are available for secondary school children (in both countries). When we condense the different quality of education indicators into a single index to reflect a community's overall level of educational quality, we find a strong and statistically significant relationship with child labour prevalence: the 20% of communities in the Côte d'Ivoire sample with the lowest score on the quality education index have an average child labour prevalence of 29 percent; whereas the 20% of communities with the highest score on the index have a child labour prevalence of 10 percent.

Our data draw a much clearer link between good quality education and lower prevalence of child labour for Côte d'Ivoire than for Ghana. One possible explanation of this could be that the school quality standard as measured by the PCCF assessment tool is overall considerably higher in the sample communities in Ghana than in Côte d'Ivoire. Potentially, the quality of school infrastructure and services might be most critical as a child labour determinant when it falls below a certain minimum threshold, a hypothesis which would need to be further scrutinized.

There are some **caveats** to keep in mind when interpreting the results. First, the findings do **not provide evidence of a causal relationship**; while a set of potential sources of bias have been controlled for, the correlations we find could still be driven by unobserved community characteristics: child labour rates might be lower, and the quality of education higher, in communities where parents are more concerned and informed about child development, or where women are more empowered, for example.

Second, the PCCF data are **limited to indicators of school infrastructure and school management** and do not capture a complete picture of quality of education. Therefore, the analysis has **not provided insights on other dimensions of educational quality**, such as the quality of teaching, learning outcomes, appropriateness of learning materials, or school safety, which may also be related to child labour.

Third, many of the quality of education indicators used are binary and do not measure the quality of a certain infrastructure or service; this further compromises the interpretation of their relative importance for driving child labour. Lastly, with a sample size of approximately 130 communities for each country, it is challenging to establish statistically significant results.

Given the scarcity of studies on how quality of education affects child labour prevalence, while the findings presented here suggest important linkages, further research is needed. **Future research studies** on the subject, either dedicated experimental studies, or evaluations of ongoing programmes and projects, should be **carefully designed to establish a causal link between quality education and child labour**, and to allow conclusions to be drawn about ***which* quality education interventions** could be most effective in addressing child labour. **More refined measures of educational quality** should be applied, reflecting its various dimensions, including also aspects of teaching quality, learning outcomes and school safety. Child labour outcomes should be measured on children in and out of school and should capture the **gravity and frequency of child labour**. The gap in the existing evidence will best be filled in a collaborative effort between researchers, industry, civil society and government agencies mandated with education and child protection.

ANNEX I: SUMMARY STATISTICS AND REGRESSION RESULTS

Table 1: Summary statistics

	Côte d'Ivoire					Ghana				
	N	**Mean**	SD	Min	Max	N	**Mean**	SD	Min	Max
Primary school in community	130	**0.88**	0.33	0	1	128	**0.91**	0.29	0	1
Distance to junior secondary school	130	**14.44**	12.26	0	70	128	**0.68**	2.68	0	28
Distance to senior secondary school	130	**21.78**	21.30	1	150	128	**8.36**	11.30	0	68
Distance to vocational school	130	**37.03**	36.46	1	226	128	**27.8**	40.03	0	250
Toilet facility in primary school	114	**0.42**	0.50	0	1	116	**0.78**	0.41	0	1
Condition of school infrastructure	114	**2.32**	0.71	1	4	111	**2.50**	0.81	0	4
Pupil classroom ratio in primary school	114	**40.46**	12.13	14	71	102	**30.6**	13.06	4	65
Pupil teacher ratio in primary school	114	**40.27**	12.53	14	77	108	**29.2**	13.39	8	71
Primary school operates school feeding programme	114	**0.45**	0.50	0	1	116	**0.32**	0.47	0	1
Primary school has a canteen	114	**0.20**	0.40	0	1	111	**0.31**	0.46	0	1
Scholarships for secondary school children	130	**0.13**	0.34	0	1	128	**0.16**	0.36	0	1
Whether SMC exists	114	**0.98**	0.13	0	1	110	**0.84**	0.37	0	1
SMC members trained	112	**0.68**	0.47	0	1	93	**0.53**	0.50	0	1
SMC monitors teacher attendance	114	**0.50**	0.50	0	1	111	**0.60**	0.49	0	1
Quality of education index	112	**0.03**	0.35	-1	1	85	**0.12**	0.30	0	1
Mobile network coverage	130	**0.63**	0.48	0	1	128	**0.89**	0.31	0	1
Electricity grid	130	**0.52**	0.50	0	1	128	**0.85**	0.36	0	1
Some households reduce meals certain months of year	130	**0.77**	0.42	0	1	128	**0.77**	0.42	0	1
Distance to secondary health centre	130	**17.35**	19.49	0	140	128	**10.5**	11.43	0	86
Community accessible by road	130	**0.87**	0.34	0	1	128	**0.96**	0.19	0	1
Community accessible all year	130	**0.46**	0.50	0	1	128	**0.65**	0.48	0	1
Mean education level of adult women	130	**1.30**	0.21	1	2	125	**1.56**	0.28	1	2
Mean education level of adult men	130	**1.50**	0.19	1	2	128	**1.78**	0.15	1	2
Total population	130	**2010**	1585	240	12 k	128	**4452**	5645	94	37 k

*Table 2: Linear regression of child labour on **presence of primary school** in communities in **Côte d'Ivoire***

	(1) Child labour	(2) Child labour 5-13	(3) Child employment 14-17	(4) Child labour 14-17
Primary in the community	-0.138**	-0.140**	-0.139	-0.137
	(0.068)	(0.068)	(0.087)	(0.088)
Mean education of women	-0.041	-0.030	-0.143	-0.133
	(0.104)	(0.105)	(0.133)	(0.135)
Mean education of men	-0.091	-0.116	-0.077	-0.013
	(0.125)	(0.125)	(0.160)	(0.162)
Observations	130	130	130	130
R-squared	0.115	0.121	0.133	0.093

Notes : The regression includes the following **additional controls** for which coefficients are not reported in detail: total population in the community; whether the community is connected to the electricity grid; whether there is mobile network coverage; average household income; whether or not households in the community have to reduce their meals during certain months of the year; distance to the nearest vocational school and to the nearest secondary health centre; whether the community is accessible by road, and whether it is accessible all year. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

*Table 3: Linear regression of child labour on **presence of primary school** in communities in **Ghana***

	(1) Child labour	(2) Child labour 5-13	(3) Child employment 14-17	(4) Child labour 14-17
Primary in the community	-0.078**	-0.093***	-0.069	-0.020
	(0.034)	(0.034)	(0.062)	(0.060)
Mean education of women	-0.094***	-0.095***	-0.023	-0.118**
	(0.031)	(0.031)	(0.057)	(0.055)
Mean education of men	-0.120*	-0.126**	-0.024	-0.108
	(0.064)	(0.063)	(0.117)	(0.112)
Observations	125	125	125	125
R-squared	0.387	0.346	0.244	0.305

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Notes : The regression includes the following **additional controls** for which coefficients are not reported in detail: total population in the community; whether the community is connected to the electricity grid; whether there is mobile network coverage; average household income; whether or not households in the community have to reduce their meals during certain months of the year; distance to the nearest vocational school and to the nearest secondary health centre; whether the community is accessible by road, and whether it is accessible all year. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

*Table 4: Linear regression of child labour on **distance to nearest junior secondary high school** in communities in **Ghana***

	(1)	(2)	(3)	(4)

	Child labour	Child labour 5-13	Child employment 14-17	Child labour 14-17
Distance to Junior High School	0.020*	0.018*	0.025	0.030*
	(0.010)	(0.010)	(0.019)	(0.018)
Mean education of women	-0.087***	-0.088***	-0.016	-0.112**
	(0.031)	(0.032)	(0.057)	(0.054)
Mean education of men	-0.095	-0.105	0.009	-0.065
	(0.066)	(0.066)	(0.120)	(0.114)
Observations	125	125	125	125
R-squared	0.379	0.319	0.248	0.322

Notes : The regression includes the following **additional controls** for which coefficients are not reported in detail: total population in the community; whether the community is connected to the electricity grid; whether there is mobile network coverage; average household income; whether or not households in the community have to reduce their meals during certain months of the year; distance to the nearest vocational school and to the nearest secondary health centre; whether the community is accessible by road, and whether it is accessible all year. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

*Table 5: Linear regression of child labour on **distance to nearest senior secondary high school** in communities in **Ghana***

	(1) Child labour	(2) Child labour 5-13	(3) Child employment 14-17	(4) Child labour 14-17
Distance to Senior High School	0.001	0.001	0.004*	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Mean education of women	-0.087***	-0.087***	-0.002	-0.115**
	(0.032)	(0.033)	(0.058)	(0.056)
Mean education of men	-0.127*	-0.135**	-0.041	-0.111
	(0.065)	(0.066)	(0.117)	(0.113)
Observations	125	125	125	125
R-squared	0.360	0.303	0.256	0.305

Notes : The regression includes the following **additional controls** for which coefficients are not reported in detail: total population in the community; whether the community is connected to the electricity grid; whether there is mobile network coverage; average household income; whether or not households in the community have to reduce their meals during certain months of the year; distance to the nearest vocational school and to the nearest secondary health centre; whether the community is accessible by road, and whether it is accessible all year. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

*Table 6: Linear regression of child labour on **distance to nearest vocational school** in communities in **Côte d'Ivoire***

	(1) Child labour	(2) Child labour 5-13	(3) Child employment 14-17	(4) Child labour 14-17
Distance to vocational school	0.001	0.001	0.002**	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Mean education of women	-0.023	-0.012	-0.125	-0.116
	(0.105)	(0.106)	(0.134)	(0.135)
Mean education of men	-0.072	-0.096	-0.058	0.006
	(0.126)	(0.127)	(0.160)	(0.162)
Observations	130	130	130	130
R-squared	0.084	0.089	0.114	0.075

Notes : The regression includes the following **additional controls** for which coefficients are not reported in detail: total population in the community; whether the community is connected to the electricity grid; whether there is mobile network coverage; average household income; whether or not households in the community have to reduce their meals during certain months of the year; distance to the nearest vocational school and to the nearest secondary health centre; whether the community is accessible by road, and whether it is accessible all year. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

*Table 7: Linear regression of child labour on **distance to nearest vocational school** in communities in **Ghana***

	(1) Child labour	(2) Child labour 5-13	(3) Child employment 14-17	(4) Child labour 14-17
Distance to vocational school	0.000	0.000	0.001**	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Mean education of women	-0.090***	-0.091***	-0.020	-0.117**
	(0.032)	(0.032)	(0.057)	(0.055)
Mean education of men	-0.125*	-0.132**	-0.029	-0.110
	(0.065)	(0.065)	(0.117)	(0.112)
Observations	125	125	125	125
R-squared	0.358	0.301	0.236	0.304

Notes : The regression includes the following **additional controls** for which coefficients are not reported in detail: total population in the community; whether the community is connected to the electricity grid; whether there is mobile network coverage; average household income; whether or not households in the community have to reduce their meals during certain months of the year; distance to the nearest vocational school and to the nearest secondary health centre; whether the community is accessible by road, and whether it is accessible all year. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

*Table 8: Linear regression of child labour on **pupils per classroom** in communities in **Côte d'Ivoire.***

	(1) Child labour	(2) Child labour 5-13	(3) Child employment 14-17	(4) Child labour 14-17
Pupil classroom ratio	0.002	0.002	0.002	0.001
	(0.002)	(0.002)	(0.003)	(0.003)
Mean education of women	-0.047	-0.045	-0.113	-0.130
	(0.107)	(0.108)	(0.140)	(0.144)
Mean education of men	-0.207	-0.216	-0.220	-0.188
	(0.131)	(0.132)	(0.171)	(0.176)
Observations	114	114	114	114
R-squared	0.132	0.132	0.119	0.080

Notes : The regression includes the following **additional controls** for which coefficients are not reported in detail: total population in the community; whether the community is connected to the electricity grid; whether there is mobile network coverage; average household income; whether or not households in the community have to reduce their meals during certain months of the year; distance to the nearest vocational school and to the nearest secondary health centre; whether the community is accessible by road, and whether it is accessible all year. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

*Table 9: Linear regression of child labour on **presence of toilet facilities** in communities in **Côte d'Ivoire.***

	(1) Child labour	(2) Child labour 5-13	(3) Child employment 14-17	(4) Child labour 14-17
Toilet facilities	-0.014	-0.016	-0.042	-0.007
	(0.044)	(0.044)	(0.057)	(0.059)
Mean education of women	-0.068	-0.064	-0.138	-0.140
	(0.106)	(0.107)	(0.138)	(0.142)
Mean education of men	-0.199	-0.209	-0.216	-0.184
	(0.131)	(0.132)	(0.171)	(0.176)
Observations	114	114	114	114
R-squared	0.122	0.125	0.117	0.079

Notes : The regression includes the following **additional controls** for which coefficients are not reported in detail: total population in the community; whether the community is connected to the electricity grid; whether there is mobile network coverage; average household income; whether or not households in the community have to reduce their meals during certain months of the year; distance to the nearest vocational school and to the nearest secondary health centre; whether the community is accessible by road, and whether it is accessible all year. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

*Table 10: Linear regression of child labour on **presence of toilet facilities** in communities in **Ghana***

	(1) Child labour	(2) Child labour 5-13	(3) Child employment 14-17	(4) Child labour 14-17
Toilet facilities	-0.012	-0.018	-0.030	0.001
	(0.022)	(0.022)	(0.042)	(0.038)
Mean education of women	-0.109***	-0.105***	-0.004	-0.149***
	(0.033)	(0.033)	(0.062)	(0.056)
Mean education of men	-0.100	-0.117*	0.045	-0.053
	(0.067)	(0.068)	(0.128)	(0.115)
Observations	113	113	113	113
R-squared	0.340	0.279	0.191	0.292

Notes : The regression includes the following **additional controls** for which coefficients are not reported in detail: total population in the community; whether the community is connected to the electricity grid; whether there is mobile network coverage; average household income; whether or not households in the community have to reduce their meals during certain months of the year; distance to the nearest vocational school and to the nearest secondary health centre; whether the community is accessible by road, and whether it is accessible all year. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

*Table 11: Linear regression of child labour on **whether the school runs a canteen** in communities in **Côte d'Ivoire.***

	(1) Child labour	(2) Child labour 5-13	(3) Child employment 14-17	(4) Child labour 14-17
Primary school has a canteen	-0.055	-0.065	-0.033	-0.019
	(0.058)	(0.058)	(0.076)	(0.077)
Mean education of women	-0.061	-0.056	-0.131	-0.137
	(0.106)	(0.106)	(0.138)	(0.142)
Mean education of men	-0.182	-0.190	-0.201	-0.178
	(0.132)	(0.132)	(0.172)	(0.177)
Observations	114	114	114	114
R-squared	0.129	0.135	0.114	0.080

Notes : The regression includes the following **additional controls** for which coefficients are not reported in detail: total population in the community; whether the community is connected to the electricity grid; whether there is mobile network coverage; average household income; whether or not households in the community have to reduce their meals during certain months of the year; distance to the nearest vocational school and to the nearest secondary health centre; whether the community is accessible by road, and whether it is accessible all year. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

*Table 12: Linear regression of child labour on **whether a school feeding programme is operated** in communities in **Ghana.***

	(1) Child labour	(2) Child labour 5-13	(3) Child employment 14-17	(4) Child labour 14-17
Feeding programme at Primary school	-0.014	-0.007	-0.044	-0.016
	(0.019)	(0.019)	(0.036)	(0.032)
Mean education of women	-0.109***	-0.103***	-0.005	-0.153***
	(0.032)	(0.033)	(0.061)	(0.055)
Mean education of men	-0.101	-0.120*	0.042	-0.051
	(0.067)	(0.068)	(0.127)	(0.115)
Observations	113	113	113	113
R-squared	0.342	0.276	0.199	0.294

Notes : The regression includes the following **additional controls** for which coefficients are not reported in detail: total population in the community; whether the community is connected to the electricity grid; whether there is mobile network coverage; average household income; whether or not households in the community have to reduce their meals during certain months of the year; distance to the nearest vocational school and to the nearest secondary health centre; whether the community is accessible by road, and whether it is accessible all year. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table 13: Linear regression of child labour on ***whether the School management Committee (SMC) has received training*** *in communities in* ***Côte d'Ivoire.***

	(1) Child labour	(2) Child labour 5-13	(3) Child employment 14-17	(4) Child labour 14-17
SMC members trained	-0.047	-0.050	-0.050	-0.012
	(0.046)	(0.046)	(0.059)	(0.061)
Mean education of women	-0.081	-0.077	-0.153	-0.148
	(0.106)	(0.107)	(0.137)	(0.142)
Mean education of men	-0.191	-0.201	-0.200	-0.172
	(0.131)	(0.132)	(0.169)	(0.175)
Observations	112	112	112	112
R-squared	0.139	0.140	0.130	0.089

Notes : The regression includes the following **additional controls** for which coefficients are not reported in detail: total population in the community; whether the community is connected to the electricity grid; whether there is mobile network coverage; average household income; whether or not households in the community have to reduce their meals during certain months of the year; distance to the nearest vocational school and to the nearest secondary health centre; whether the community is accessible by road, and whether it is accessible all year. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table 14: Linear regression of child labour on ***whether teacher attendance is monitored by the School management Committee (SMC)*** *in communities in* ***Côte d'Ivoire.***

	(1) Child labour	(2) Child labour 5-13	(3) Child employment 14-17	(4) Child labour 14-17
SMC monitors teacher attendance	-0.027	-0.025	-0.024	0.000
	(0.045)	(0.045)	(0.058)	(0.060)
Mean education of women	-0.061	-0.057	-0.129	-0.139
	(0.106)	(0.107)	(0.139)	(0.142)
Mean education of men	-0.203	-0.212	-0.215	-0.183
	(0.132)	(0.133)	(0.172)	(0.176)
Observations	114	114	114	114
R-squared	0.125	0.127	0.113	0.079

Notes : The regression includes the following **additional controls** for which coefficients are not reported in detail: total population in the community; whether the community is connected to the electricity grid; whether there is mobile network coverage; average household income; whether or not households in the community have to reduce their meals during certain months of the year; distance to the nearest vocational school and to the nearest secondary health centre; whether the community is accessible by road, and whether it is accessible all year. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

*Table 15: Linear regression of child labour on **whether children at secondary school level receive scholarships** in communities in **Côte d'Ivoire.***

	(1) Child labour	(2) Child labour 5-13	(3) Child employment 14-17	(4) Child labour 14-17
Scholarship at secondary school	-0.091	-0.104	-0.077	-0.031
	(0.063)	(0.063)	(0.081)	(0.082)
Mean education of women	-0.035	-0.025	-0.135	-0.120
	(0.105)	(0.105)	(0.134)	(0.136)
Mean education of men	-0.044	-0.064	-0.034	0.016
	(0.127)	(0.127)	(0.162)	(0.165)
Observations	130	130	130	130
R-squared	0.100	0.110	0.121	0.076

Notes : The regression includes the following **additional controls** for which coefficients are not reported in detail: total population in the community; whether the community is connected to the electricity grid; whether there is mobile network coverage; average household income; whether or not households in the community have to reduce their meals during certain months of the year; distance to the nearest vocational school and to the nearest secondary health centre; whether the community is accessible by road, and whether it is accessible all year. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

*Table 16: Linear regression of child labour on **whether children at secondary school level receive scholarships** in communities in **Ghana.***

	(1) Child labour	(2) Child labour 5-13	(3) Child employment 14-17	(4) Child labour 14-17
Scholarship at Secondary school	-0.019	-0.024	0.010	-0.004
	(0.024)	(0.024)	(0.043)	(0.041)
Mean education of women	-0.089***	-0.089***	-0.021	-0.117**
	(0.032)	(0.032)	(0.058)	(0.055)
Mean education of men	-0.125*	-0.132**	-0.029	-0.110
	(0.065)	(0.065)	(0.118)	(0.112)
Observations	125	125	125	125
R-squared	0.362	0.307	0.236	0.304

Notes : The regression includes the following **additional controls** for which coefficients are not reported in detail: total population in the community; whether the community is connected to the electricity grid; whether there is mobile network coverage; average household income; whether or not households in the community have to reduce their meals during certain months of the year; distance to the nearest vocational school and to the nearest secondary health centre; whether the community is accessible by road, and whether it is accessible all year. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

*Table 17: Linear regression of child labour on an **index of quality of education indicators** in communities in **Côte d'Ivoire.***

	(1) Child labour	(2) Child labour 5-13	(3) Child employment 14-17	(4) Child labour 14-17
Quality of education index	-0.120*	-0.124*	-0.131	-0.071
	(0.064)	(0.064)	(0.083)	(0.086)
Mean education of women	-0.047	-0.041	-0.116	-0.131
	(0.105)	(0.106)	(0.136)	(0.142)
Mean education of men	-0.173	-0.183	-0.181	-0.162
	(0.130)	(0.131)	(0.168)	(0.175)
Observations	112	112	112	112
R-squared	0.160	0.162	0.145	0.095

Notes : The regression includes the following **additional controls** for which coefficients are not reported in detail: total population in the community; whether the community is connected to the electricity grid; whether there is mobile network coverage; average household income; whether or not households in the community have to reduce their meals during certain months of the year; distance to the nearest vocational school and to the nearest secondary health centre; whether the community is accessible by road, and whether it is accessible all year. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

*Table 18: Linear regression of child labour on an **index of quality of education indicators** in communities in **Ghana.***

	(1) Child labour	(2) Child labour 5-13	(3) Child employment 14-17	(4) Child labour 14-17
Quality of education index	-0.010	-0.023	-0.011	0.024
	(0.036)	(0.035)	(0.065)	(0.065)
Mean education of women	-0.124***	-0.118***	-0.022	-0.188**
	(0.041)	(0.040)	(0.075)	(0.074)
Mean education of men	-0.130	-0.158*	0.044	-0.021
	(0.086)	(0.083)	(0.156)	(0.155)
Observations	83	83	83	83
R-squared	0.374	0.357	0.217	0.282

Notes : The regression includes the following **additional controls** for which coefficients are not reported in detail: total population in the community; whether the community is connected to the electricity grid; whether there is mobile network coverage; average household income; whether or not households in the community have to reduce their meals during certain months of the year; distance to the nearest vocational school and to the nearest secondary health centre; whether the community is accessible by road, and whether it is accessible all year. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

ANNEX II: OVERVIEW OF EXPERIMENTAL EVIDENCE ON IMPACTS OF QUALITY OF EDUCATION INTERVENTIONS ON SCHOOL PARTICIPATION, SCHOOL ATTAINMENT AND CHILD LABOUR

Intervention	Reference	Country, study design	Findings brief : positive (+), neutral (0) or negative (-) effect	Details of Findings
Free school uniforms	Duflo, E., P. Dupas and M. Kremer. 2015. "Education, HIV and Early Fertility: Experimental Evidence from Kenya. *American Economic Review*.	Kenya, RCT	Participation: + (drop-out -)	Sixth grade girls who received free uniforms for two years were 3.1 percentage points less likely to drop out after three years than their peers who did not receive uniforms (19 percent of whom dropped out). Boys who received uniforms were 2.4 percentage points (19 percent) less likely to drop out.
School meals	Powell, C., S. Walker, S. Chang, and S. Grantham-McGregor, 1998. "Nutrition and education: A randomized trial of the effects of breakfast in rural primary school children." *American Journal of Clinical Nutrition* 68: 873–879.	Jamaica, RCT	Participation: + (attendance) Attainment: +/0 Height / weight: +	In Jamaica, a program that provided free breakfast to grades 2–5 improved attendance by 3.1 percentage points (4.6 %) among previously undernourished children and 1.9 percentage points (2.6 %) among children who were adequately nourished at the start of the program of the program. Compared with the control group, height, weight, improved significantly in the breakfast group. Both groups made poor progress in Wide Range Achievement Test scores. Younger children in the breakfast group improved in arithmetic.
	Kazianga, H., D. de Walque, and H. Alderman. 2012. "Educational and Child Labour Impacts of Two Food-for-Education Schemes: Evidence from a Randomised Trial in Rural Burkina Faso." *Journal of African Economies*, 21 (5): 723–760.	Burkina Faso, RCT	Participation: + (enrolment) Attainment: +	A study in Burkina Faso examined two school-based feeding programs, one that provided students with free lunch each day if a student attended school and another that gave each girl ten kilograms of cereal each month if she achieved 90 percent attendance. Researchers found that the programs increased enrolment by 4 and 5 percentage points, respectively, over a base of 25 percent. Scores on mathematics improved for girls in both school meals and take-home rations villages. Among girls in schools assigned to the take-home rations, both farm and non-farm economic activities decreased significantly by 9 percentage points (respectively 57 and

				16% among all girls in the control group at baseline). School meals did not significantly affect either of these two activities for boys or girls.
	Alderman, H., D. Gilligan, and K. Lehrer. 2012. "The Impact of Food for Education Programs on School Participation in Northern Uganda." *Economic Development and Cultural Change* 61 (1): 187-218.	Uganda, IDP camp	Participation: + Attainment: + (grade repetition -)	A program in Uganda provided school meals and take-home rations to primary schools in internally displaced persons camps. Both school meals and take-home rations raised morning attendance by approximately 9 percentage points (12 %) and afternoon attendance by 14–15 percentage points (31–32 %), although neither program had an effect on overall enrolment. Both programs reduced grade repetition. Neither program affected progression to secondary school, but children in grade 6 in SFP schools at baseline were significantly more likely to remain in primary school and repeat a grade than drop out.
	Ravallion, M., and Q. Wodon. (2000). "Does Child Labour Displace Schooling? Evidence on Behavioural Responses to an Enrolment Subsidy." Economic Journal, 110: C158-C175.	Bangladesh, IV	Participation: + Child labour: -	Bangladesh's Food Education Program, comprises of take-home rations given to poor households with children in primary school. To receive the ration, children must attend at least 85% of all classes in a month. Estimates show a reduction of child labor (measured as engaged in an economic activity inside and outside the household). Also marked increase in school attendance.
School latrines / WASH	Trinies, V., Garn, J. V., Chang, H. H., & Freeman, M. C. (2016). The Impact of a School-Based Water, Sanitation, and Hygiene Program on Absenteeism, Diarrhea, and Respiratory Infection: A Matched-Control Trial in Mali. *The American journal of tropical medicine and hygiene*, *94*(6), 1418-25.	Mali, matching	Participation: 0 Health: +	Intervention included installing or rehabilitating water points and latrines; distributing WASH supplies including handwashing and drinking water containers, soap, anal cleansing kettles, trash bins, brooms, and disinfectant; and carrying out hygiene promotion activities in and around the schools, training teachers and SMC, establishing and training school hygiene clubs. No positive effect on absenteeism. Evidence of enteric disease was lower among pupils attending schools benefitting from school WASH improvements than students attending comparison schools.
	Freeman MC, Greene LE, Dreibelbis R, Saboori S, Muga R, Brumback B, Rheingans R. Assessing the impact of a	Kenya, RCT	Participation: + (attendance)	Public primary schools were randomly assigned to one of three study arms: water treatment and hygiene promotion (WT & HP), additional sanitation improvement, or control.

	school-based water treatment, hygiene, and sanitation program on pupil absence in Nyanza Province, Kenya: a cluster-randomized trial. Trop Med Int Health. 2012;17:380–391.			We found no overall effect of the intervention on absence. However, positive effect on girls of WT and HP (58% reduction in the odds of absence). Sanitation improvement in combination with WT and HP resulted in a comparable drop in absence for girls. Boys were not impacted by the intervention.
	Birdthistle, I., Dickson, K., Freeman, M., & Javidi, L. (2011). What impact does the provision of separate toilets for girls at schools have on their primary and secondary school enrolment, attendance and completion?: A systematic review of the evidence. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.	various	Participation: 0 (enrolment, attendance) Attainment: 0 (completion)	Meta-analysis of 5,741 citations to see if there is any evidence of an impact of providing separate toilets for boys and girls on the enrolment, attendance and/or completion of girls' education in primary or secondary schools. Find no evidence either for or against the impact of separate latrines for girls (mainly due to lack of segregated data).
	Adukia, Anjali. 2017. "Sanitation and Education." *American Economic Journal: Applied Economics,* 9 (2): 23-59.	India, matching	Participation: + (enrolment) Attainment: 0 (test scores)	School latrine construction substantially increases enrollment of pubescent-age girls, though predominately when providing sex-specific latrines. Privacy and safety appear to matter sufficiently for pubescent-age girls that only sex-specific latrines reduce gender disparities. Academic test scores did not increase following latrine construction, however.
Teacher monitoring	Duflo, Esther, Rema Hanna, and Stephen P. Ryan. 2012. "Incentives Work: Getting Teachers to Come to School." *American Economic Review*, 102 (4): 1241-78.	India, RCT	Participation: + (teacher attendance) Test scores: +	Teachers' attendance was monitored daily using cameras, and their salaries were made a nonlinear function of attendance. Reducing teacher absenteeism through monitoring led to schools being open more often, increasing the days of instruction a student received per month by 9 percentage points (30 percent). Teacher absenteeism in the treatment group fell by 21 percentage points relative to the control group, and the children's test scores increased by 0.17 standard deviations.
Tutoring for weak students	Banerjee, Shawn, Duflo, and Linden. 2007. "Remedying Education: Evidence from Randomized Experiments in India." *The Quarterly Journal of Economics* 122 (3): 1235-1264.		Participation: 0 (attendance and drop-out) Attainment: + (test scores)	A remedial education program hired young women from the community to teach students lagging behind in basic literacy and numeracy skills (children who have reached grade 3 or 4 without having mastered them). These children are taken out of the regular classroom to work with this

				young woman for two hours per day (the school day is about four hours). No discernible effect on attendance or drop out (but improved test scores). The program increased average test scores of all children in treatment schools by 0.28 standard deviation, mostly due to large gains experienced by children at the bottom of the test-score distribution.
Computer-assisted learning	Banerjee, Shawn, Duflo, and Linden. 2007. "Remedying Education: Evidence from Randomized Experiments in India." *Quarterly Journal of Economics* 122 (3): 1235-1264.		Participation: 0 (attendance and drop-out) Attainment: + (test scores)	Addressed to all children but adapted to each child's current level of achievement. It is a computer-assisted learning program where children in grade 4 are offered two hours of shared computer time per week during which they play games that involve solving math problems whose level of difficulty responds to their ability to solve them. No discernible effect on attendance or drop. A computer-assisted learning program focusing on math increased math scores by 0.47 standard deviation. One year after the programs were over, initial gains remained significant for targeted children, but they faded to about 0.10 standard deviation.
Contract teachers	Duflo, Esther, Pascaline Dupas and Michael Kremer. 2015. "School governance, teacher incentives, and pupil–teacher ratios: Experimental evidence from Kenyan primary schools." *Journal of Public Economics* 123: 92–110.	Kenya, RCT	Attainment: +	Kenyan Parent-Teacher Associations (PTAs) funded to hire an additional teacher on an annual contract renewable conditional on performance. For students randomly assigned to stay with existing classes, test scores did not increase significantly, despite a reduction in class size by half. In contrast, scores increased for students assigned to be taught by locally-hired contract teachers. Parents of grade 1 students were asked to volunteer to perform attendance checks on the teachers on a regular basis.
Perception of educational benefits	Jensen, R. 2010. "Impact of Information on the Returns to Education on the Demand for Schooling in the Dominican Republic." *Quarterly Journal of Economics* 125: 515-548.	Dominican Republic, RCT	Participation: +	A study in the Dominican Republic showed that more than 40 percent of eighth-grade boys did not expect their future earnings to be higher if they completed secondary school (38). Boys with low perceived returns to secondary education were also more likely to drop out. Researchers found that informing boys of the average wages earned by people in their area based on education levels raised their own

				perceived returns to education, and that boys who received this information completed an additional 0.20 years of schooling. While the intervention had a similar impact on the perceived returns for the poorest and the least poor households in the sample, there was no significant increase in schooling among the poorest households.
Educating parents	Banerji, Rukmini, Jim Berry, and Marc Shotland. "The Impact of Maternal Literacy and Participation Programs: Evidence from a Randomized Evaluation in India." Working paper, February 2017.	India, RCT	Participation: 0 (attendance & enrolment) Attainment: + Women empowerment: +	A study testing three interventions for mothers in India—literacy and math training, a series of materials and activities to promote enhanced involvement in their children's education at home, or a combination of the two—found that the literacy training combined with materials had a small positive impact, raising the probability of the child attending school by 2 percentage points (2.3 percent). We find that the 3 programs had statistically significant effects of 0.04, 0.05, and 0.07 standard deviations on children's math scores (respectively), but only the combined intervention had significant effects on language scores. No impact on school attendance and enrolment. Using an index of 19 WE variables, find positive and statistically significant impacts of each of the three treatments on women empowerment.
Community involvement in school management	Various	Various	Participation: 0 / + Attainment: 0 / +	Out of the 7 studies testing community monitoring or school-based management interventions included in this review, 3 programs improved both participation and learning (Uganda Madagascar and Mexico) and 2 programs improved neither (Niger, India). A program in Indonesia improved learning but had no impact on dropout, which was already very low. A program in The Gambia improved participation but had no impact on learning.
Text books	Sabarwal, S., D.Evans, A. Marshak. "The Permanent Input Hypothesis: The Case of Textbooks and (No) Student Learning in Sierra Leone." World Bank Policy Research Working Paper No. 7021, 2014.	Sierra Leone, RCT	Participation: 0 (drop-out, attendance) Attainment: 0 (grade repetition)	Textbooks provided to primary schools, found no impact on student dropout, grade repetition, or daily attendance. But students did not necessarily have greater access to textbooks because many schools stored the textbooks instead of distributing them to students.
	Glewwe, Paul, Michael	Kenya	Participation: 0 (attendance)	Contrary to the previous literature, find that providing textbooks did not raise average test scores. Textbooks did

	Kremer, and Sylvie Moulin. 2009. "Many children left behind? Textbooks and test scores in Kenya." *American Economic Journal: Applied Economics* 1 (1), 112–135.		Attainment: 0 (test score, grade repetition)	increase the scores of the best students (those with high pretest scores) but had little effect on other students. Textbooks are written in English, most students' third language, and many students could not use them effectively. Textbooks increased progression to secondary school for eighth graders but did not reduce grade repetition or raise attendance in lower grades.
Laptops	Cristia, Julián P., Pablo Ibarrarán, Santiago Cueto, Ana Santiago, and Eugenio Severín. "Technology and Child Development: Evidence from the One Laptop Per Child Program." IDB Working Paper Series No. IDPWP-304, February 2012.	Peru, RCT	Participation: 0 Attainment: 0 / + (test scores 0, cognitive skills+)	Laptops provided to students in low-income areas for use at home and at school in rural Peru. Data collected after 15 months of implementation in 319 primary schools. While the program increased access to technology, enrollment and attendance were unaffected. No evidence is found of effects on test scores in Math and Language. Some positive effects are found, however, in general cognitive skills as measured by Raven's Progressive Matrices, a verbal fluency test and a Coding test.
Bundle of school infrastructure improvements	Newman, J., M. et al., 2002. "An Impact Evaluation of Education, Health, and Water Supply Investments by the Bolivian Social Investment Fund." *World Bank Economic Review* 16 (2): 241-74.	Bolivia, RCT and matching	Participation: 0 (enrolment, attendance, drop-out)	Repair of existing schools or building of new schools, playgrounds, new desks, blackboards, increased availability of Bathrooms. Researchers found little impact on enrolment, attendance, or dropout rates.
Pre-school bundle	Martinez, S., S. Naudeau, and V. Pereira. 2012. "The Promise of Preschool in Africa: A Randomized Impact Evaluation of Early Childhood Development in Rural Mozambique." Working Paper	Mozambique, RCT	Participation: + (pre-school and primary school enrolment) Child labour: - / 0 Attainment: +	Community-centered preschool model in rural areas in Mozambique, financed construction, equipment of classrooms and training; technical assistance and materials to build playgrounds, child-sized latrines, and a washing station with safe water for hand washing and drinking; each class staffed with two volunteer teachers; parents and caregivers of preschoolers had the opportunity to participate in monthly parenting meetings focusing on thematic topics, including health, nutrition, and literacy. Preschool participation increased substantially (42% of the 3-9 year-old children, i.e. those who could have participated in the program's preschools) vis-à-vis the control villages (11.7%) and pre-schools appear to have affected subsequent primary school participation.

				Hours worked at the family plot decreased by 1.3 hours among 5-9 year-old beneficiary children (2.9 hours on average in the control group). However, hours spent on household chores and caring for children, elderly, and sick did not change significantly. Strong effects of preschool on improving cognitive, precise motor and emotional development of young children. Results on language and communication are mixed,
Bundle (school kits, textbooks, school meals)	Kazianga, Levy, Linden, Sloan. (2013). "The Effects of 'Girl-Friendly' Schools: Evidence from the BRIGHT School Construction Program in Burkina Faso." American Economic Journal: Applied Economics, 3 (5): 41-62. De Hoop, J. and F. Rosati. (2014). "Does Promoting School Attendance Reduce Child Labour? Evidence from Burkina Faso's BRIGHT Project." Economics of Education Review 39: 78-96.	Burkina Faso, RDD	Participation: + (enrolment) Attainment: + (test scores) Child labour: 0	Burkinabé Response to Improve Girls' Chances to Succeed (BRIGHT): Construction of girl-friendly schools, provision of school kits, textbooks and school meals for all students in 132 rural villages in rural Burkina Faso. Female pupils were also eligible for take-home rations on the condition that they attended school regularly. BRIGHT let to strong improvements in school enrolment and children's scores in mathematics and French tests. No effect on activities performed by the child outside the household. Not much difference in the treatment effect between boys and girls, but boys without female siblings (who did not benefit indirectly from the take-home rations) increased their participation in work outside and inside their households.

Annex III: ICI analysis of correlation between child rights and child labour using UNICEF MICS data

In order to understand the relationship between child labour in cocoa and various indicators of child rights more broadly, ICI has extracted a number of relevant indicators from the 2016 Côte d'Ivoire Multiple Indicators Cluster Survey (MICS) and analysed relations between the different dimensions of child rights in cocoa-growing communities. We present a brief synthesis of this analysis here.

Data

Côte d'Ivoire Multiple Indicators Cluster Survey (MICS) 2016 (nationally representative household survey on key indicators on the well-being of children and women), sub-sample of cocoa-growing communities, comprising approx. 7,400 households.

Method of analysis

Analysis at household level; multiple linear regression of child labour within the household on various child rights indicators, controlling for: household wealth, size of land owned, head of household's education level. This method allows to assess how, on average, **a household's child labour risk changes with other child rights indicators, at a given level of** household wealth, size of land, and head of household's education.

Findings

- Child labour (in the family) is clearly correlated (negatively, as expected) with school attendance, attendance in early childhood education programs, access to improved drinking water and improved sanitation, holding of birth certificates.
- For example, amongst the children who are not in school, 45% are involved in hazardous child labour, whereas amongst those who are in school, 22% are in hazardous child labour.
- Amongst children who hold a birth certificate, 25% are involved in hazardous child labour, whereas amongst children with no birth certificate, 19% are in hazardous child labour.

Limitations

- No evidence on causal relation, correlations could be driven by *unobserved* variables such as parents' concern for child development, women's empowerment, etc.
- MICS data contain no specific information on education services in the community.
- Child labour information available for one randomly selected child in the household; the child labour variable can thus be analysed only at the child level, or aggregated at community level (but cannot be used to derive a household level child labour indicator).