

The Impact of Children's Work on Basic Education in Cambodia: A Case Study of Angsnoul District

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Abstract: The purpose of this study is to investigate the relationship between children's work and schooling in Cambodia. This study adopts an inclusive definition of children's work which also covers work in the home. In a questionnaire survey, which covered 460 children, the researcher collected information about their involvement in various kinds of work ranging from washing dishes to working in factories. Logistic regression and linear regression are used to estimate the impact of those kinds of work performed by children on educational enrollment and achievement. The results show that children's work is an influential factor which influences both the opportunity and quality of education for children in Cambodia. The analyses make clear that paid work restricts the educational opportunity of children. In contrast to common belief, non-economic work activities are positively correlated to academic learning, suggesting a successful combination of schooling and work obligation. It is also found that gender difference in education in Cambodian context is closely related to gender roles in work responsibilities. Girls outperform boys in learning achievement; but girls are more likely to quit school to work full time. This paper discusses why this phenomenon happened.

Key words: Cambodia, children's work, primary education, dropout, academic achievement

1. Introduction

In recent decades, topics centering on children's work and education have gained a prominent place in world conferences and international conventions, reflecting worldwide concern towards these issues. For example, in 1973, ILO Minimum Age Convention 138 was adopted. The convention establishes that no child can be employed in any economic sector below the age designated for the completion of primary schooling and not less than 15 years old. The UN Convention on the Rights of the Child adopted in 1989 calls for protection of children against work that threatens their health, education, and development. This was followed by the ILO Convention 182 on Elimination of the Worst Forms of Child Labor (1999). On the educational sphere, world delegates met in Jomtien, Thailand in 1990 and adopted the World Declaration on Education for All, the spirit of which was reaffirmed by the Dakar Framework for Action adopted at the World Education Forum in 2000. The framework promised to provide all children with access to and completion of free and compulsory primary education of good quality by 2015. children's work is believed to be one of the main obstacles to the achievement of universal access to basic education. At the same time, provision of low quality education is said to drive children

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out of school and end up in working. To recognize this potential link between children's work and education, the Global Task Force on Child Labor and Education was established in 2005 by an inter-agency group consisting of ILO, UNESCO, UNICEF, and the World Bank.

In Cambodia, like in other developing countries, children's involvement in labor is prevalent. Children, in addition to doing household chores, play an important role as a labor force, especially in rural families. They help in family farms, businesses, and even work for wages to supplement household meager income. The results of the Cambodia Child Labor Survey (CCLS) 2001 showed that there were 2,278,460 children aged 5 to 17 years who could be considered as working children, about 50 percent of this age group (Ministry of Planning, 2002, p. 40). According to the Cambodia Socio-Economic Survey 2007, the percentage of working children was still as high as 44 percent of the 10-14 age group (Ministry of Planning, 2010, p. 12).

Access to basic education has fairly improved over the years. The net enrollment rate in primary education increased from 87 percent to 93 percent in 2000 and 2007 respectively. In lower secondary education, the net enrollment increased from 17 per cent to 35 percent over the same period (MoEYS, 2001, p. 40; 2008, p. 44). Despite this surge in enrollment, Cambodian education is struggling to retain students in school. The education system is still bottom heavy with most of the enrollees being in the first few grades. By grade 6, 40 percent of the pupils have dropped out of school and only 30 percent of the pupils remain in school up to grade 9 (MoEYS, 2008, p. 58). Most of the gain in recent enrollment ratios is due to more children entering school rather than children staying in school (World Bank, 2005, p. 1). Child labor is believed to exert a strong negative influence not only on enrollment but also on learning achievement of children in Cambodia (World Bank, 2006, p. 33-34). The most recent national survey revealed that among out-of-school children, 31 percent reported work-related matters as a reason for non-attendance (Ministry of Planning, 2009, p. 14). From this evidence, it is possible to conclude that work performed by children has a detrimental impact on their schooling.

The purpose of this study is to investigate the relationship between children's work and schooling in Cambodia. To meet this purpose, the study intends to achieve the following objectives:

- To identify factors influencing families' decision to send their children to school.
- To measure the impact of child labor on the children's schooling.

In this study, children's work is defined as all productive activities performed by children for household maintenance, family consumption, pay, profit, or family gain. By this definition, children's work includes unpaid work contribution in family farm or in the home. It also covers work activities performed by children for wages such as working in construction sites or factories. Children's work in this study subsumes child labor, which is often used by existing literature to refer mainly to a subset of work which is harmful to children's health and education.

2. Review of previous studies

2.1 Participation of children in work and schooling

Much of the work in the literature of children's work and schooling is influenced by the human capital theory (Becker, 1993) and household production theory (Becker, 1965). In the former, the author suggests that the decision to enroll a child in school is determined by the perceived benefits of schooling, such as higher earning in the future. In the latter, the decision of child schooling is assumed to be more likely constrained by the limited household resources and immediate family needs. At the heart of household production theory lies the assumption that the family is the main decision-making agent with regard to children's schooling and/or work. Based on this conception, several factors inside the family are said to influence family's decision making process. The major factors include family size, household resources, and child characteristics. Large family size represents constraint to

family resources. In large families, it is likely that investment in education is low as a result of resource distribution to more members and the involvement of children in work activities is high.

Household resource is an important determinant of children's work and schooling. Dar et al. (2002) reviewed 17 studies on the participation of children in schooling and work activities which was published between 1995 and 2001. They reported that almost all studies reviewed support the link between poverty and children's work and a positive correlation between household income and children's schooling. Parental educational attainment was found to have significant and positive impact on child's probability of going to school and not working in most of the studies.

Previous studies have found that children's sex and age also impact household decision regarding their participation in schooling and work participation. The relationship of age with participation in schooling and work activities is consistent in that in developing countries, age has a negative correlation with educational enrollment and a positive association with work participation (Wolfe & Behrman, 1984; Patrinos & Psacharopoulos, 1995). With regard to gender, the picture is not as clear as age. Gender bias in terms of work and educational participation seems to vary from country to country and even between regions in a country. Filmer (2005) investigated gender disparity in schooling of 44 countries and reported that gender bias is regionally concentrated. In Central and Western Africa, North Africa, and South Asia, gender gaps are large in favor of males while in Latin America there is no such female disadvantage, and often a small advantage, in education (Filmer, 2005).

2.2 Impact of work on schooling

The potential impact of children's work on their schooling has been discussed in the previous studies. children's work may take the them away from school or cause physical exhaustion and health problem, which will in turn disrupt their schooling. Psacharopoulos (1997) found that children's work is negatively associated with school performance. The fact that a child is working reduces his or her educational attainment by about two years of schooling relative to the control group of non-working children. Two recent studies analyze the impact of children's work on learning achievement (Heady, 2003; Gunnarsson *et al.*, 2006). Heady found that child work, particularly work performed outside the home, has little effect on school attendance but substantial negative impact on learning achievement in Ghana. Gunnarsson *et al.* (2006) reported that children's work lowers performance on tests of language and mathematics among third and fourth graders from 9 countries in Latin America.

While the above-mentioned studies confirm the accepted wisdom of the impact of children's work on schooling, some studies have maintained that children's work does not necessarily harm children's schooling (Psacharopoulos & Patrinos, 1997; Buchmann, 2000). These scholars support the idea that children's work and school enrollment are not mutually exclusive. In developing countries, having children to combine school attendance with work is a survival strategy of poor households.

While these studies offer valuable insight into the problems concerned, they seem to overlook some important points. First, most of the previous studies concentrate on paid work. Doing so may underestimate the fact that a lot of children in the developing countries perform unpaid labor in the home or family farms. Second, little attention has been paid to the impact of each kind of work on schooling. The present study intends to focus on these shortcomings.

3. Method

3.1 Sampling and instrumentation

The data used in the analysis derived from a field survey designed for this study and conducted in one of the districts¹ of Cambodia in March 2009. Angsnuol district was selected for the study due to two main reasons. First, the district has been in recent years undergoing a rapid industrialization. Many factories, most of which are garment manufacturers, have been built and have provided low-skilled employment to thousands of people. The availability of low-skilled jobs

in the area might cause parents to see little value of children's schooling and as a result they will invest less in the education of the children. In such a situation, it is probable that the incidence of children's work is relatively high. Because this research aims to observe the impact of children's work on schooling, the apparent prevalence of work in the area will enable the researcher to answer the research questions well. Second, Angsnuol district has a comparatively developed school system. Primary and lower secondary schools are easily accessible within about 5 kilometers from students' home. For this reason, the present research can control for school distance, which is often shown to have substantial impact on the enrollment. In areas where school availability is limited, pupils would quit school due to the mere absence or long distance of school rather than work engagement. So this decision on site will help avoid such bias.

The sample units were the households and were selected based on the following sampling technique:

1. Of all the 16 communes of Angsnuol district, 6 were randomly selected.
2. Some villages were randomly selected in proportion to the total number of villages in the commune.
3. Target households (those with children at 12 years of age and over or those with children attending lower secondary school) were hand-pointed by the village chiefs.

The current researcher, with a pre-determined protocol, went from door to door to conduct interviews with the head of the household, either the mother, father, or the most informative person in the family. The interview protocol contains mainly closed-ended questions about both the households and the target children². The survey covered 334 households and information about 460 children was collected.

3.2 Variables

3.2.1 Dependent Variables

Two variables representing schooling were used as dependent variables: enrollment and academic achievement. Enrollment measures whether the child was enrolled in school or not. Performance was measured by means of achievement test scores on all subjects of the curriculum. In total, test scores of 279 lower secondary school students were retrieved from their schools for four consecutive months of the first semester of academic year 2008/2009. The researcher calculated an average score for each pupil and standardized those averages to have a mean of 50 and standard deviation of 10 so that the scores can be compared across schools.

3.2.2 Independent variables

The independent variables of this study were measures of different kinds of work activities. The study counted various activities performed by children from helping in the home like doing chores to paid labor such as working in construction sites and factories. Three categories of work were derived from those activities. The first category included all home-based house-keeping activities. The second subsumed activities which lead to production of goods for own consumption such as agricultural work, hunting and fishing. The third cover paid laborer such as construction or factory workers. This categorization is in line with Understanding Children's Work (UCW)'s study³ in Cambodia. In most of past researches, child labor excludes home-based work performed by children. However, the present study adopted a more inclusive definition of children's work which also covers work activities in the home.

The analyses also included other predicting factors such as child characteristics and family social background. First, age and gender of the children were included to examine whether access to and quality of education are different for boys and girls or vary by age. Next, the analyses also take into account variables representing family background of the pupils. These include parental education, number of siblings or family size, and living in big house. Unlike past research, the present researcher

used 'living in big house' as proxy for SES due to the fact that income and parental occupation status are hard to judge as most of the respondents were irregular income earners. Big houses refer to two-story tile-roofed buildings. In Cambodia only families with decent living can afford to build such houses. In estimating learning achievement, absenteeism was included because of its well-recognized effect on achievement. Absenteeism measures whether the child attended school regularly or not. The researcher used parental report of child's absence from school because of the fact that some schools did not keep good record of the pupils' absence. Finally, work variables are incorporated to the analysis to see how it affects enrollment and learning achievement and how it interacts with other determinants. Table 1 gives descriptive statistics for these variables.

3.3 Methods of estimation

Regression analyses were used to estimate the effect of children's work on schooling because they allowed the researcher to look at the effects of a number of independent variables on each of the dependent variable simultaneously. The aims of the analyses are to estimate the impact of children's work on their schooling. However, as reviewed earlier many factors influence both the chance and quality of education that a given child would receive. This study estimated the effect of children's work on enrollment and achievement separately. First, enrollment, coded 1 if the child was attending school and 0 if otherwise, represented educational access of the children in the age group concerned. The survey revealed that the 34 students who were not enrolled in the school system had attended school some time and dropped out of schools. Because school status is dichotomous variables having values of either 0 or 1, the researcher used logistic regressions to examine the determinants of this outcome variable. Second, academic achievement measured by standardized scores is the other outcome variable that measured pupils' learning of curriculum subjects. In a narrow sense, it represents the quality outcome of education. Linear regressions are used to estimate the influences on achievement scores because it is a continuous variable.

Table 1 : Definition and descriptive statistics of variables

Variables	Definition/Code	Mean	S.D.
<i>Dependent variables</i>			
Enrollment	Whether or not the child is attending school. 0 = not attending, 1 = attending	.93	.262
Achievement scores	Standardized achievement test scores on curriculum subjects	50.00	9.82
<i>Independent variables</i>			
Sex	0=boy, 1=girl	.44	.497
Age	Age of the child measured in year	14.37	1.54
Father's education	Father's educational attainment measured by grade	5.94	2.90
Mother's education	Mother's educational attainment measured by grade	4.24	2.66
Number of siblings	The number of children with at least one parent in common.	4.39	1.86
Big house	Living in two-story tile-roofed house 0=not living in big house, 1=living in big house	.71	.45
No. of absenteeism for the last month	Parental report of students' absence. 1=never absence, 2= one time of absence, ..., 5= four times or more of absence	1.57	.82
Non-economic work	Home-based work performed by children such as cleaning, cooking, caring for younger siblings. 0=not do, 1=do	.71	.46
Economic_non-paid work	Work that leads to production of goods for own consumption: farming, fishing, hunting, firewood fetching. 0=not do, 1=do	.77	.42
Economic_paid work	Work performed by children for wages 0=not do, 1=do	.09	.29

4. Research Results

Table 2 presents results of estimation on enrollment. In Model 1, when only the child characteristics were included, the significant factor to determine whether or not a child went to school

was his or her sex, with a girl having less probability than a boy of being enrolled in the school system. Being a girl would reduce the odds of being in school by 0.269 times ($\text{Exp}(B)=0.269$, $p<0.01$). Model 2 added four family background variables into the regression. As a result, only father's education was found to have a positive relationship with being in school, indicating that fathers with higher education tended to retain their children in school. This is not surprising because the father is considered to be the main decision maker in the family; so the higher educated he is, the more education he want for his offspring. It should be noted that the addition of family factors in Model 2 only slightly changed the effect of sex on enrollment, which suggests that gender of the children was an important determinant of educational opportunity they received, regardless of their families' socio-economic status. Model 3 estimated the effect of children's work on enrollment. As expected, pupils who were involved in paid work were less likely than their peers to be enrolled in the school system. The negative relationship was evident even when other factors were taken into account. Furthermore, the introduction of work variables into the analyses enhanced the magnitude of gender effect from $B = -1.30$ to $B = -1.92$ but it neutralized the effect of father's education; fathers' education became statistically insignificant.

Table 2 : Estimation results for Enrollment

	Model 1		Model 2		Model 3	
	B	Exp(B)	B	Exp(B)	B	Exp(B)
Sex	-1.313**	.269	-1.307**	.271	-1.927**	.146
Age	-.174	.840	-.161	.851	-.154	.857
Father's education			.192*	1.212	.167	1.182
Mother's education			.026	1.026	.001	1.001
Number of siblings			.097	1.102	.118	1.125
Big house			.630	1.877	.495	1.640
Non-economic					1.544	4.682
Economic_non-paid					.955	2.598
Economic_paid					-2.184**	.113
<i>Cox & Snell R square</i>	.022		.044		.141	
<i>Nagelkerke R Square</i>	.064		.126		.405	

** $p<0.01$, * $p<0.05$

Table 3 : Estimation results for achievement (the numbers shown are standardized coefficients)

	Model 1	Model 2	Model 3	Model 4
Sex	.342***	.342***	.334***	.187
Age	.036	.009	.024	.046
Father's education		.126	.122	.091
Mother's education		.005	-.016	-.044
Number of siblings		-.073	-.058	-.056
Big house		.198*	.161	.178*
No. of absenteeism			-.249**	-.247**
Non_economic				.282**
Economic_non-paid				.043
Economic_paid				-.032
<i>R-square</i>	.119	.183	.243	.298
<i>Adjusted R-square</i>	.104	.139	.195	.232

*** $p<0.001$, ** $p<0.01$, * $p<0.05$

Table 3 shows the results of estimation on achievement. Again, the result of Model 1 showed that sex of the child was an influential factor, having a considerable effect ($r=0.342$, $p<0.001$) on achievement scores in favor of girls. Living in big house is positively correlated with test scores, indicating that children of family with higher socio-economic status outperformed those from lower social background. Similar to the estimation on enrollment, the introduction of family variables in Model 2 did not change the magnitude of gender effect on achievement. In Model 3, absenteeism was included and, expectedly, found to have a negative relationship with scores. Even though absenteeism slightly lowered the effect of gender on achievement, gender remained the most influential factor. Model 4 estimated the impact of work on achievement scores, holding the other factor constant. Interestingly, there was a significant positive correlation between doing non-economic work and

achievement scores, having the strongest relationship ($r=0.282$, $p<0.01$) compared to other variables. Although there is an expected negative effect of paid work on achievement, the relationship was not statistically evident. More interestingly, the incorporation of work variables in Model 4 resulted in a remarkable reduction in the effect of sex from $r=0.334$ to $r=0.187$ and the sex-score relationship was no longer significant. This phenomenon coupled with a similar estimation on enrollment suggests that gender difference in education in Cambodian context is closely related to gender roles in work responsibilities.

5. Discussion

The results in the previous section show that children's work is an influential factor which influences both the opportunity and quality of education in Cambodia. The analyses made clear that paid work restricted the educational opportunity of children, while non-economic work activities are positively correlated to academic learning. It was also evident that work tended to strengthen gender effect on enrollment, but reduce such effect on achievement. This indicates that there is an interaction effect between work and gender on education. The foregoing paragraphs look at these findings in details.

In most of the past research, where household chores were excluded, a negative association between work and education was always found. The present study found a similar negative influence of paid work on enrollment. However, it was not clear whether paid work negatively affects achievement as mentioned above. Furthermore, it was found that doing work of light nature, especially home-based work, is associated with higher achievement at school. This is an interesting finding since previous research (e.g., Gunnarsson et al., 2006, Heady, 2003) has documented a negative effect of children's work on academic achievement. One possible explanation for the positive association of home-based work and achievement in Cambodian context might be that work in the home does not disrupt school attendance of pupils. As shown earlier, school days in Cambodia are short; most of the students go to school only half day. So they can perform their household tasks, which are not so time-consuming, without any interruption on their school time. The light nature of housekeeping activities is also unlikely to cause physical exhaustion, which would trouble learning. Besides, children who help do housework are usually well-disciplined children and are more obedient to parents than those who do not. When they finish their household tasks, they are more likely to do homework or self-study rather than hang around with friends. In short, work helps develop in the child a positive attitude towards discipline and effort, the qualities which are also valued at school.

Based on the analysis above, it was clear that work variables remarkably affected how gender influenced both enrollment and achievement. From Figure 1, we can see this relationship clearer. As an illustration, Figure 1a shows the interaction effect of paid work and gender on enrollment or school status, and Figure 1b shows the interaction effect of housework and gender on achievement test scores. Paid work and housework were chosen because earlier analyses showed that they were significant predictors of enrollment and achievement respectively. If there was no interaction effect between work and gender, the slopes of the two lines (Male=solid line, Female=dashed line) in each figure would be the same and the lines would be parallel. However, Figure 1 shows that the slopes of female lines were much steeper in either case, suggesting that work had a stronger effect on girls than boys. In figure 1a, boys and girls who were not engaged in paid labor were about the same in their enrollment status. But when they worked, girls were much more likely than boys to be dropouts (not enrolled in the school system). This means that girls tended to quit school to work full time, while some boys were still able to combine work and school. When it comes to academic learning, it is observed that housework had a positive effect on achievement; but again it affected on girls more than it did on

boys (figure 1b). For the non-working pupils, boys outperformed girls with a difference of about 2 points (boys=45.32, girls=43.14). However, when boys and girls were involved in doing housework, girls performed much higher than boys (boys=48.57, girls=53.81).

In other words, this study found that, compared to boys, girls had better academic performance but they are more likely to be withdrawn from school and put into work. Based on a comparison of achievement test scores, it was clear that girls outperformed boys in school. On average, girls

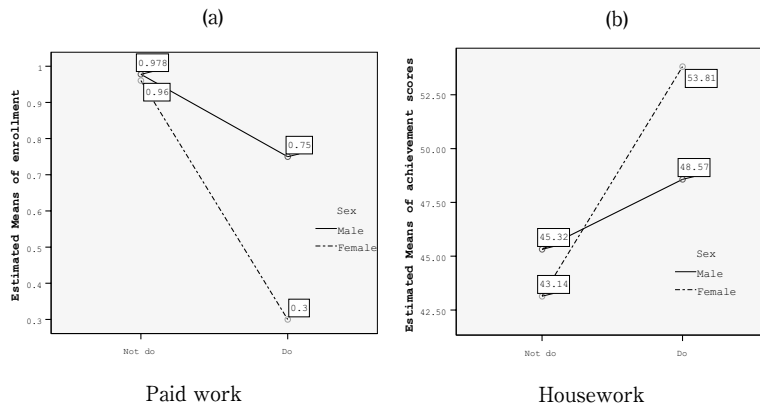


Figure 1 : Interaction effect of children's work and gender on schooling outcome

performed 6.5 points ($p < 0.001$) better than boys did. Also, the result of the regression shows a significant relationship between sex and achievement scores in favor of girls. This finding is consistent with the national educational data, which show that girls' promotion rate is higher than boys in all grades (MoEYS 2008, p.50-52). It also coincides with studies in other countries (Kutnick, 2000, Wong et al., 2002), which found that girls did better than boys in standardized tests as well as exams on various subject of the curriculum. Some explanations for this include boys' unwillingness to fit into the regular discipline of schoolwork and girls' faster adaptability to the regulations and norms of schools (Wong et al., 2002). Such explanations might also apply to Cambodian context, where girls are expected to be more obedient and submissive to authority. Casual dialogues with teachers also showed that boys were more likely than girls to cut classes and were harder to manage. Another possible reason for girls' better performance can be explained by the fact that girls are more likely to get involved in light work, so girls' work activities are more compatible with self-study in the sense that those activities were not time-consuming and exhausting. As shown earlier, girls' tasks were less labor-intensive and were usually performed in the home such as cooking, doing laundry, and caring for younger siblings. Therefore, girls were easier than boys, who were more prone to work outside the home, to combine work and study at home. A final reason might be that, as a result of urbanization and industrialization in the area, there was an increased attention toward girl's education. Parents started to value girl's education and selected those daughters who had outstanding performance to continue to go to school rather than engaging them in economic activities. In other words, girls had been screened by their parents based on their academic potential. In consequences of this screening process, girls who were retained in the school system were likely to be those with superior performance to boys.

Unfortunately, despite their superior school performance, girls were found to be more likely to leave school earlier than boys. While this gender inequality of educational opportunity might be explained by traditional roles of women as working-at-home wives or mothers, thus rendering their education unimportant, the current researcher argues that such adverse cultural practice does not

seem to play an important role in affecting parental decision in the setting of this study, where the level of urbanization and industrialization is relatively high. Rather, the decision to withdraw their daughters from school is more likely to be influenced by the market labor demand in the area than by any other factors. Since 1997, many textiles factories have been constructed in Angsnoul district, the setting of the present study, and absorb thousands of workers, most of whom are females, from all over the neighboring areas. The entry into the factory work requires just a minimal ability to read and write. The labor force from the locality is said to be numbered about ten thousand workers. It is the demand of these low-skilled jobs that might have taken girls away from schools. The survey of this study revealed that 56% of the dropouts quit schools in order to work for wages, which in most cases means working in the garment factories. By law, only people who are 18 years old and over are admitted for employment in factories. However, there is an anecdote that there are some under-age girls like those in the survey being employed for factory work. Besides, the existence of these low-skilled jobs may push some parents to withdraw their daughters from schools early because they think that more education will not raise their daughters' future earnings, even though doing so will not mean they can get jobs immediately. It can therefore be concluded that the higher probability of girls than boys of being withdrawn from schools is highly influenced by the availability of low-skilled employment for females in the area rather than by cultural factors.

6. Conclusion

This article has shown the evidence from one district of Cambodia about the relationship between children's work and schooling. Work activities performed by children were analyzed to understand how they impact school enrollment and achievement test scores. Paid work was found to exert a negative impact on enrollment, while doing home-based non-economic activities were associated with higher performance at school. The study further showed that the effect of work on education was interrelated with the effect of gender and was better understood when considered together. The results of the analyses support the notion that, comparing to boys, girls were at a disadvantage. They were more vulnerable than boys to work decision despite their superior performance in schools.

Due to the fact that some forms of children's work are not detrimental to child development as shown in this study and that in developing countries children's work contributes to family survival, the policy for raising school enrollment and achievement should be selective in terms of gender and work intensity. Targeting girls and children who are involved in paid labor will bring about desirable results.

Notes

1. The administrative area in Cambodia is divided in order as follows provinces/cities, districts, communes, and villages. Cambodia has 183 districts in total.
2. Target children refer to those aged 12 or older, or those who were attending lower secondary school at the time of survey.
3. Understanding Children's Work (UCW) is an interagency project initiated by the International Labor Organization (ILO), the United Nations Children's Fund (UNICEF), and the World Bank in December 2000.

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