

**CHILD LABOR AND POVERTY
TRANSMISSION: NO ROOM FOR
DREAMS**

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Working Paper 0108

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Abstract

It is widely believed that poverty is the main reason for child labor. Children work to ensure the survival of their families and themselves. However, little is known about the impact of child labor on poverty transmission. This paper explores the transmission of poverty through child labor. The main findings of the paper are that parents who were child laborers themselves are more likely to send their children out to work. Children are twice as likely to work if their parents were child laborers. Thus, the results suggest that child labor perpetuates inter-generational poverty.

Introduction

More than 650 million children live in poverty; 130 million children do not have access to education; almost 250 million children are working worldwide.¹ It is widely believed that poverty is the main reason for child labor.² Children work to ensure the survival of their families and themselves.

Recent studies have focused on the impact of poverty on child labor. In a theoretical paper, Basu and Van (1998) assume that parents send their children to work only if they are poverty stricken; they take for granted parental altruism toward their child. Thus, in their model, poverty, or low adult wage, is the main reason for sending children to work— the luxury axiom.

Recent studies using micro data sets- for example, Jensen & Nielsen (1997), Nielsen (1998), Patrinos and Psacharopoulos (1997), Grootaert (1998), and Canagarajah and Coulombe (1997) and Ray (1999)- examine the effect of household poverty on child labor, though with mixed results. Ray (1999) tests the luxury axiom of Basu and Van on Peru and Pakistan by examining the relationship between child labor hours and household poverty. He studies the likelihood of poor households (those earning an income below the poverty line) sending their children to work, and finds mixed evidence; a positive significant relationship between household poverty and child labor in the case of Pakistan, but not in the case of Peru. In addition, Nielsen (1998) finds that in the case of Zambia, poverty and low income have a very small effect on the probability of child labor, and she concludes that poverty is not the main cause of child labor in Zambia. Canagarajah and Coulombe (1997) also find that household welfare has a weak effect on the probability of child labor in Ghana.

However, little is known about the impact of child labor on poverty transmission. This paper tests this important hypothesis, namely, that poverty is perpetuated through child labor. The focus of the paper is to investigate the transmission of poverty from parents to children. There is no empirical evidence on how child labor perpetuates poverty from one generation to another, or on how parents who were child laborers are more likely to have their children work as well.

The recent literature on the "underclass" has emphasized the extent to which income status, especially poverty, is passed from one generation to another in the United States. The large impact of family background on income status has been stressed by several studies, for example, Corcoran et al. (1990). Solon (1999) points out that it is

¹ These are estimates of the World Bank.

² Though not the only one.

conjectured that in LDCs the intergenerational transmission of economic status is particularly strong, while mobility is weaker (weak).³ However, there is no empirical evidence on the transmission of economic status, income or poverty in developing countries from one generation to another.⁴ In addition, there is no empirical evidence on how child labor perpetuates poverty from one generation to another, or on how parents who were child laborers are more likely to have their children work as well.

One might argue that parents who worked as children are more likely to have under-invested in schooling and become poverty trapped and hence would expect their children to work as well. On the other hand, it may be that if the parents were child laborers themselves and had to feel the brunt of child labor or felt disadvantaged as a result of working at an early age, they may be less likely to send their children to work.

The relationship between family background, such as race, ethnic origin, religion and in particular education, and child labor is fairly established in the empirical literature. Studies show that the low level of parents' educational attainment is an important factor in increasing the likelihood of children working. However, the effect of the parents being child laborers themselves has not been explored in the literature previously. In this paper, the inter-generational transmission of poverty is explored by testing whether parents who themselves worked as child laborers are more likely (i) to send their children out to work or not, and (ii) whether they are more likely to invest in their children's education or not.

The paper will use data from Egypt- the 1988 Egyptian LFSS. The paper is organized as follows. Section 2 describes the characteristics of child labor in Egypt. Section 3 presents the econometric model used. The main determinants of child labor and school participation are reported in section 4. Finally, the main findings are summarized in section 5.

The Data

This study uses individual level data from the October 1988 round of the Labor Force Sample Survey, a nationally representative sample of 10,000 households.⁵ The survey provides information on the employment and socio-economic characteristics of

³ See Solon's (1999) survey on the inter-generational mobility in the labor market.

⁴ Except for one unpublished study by Lillard and Kilburn examining the intergenerational earnings mobility in Malaysia, see Solon (1999).

⁵ The 1988 LFSS was carried out by the Central Agency for Public Mobilisation and Statistics (CAPMAS) in Egypt. There are 26 governorates/provinces in Egypt. Four provinces (Cairo, Alexandria, Port Said and Canal Cities) that are urban only, while the rest of the provinces are made up of both urban and rural areas.

individuals 6 years of age or more.⁶ It also includes a set of questions on child labor. The analysis is based on 10742 children aged between 6-14 years old for whom full information on schooling, labor participation and parents characteristics are available.

A child is classified as a worker or economically active, by the International Labor Organization (ILO), if the child is remunerated for that work, or if the output of this work is destined for the market.⁷ This definition is also adopted here.⁸ Hence a child is considered to be working whether he/she is being paid for work, or is working for his/her family and is unpaid for work destined for the market. There are no data on household activities carried out by those children.

The Egyptian labor law stipulates a minimum age of 12 years for employment. However, this legislation does not apply to family businesses, domestic work or agriculture. On the other hand, in Egypt as in many other developing countries - such as Sri Lanka, Thailand and Costa Rica⁹ - the minimum working age is lower than the required age of compulsory education, which is 15 years.

More than half the working children (57 percent) are also attending school.¹⁰ On average, children work 5.28 hours per day and 57 percent of working children reported working 7 days a week.¹¹ Table 1 presents the child labor and schooling participation pattern of children by gender, rural/urban region and age group. First, 7.93 percent of children are not engaged in either market work or in attending school. This group is comprised mainly of girls (83 percent) who are most probably involved in household chores. Secondly, 10.63 percent of all children in the 6-14 years old cohort combine working and studying. Work and study combination is more common among boys, among 12-14 year olds and in rural areas. The proportion of boys who tend to combine working and studying is greater than the proportion that only works.

⁶ The 1988 LFSS survey included, for the first time, several individual modules which collected extensive data on particular aspects, e.g. labor market earnings, and child labor, see Fergany (1991) for a detailed discussion on the sampling and questionnaire design of the 1988 LFSS.

⁷ See Basu (1999) for a detailed discussion on the ILO definition.

⁸ The 1988 LFSS adopted the 1982 ILO definition of employment. Hence, unpaid family work is considered economic activity except if it results in goods and services meant entirely for household consumption. In other words, our survey allows us to include unpaid family work that produces output destined for the market.

⁹ Siddiqi and Patrinos (1995).

¹⁰ In Ghana, for example, 19 percent of the total number of children work and study; 66 percent of children who were working were also going to school, see Canagarajah and Coulombe (1997).

¹¹ Data on children's working hours and working days are only available for 1377 children and not for the total sample of working children (N=1988).

The majority of children in urban areas are enrolled in schools, and only 3.29 percent work and do not go to school. Many Egyptian public schools operate up to a three-shift schedule (4 hours each approximately) a day - morning, afternoons and early evenings - mainly due to government resource constraints. Thus, in a way the Egyptian educational system seems to accommodate for the dual activities of children. Thus, in the Egyptian context, it seems appropriate to examine the joint determinants of both attending school and working.

Table 2 shows the proportion of children working and attending school when one or both of the parents were child laborers. 26.5 percent of children whose fathers were child laborers are working. In other words, more than a quarter of children work in families where the fathers were child laborers. In addition, 41.3 percent of children of mothers who were child labor work - which is three times the proportion of children of mothers who were not child laborers. Thus, the proportion of children working in families where the father, the mother, or both, worked as children is at least twice as much as in families where the parents were not child laborers. In addition, the proportion of children attending school is less when one or both parents were child laborers.

Table 3 presents the descriptive statistics of the sample of children 6-14 years old. The first column provides the characteristics of all children in the sample. Columns 2 and 3 show the characteristics of school participants and non-school participants. First, the school non-participation rate is 15.8 percent for the total sample of those 6-14 years old. Almost two thirds of school non-participants are girls. Although, 60 percent of children in the sample are rural residents, 83.5 percent of children who are school non-participants are rural children. In addition, the majority of school non-goers tend to come from families where the parents have no, or very little, education. About 40 percent of children who are not attending school have dropped-out of school.

Columns 4-7, in Table 3, display the characteristics of working and non-working children where the reference period used was the previous year. A distinction is made between children who are paid and those who work for the family and are unpaid laborers though their output is destined for the market- columns 5 and 6. Column 4 shows that 42 percent of all working children are less than 12 years old - 6 to 11 years old - and that 61 percent of all working children are boys. Three-quarters of working children are engaged in agriculture. Around 30 percent of working children are waged workers¹². Parents of children who are not working are on average more educated than

¹² In developing countries where agriculture is a major sector, the majority of working children tend to work in subsistence agriculture as unpaid family workers. For example, more than 90 percent of the working

than those of working children. 16.6 percent of children in female-headed households are working for wage, while only 10.93 percent work for no wage. More than half (58 percent) of the working children come from families where the fathers were child laborers, while 42 percent are from families where the mothers were child laborers. Although 32 percent of the fathers of the sampled children are employed in the public sector, only 17 percent of the fathers of working children are employed in the public sector.

The Econometric Model

This paper aims to explore the main determinants of household supply of child labor and child schooling. We use a reduced form model of the factors, which influence the household's decision to allocate children's time among schooling, work, and leisure. A household decides whether a child works and thereby improves its current income, and whether he/she attends school and hence invests in human capital. It is assumed that the decision is based on a comparison of the discounted future stream of benefits and costs of education and work¹³.

The estimation method used here reflects the decision making process. Schooling and work are not treated as two independent decisions nor as a sequential process¹⁴. First, using a sequential choice model would involve a number of strong assumptions concerning the hierarchy of the decision making. The four choices of interest here are: work only, schooling only, work and schooling, and no work and no schooling. However, there is no clear ordering of those options. If the child's welfare is the main concern then schooling only is the first choice - see Grootaert (1998), but if the household is poor and relies on the child for survival, then schooling and work may become the first option. However, if the household's welfare, rather than the child's, is the main concern, then the ranking of the choices becomes unclear.

Second, using a multinomial logit choice model assumes that all the options are considered simultaneously and are independent - the assumption of the independence of irrelevant alternatives. In other words, for example, the decision to work is

children are non-wage workers in most sub-Saharan African countries- see Canagarajah and Coulombe (1997).

¹³ There are missing markets for loans against future earnings of children that prevent a household from borrowing to finance investment on its children's human capital, see for example, Ranjan (1999).

¹⁴ Canagarajah and Coulombe (1997) and Nielsen (1998) also use bivariate probits. However, various other estimation techniques have been used to capture different decision making processes: Patrinos and Psacharopoulos (1997) and Jensen & Nielsen (1997) assume that the two decisions are independent and therefore use logit models; Grootaert (1998) uses a sequential binary probit model where a certain hierarchy of choices is assumed to capture a sequential decision making process.

independent from other options, and is not affected by whether or not a schooling option is available.

However, it is assumed here that the decisions are interdependent and a bivariate probit model is used because it allows for the existence of possible correlated disturbances between two decisions. Bivariate probit models also allow us to test for the existence and significance of the interdependence of these joint decisions.

Let the latent variable Y_1^* represent the decision of working and Y_2^* the decision of schooling. The general specification of a two-equation model would be:

$$y_1^* = \beta_1'x_1 + \varepsilon_1, \quad y_1 = 1 \text{ if } y_1^* > 0, \quad y_1 = 0 \text{ otherwise}$$

$$y_2^* = \beta_2'x_2 + \varepsilon_2, \quad y_2 = 1 \text{ if } y_2^* > 0, \quad y_2 = 0 \text{ otherwise}$$

$$E[\varepsilon_{i1}] = E[\varepsilon_{i2}] = 0$$

$$Var[\varepsilon_{i1}] = Var[\varepsilon_{i2}] = 1$$

$$Cov[\varepsilon_{i1}, \varepsilon_{i2}] = \rho$$

where ρ is the coefficient of correlation between the two equations. The first dependent variable is defined to be equal to 1 if the child is economically active in the labor market and 0 otherwise. The second dependent variable is defined to be equal to 1 if the child participates in schooling and 0 otherwise. x_{i1} and x_{i2} are the

explanatory variables explaining the probability of working and the probability of attending school respectively. In what follows, these explanatory variables are examined.

The focus of this paper is to explore the inter-generational transmission of poverty. The impact of the parents being child laborers themselves on the probability of child labor is studied by including two dummies, one for each parent. A parent is considered to have been a child laborer if he or she entered the labor market between the age of 6 and 14. In addition, an interactive dummy is added for each parent who was a child laborer capturing the age he/she entered the labor force for the first time. The mean age of entering the labor market is 10.16 for mothers and 10.43 for fathers.

One possible hypothesis is that poverty is perpetuated through child labor. Hence, a parent who has been raised in a poor family where he/she had to work as a child himself/herself, which constrained him/her ability to invest in schooling and condemned him/her to low wage or poverty as an adult, will in turn tend to send his/her children to work. On the other hand, it may be that if the parents were child laborers themselves and had to feel the brunt of child labor or felt disadvantaged as a result of working at an early age, they may be less likely to send their children to work.

Descriptive statistics show that 59.9 percent of fathers who were child laborers are illiterate compared to 34.3 percent of fathers who did not work as children. The majority of mothers who were child laborers (92.5 percent) are illiterate compared to 69.8 percent among women who did not work as children. In addition, the bulk of parents who worked as children are working in agriculture as adults. Thus, there is an indication from the descriptive statistics of the persistence of child labor.

Gender and age are important determinants of the probability of schooling and work- see for example, Chernichovsky (1985). Almost all studies find that males are more likely to be *economically* active in the labor market. However, the effect of gender on schooling is more country-specific and culturally dependent. Moreover, studies tend to find that older children are usually more likely to participate in the labor market and less likely to attend school¹⁵. Thus, gender - male dummy - and age are used as explanatory variables.

Previous empirical studies find ample evidence that parents' education affects child labor and school participation decisions- see for example, Psacharopoulos and Arriagada (1989), and Grootaert (1998). Some studies - such as Handa (1996) - find that the father's education affects boys the most and the mother's education affects girls the most, while others - like Canagarajah and Coulombe (1997) - find that fathers' education affects the likelihood of working, and mothers' education influences only the schooling participation decision. Thus, to capture the effect of parents' education four educational dummies are used for each parent: no education (which is the reference group), less than primary, primary, and more than primary education. Also, the nature of the parents' employment affects the child labor decision. A dummy variable indicating whether the father is employed in the public sector is included to capture the impact of the father having a stable regular job.

¹⁵ See Grootaert and Kanbur (1995).

The gender of the head of the household is another potentially important determinant of child labor and schooling. On one hand, female-headed households usually have a higher dependency ratio, which may increase the likelihood of sending children out to work. However, female-headed households are found to be more likely to invest in the schooling of their children, especially girls'- see for example, Canagarajah and Coulombe (1997). Thus, a dummy for the female-headed household is used. In addition, the presence and number of younger siblings in the household may affect the probability of school and work participation. The more siblings there are, the more likely it is that a child will need to work to generate income and the less likely that a child will go to school. Girls, particularly, are likely to be called upon to help with looking after the younger siblings.

Since in the 70s and 80s, Egypt witnessed a huge flow of overseas labor migration on a temporary basis, it seems interesting to control for the presence of any return migrants in the household who might affect the decisions of child labor and schooling. On the one hand, it may be the case that return migrants are less credit constrained if they have acquired overseas savings¹⁶ or they might value investing in education having worked overseas and therefore would have a positive impact on child schooling and a negative influence on child work.

According to Basu and Van (1998), higher adult wage would lead to a higher supply of adult labor, and lower supply of child labor¹⁷. Wahba (2000) finds that adult wages are important determinants of child labor and schooling. Hence, both adult male and female wages are used to capture the different impact each may have on child labor and schooling¹⁸. Adult market hourly wages of the *illiterate* male and female by rural and urban area in every province relative to the national average are used¹⁹, see Wahba (2000).

¹⁶ Although there are data on whether a household has a return migrant or not, there are no data on whether the return migrant had accumulated any overseas savings.

¹⁷ Basu and Van (1999) assume that a household consists of one adult and one child.

¹⁸ Since using grouped (aggregated) data in individual level regressions can potentially result in the standard errors being biased because of the correlation of the error term across individuals in a region or industry- see for example Moulton (1990) - I correct for the correlation of error terms across individuals in each province and report the robust estimates. Robust (Huber/White/sandwich) estimator of the variance was used in place of the conventional Maximum Likelihood Estimation variance estimator and observations were allowed to be not independent within a province.

¹⁹ Market - adults' and children's - wages are calculated using the 1988 LFSS earnings module which was conducted on a sample of 15000 workers.

Child market hourly wage by rural and urban area in every province relative to the national average is also included. Child market wage is an important determinant of child labor.²⁰ Even when children are unpaid family workers, high child wages would make it expensive for households to employ children from outside the household, thus requiring their own children to work. On the other hand, the effect of child market wage on the probability of the child's participation in schooling is an indirect one because it is the opportunity cost of not working.

Another important factor, which affects the supply of child labor, is the availability of children's jobs. For example, child labor is higher in rural areas where children tend to work for their families. Children tend to work on family enterprises. In addition, children are not as mobile as adults and would tend to work close to where they live. Thus, the accessibility of jobs seems to be an important factor that would affect the supply of child labor. If children are in a province where there is no access to jobs, one would expect that the willingness of the households to supply child labor would be lower since the alternative would be incurring higher costs (transportation, effort and time). The paper (study) uses three variables in trying to capture the accessibility of jobs in a province. First, to distinguish between regular and non-regular employment, we use two variables: the percent of adults in non-regular - casual and seasonal - employment in the rural/urban area of the province, and the share of adult workers employed in the public sector in the rural/urban area in the province are used. The more non-regular employment in a provincial labor market, the easier it is for children to supply labor in that market. This variable captures the degree of informality in the local labor market. Children in urban areas tend to work mainly in the informal sector where labor market regulations are not enforced. On the other hand, the more public sector jobs in a province, the more formalized the labor market is, and therefore the fewer will be the chances for children's employment. Furthermore, the percentage of adult workers engaged in manufacturing, in the rural or urban area, in the province is included to control for the industrial composition of the local labor market. The higher the share of adults in manufacturing, the less would be the accessibility of children's jobs (e.g. agriculture or services) in that labor market²¹.

One of the limitations of the data set used in this paper is that it does not include any information on variables that may affect the demand for schooling, for example, school availability, accessibility (distance to school), quality of schooling, cost of

²⁰ Though it is not always statistically significant, see, for example, Soukfias (1994) and Rosenzweig (1981).

²¹ The model was estimated without those three variables and the results were robust.

schooling²², among others. Previous studies - for example, Bonnet (1993), and Hanushek and Levy (1993) - point to the importance of school accessibility and school quality in determining the schooling participation decision²³. Thus, regional dummies of residence of the household²⁴: Greater Cairo (reference group), Alexandria and Canal Cities, Lower Urban, Upper Urban, Lower Rural and Upper Rural are used to control for school availability and quality in the school participation equation. One would expect that in rural areas because of poor schooling facilities, children would be less likely to attend school compared to those in urban areas. In addition, children in the poorer rural areas - the south (Upper Rural Egypt) - are expected to have a lower probability of going to school compared to children in other rural areas - in the north (Lower Rural Egypt).

4. Empirical Findings

The bivariate probit results of the determinants of child labor force participation and schooling participation decisions are shown in Tables 4 and 5. Marginal effects are reported; they show the increment in the probability relative to the sample mean, corresponding to the particular characteristic, relative to the reference group. Table 4 presents the results at the national level for both urban and rural areas, while Table 5 displays the results for rural areas only to enable a comparison with earlier studies. Separate estimates for boys and girls are given since the factors influencing child labor and child schooling may have a different magnitude or impact that is gender specific.

Before, discussing the empirical findings, it is important to examine whether the estimation technique adopted here is the best one to model these two decisions. First, using bivariate probit enables us to test for the interdependencies of the two decisions at hand. The correlation coefficient ρ is found to be significant in all estimations implying that working and schooling are not independent. In addition, the correlation coefficient ρ is negative indicating that there is a trade-off between child labor and child schooling choices. This trade-off is greater in urban areas and for males.

²² Although education is free, parents have to pay for other direct costs like uniform and books as well as tuition which is fairly common in Egypt- see Hanushek and Levy (1993) for a discussion on the private cost of education in Egypt.

²³ Bonnet (1993) argues that schooling problems - such as the inaccessibility of schools or the lack of quality education - contribute to child labor. Hanushek and Levy (1993) find that school quality is one of the main reasons behind children dropping out of school in Egypt.

²⁴ There are six geographical regions in Egypt, and the regions are comprised of several provinces.

The main finding of the paper is that having a parent who was a child laborer himself/herself increases the probability of the child working. In addition, the effect of the mother being a child laborer is twice as much as that of the father in both rural and urban areas, as well as for girls and boys. This seems to suggest another channel whereby impoverishment is transmitted from parents to children; hence, child labor perpetuates poverty. In addition, parents who start work at an earlier age are more likely to send their children to work. To sum up, having a child labor parent doubles the probability that a child would be sent to work.

Having a parent who worked as a child laborer himself/herself does not significantly affect the likelihood of child participation in schooling. However, studies show that child labor has a negative impact on educational attainment- see Heady (2000). Education seems to be the only way to break this cycle of poverty and child labor.

Gender seems to be an important determinant of both child labor and schooling. Being a boy increases both the probability of participation in both the labor market and in schooling. Being a boy increases the likelihood of working in rural areas by 6 percent. However, being a boy has a smaller impact on school participation in urban areas, while in rural areas it increases the likelihood of schooling by 6 percent. Age also affects the likelihood of child labor and schooling. Being older increases the probability of participating in the labor force and decreases that of attending school.

Parents' characteristics play an important role in influencing the working and schooling decisions of children. Having a father who is employed in the public sector increases the probability of the child attending school and decreases that of working. Moreover, having less educated parents increases the likelihood of child labor and decreases that of investing in schooling. As found in earlier studies a father's education affects boys more than a mother's education, which in turn affects girls more.

Furthermore, household characteristics affect the determinants of child labor and schooling. Living in a household where the head is a female does not affect the probability of participating in the labor market, but it increases the likelihood of investing in schooling. Having younger siblings at the household increases the odds of child labor and decreases that of schooling. The presence of return overseas migrants at the household has a negative (though not always significant) effect on the likelihood of child work. However, having a return overseas migrant has a positive impact on the schooling decision. This would suggest that return migrants tend to invest in education.

Adult illiterate market wages seem to (i) have a strong negative influence on the probability of both, paid and unpaid, child work, (ii) have greater impact in rural areas than in urban areas, (iii) have smaller absolute effect on the probability of school participation than on child labor. Low market wages are important determinants of child labor.

The characteristics of the local labor market seem to have a greater impact on the probability of child labor in rural areas than in urban ones. Though local labor market characteristics affect the probability of *paid* child labor in both urban and rural areas. Thus, the higher the share of adults engaged in manufacturing, the lower is the probability of child participation in the labor market, though it is more significant for girls than boys. In other words, the share of adults engaged in manufacturing has negative, though insignificant, impact on boys' work. Also, the share of adults employed in the public sector in the local labor market has a strong negative impact on child labor for both genders. The percentage of adults engaged in non-regular employment has a positive significant influence on the likelihood of paid child labor. Those last two variables capture the degree of informality in the local labor market and suggest that the more informality the more likely children would participate in the labor market. To sum up, local labor market conditions are important determinants of the supply of child labor.

5. Conclusion

This paper has explored the transmission of poverty through child labor. The main findings of the paper are that parents who were child laborers themselves are more likely to send their children out to work. Children are twice as likely to work if their parents were child laborers. Thus, the results suggest that child labor perpetuates inter-generational poverty.

Several policy implications emerge from this paper. Policies aimed at alleviating poverty are crucial in tackling child labor and breaking the cycle of poverty transmission from one generation to the next. Moreover, education seems to be essential in breaking the cycle of poverty and child labor.

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Table 1: Labor Force and Schooling Participation Rate of Children 6-14 years old (%)

	Working & Studying	Working Only	Studying Only	Neither	Total
Total Sample	10.63	7.88	73.56	7.93	100
Gender					
Boys	15.11	7.06	75.14	2.69	100
Girls	5.97	8.74	71.93	13.36	100
Region					
Urban	5.02	3.29	87.58	4.12	100
Rural	16.38	12.61	59.16	11.85	100
Age Group					
6-11 years old	7.92	3.97	80.76	7.34	100
12-14 years old	15.93	15.58	59.40	9.09	100

Table 2: Labor Force & Schooling Participation of Children by Parents Status (%)

	Working	Paid Work	Studying
Father was child laborer	26.46	6.27	79.93
Father was <i>not</i> child laborer	14.05	4.89	86.68
Mother was child laborer	41.33	7.60	78.21
Mother was <i>not</i> child laborer	13.87	4.96	85.23
Both parents were child laborer	45.19	6.58	79.93
Neither parent was child laborer	15.58	5.26	84.74

Table 3: Descriptive Statistics

	Total Sample	School Part.	Non-School Part.	LF Part.	LF Participants		Non -LF Part.
					Paid LFP	Unpaid LFP	
Age (%)							
6-11	66.42	70.11	48.88	42.21	32.79	46.27	72.09
12-14	33.58	29.89	51.12	57.79	67.21	53.73	27.91
Gender (%)							
Male	51.02	55.34	30.38	61.38	76.45	54.89	48.60
Female	48.98	44.66	69.62	38.62	23.55	45.11	51.40
Educational Level (%)							
None	10.69	-	60.45	30.89	35.54	28.85	6.32
Read & write	73.50	81.92	35.72	48.23	40.83	51.48	79.06
Primary	15.81	18.08	3.83	20.88	23.64	19.67	14.62
Region (%)							
Greater Cairo	20.12	22.87	7.24	6.72	15.77	2.82	23.26
Alex & Canal Cities	7.74	8.63	3.64	2.06	3.31	1.52	9.08
Lower Urban	8.60	9.73	3.35	5.33	8.51	3.96	9.37
Upper Urban	4.26	4.65	2.33	1.59	2.16	1.34	4.89
Lower Rural	32.19	31.06	37.58	51.76	37.04	58.09	27.61
Upper Rural	27.08	23.05	45.87	32.55	33.21	32.27	25.79
Father was Child Laborer (%)	41.08	38.92	51.47	57.50	44.63	63.04	37.23
Public Sector Employee (%)	31.94	35.93	13.16	17.20	18.07	16.83	35.39
Illiterate	42.18	36.04	70.69	56.57	58.08	55.92	38.80
Less than Primary	23.60	25.43	15.30	23.03	18.18	25.12	23.73
Primary	8.61	9.85	2.74	4.85	4.86	4.85	9.49
More than Primary	25.61	28.68	11.27	15.55	18.88	14.11	27.98
Mother was Child Laborer (%)	18.63	17.31	25.66	41.60	25.12	48.81	13.42
Illiterate	75.29	71.20	94.49	89.93	87.87	90.82	71.86
Less than Primary	9.11	10.39	3.07	5.39	5.27	5.44	9.99
Primary	5.32	6.34	0.54	2.22	3.22	1.79	6.05
More than Primary	10.28	12.07	1.90	2.46	3.64	1.95	12.10

Table 3: contd.

	Total Sample	School Part.	Non-School Part.	LF Part.	LF Participants		Non-LF Part.
					Paid	Unpaid	
					LFP	LFP	
Female Headed Household (%)	11.90	12.14	10.80	12.65	16.64	10.93	11.72
Mean number of children < 6 years old	1.25	1.19	1.56	1.38	1.21	1.45	1.22
HH with overseas return migrants (%)	17.28	17.80	13.92	15.98	16.08	15.94	17.58
Industry (%)							
Agriculture	-	-	-	74.13	36.84	88.81	-
Manufacturing	-	-	-	11.00	33.33	2.21	-
Construction	-	-	-	1.78	5.96	7.46	-
Trade	-	-	-	7.04	5.96	0.28	-
Services	-	-	-	5.05	15.44	0.97	-
Occupation (%)							
Sales Workers	-	-	-	6.34	4.91	6.91	-
Services Workers	-	-	-	1.00	2.11	0.55	-
Agricultural Workers	-	-	-	74.13	36.84	88.81	-
Production Workers	-	-	-	18.43	56.14	3.59	-
Sample Size (N)	10742	9043	1699	1988	605	1383	8754
Total Sample (%)	100	84.18	15.80	18.51	5.63	12.87	81.49

Table 4: Determinants of Labor Force Participation & School Participation: Rural & Urban Areas

Variable	Total Sample		Boys		Girls	
	Work	School	Work	School	Work	School
Constant	-0.452 (11.25)	0.072 (16.80)	-0.841 (10.03)	0.098 (12.06)	-0.21 (5.12)	0.047 (14.61)
Parents Being Child Laborers						
Father was Child Laborer	0.112 (7.09)	-0.0003 (0.21)	0.158 (5.04)	0.001 (0.28)	0.074 (4.82)	-0.001 (0.68)
Father: age started work	-0.007 (4.96)	-	-0.010 (3.80)	-	-0.005 (3.48)	-
Mother was Child Laborer	0.123 (5.91)	0.001 (0.69)	0.122 (3.10)	-0.001 (0.52)	0.090 (4.58)	0.001 (0.86)
Mother: age started work	-0.004 (2.05)	-	-0.002 (0.56)	-	-0.003 (1.75)	-
Child Characteristics						
Male	0.062 (11.43)	0.022 (17.67)	-	-	-	-
Age	0.035 (28.76)	-0.005 (18.97)	0.052 (25.89)	-0.005 (9.94)	0.019 (18.42)	-0.003 (14.17)
Employed in Public Sector	-0.047 (6.64)	0.014 (8.31)	-0.057 (4.79)	0.015 (4.57)	-0.034 (4.90)	0.009 (6.89)
<i>Education (ref.: illiterate)</i>						
Less than Primary	-0.017 -2.97	0.019 -12.2	-0.026 -2.22	0.021 -6.9	-0.013 -2.07	0.012 -10.11
Primary	-0.048 -4.31	0.024 -8.16	-0.075 -3.94	0.027 -4.91	-	-
More than Primary	-0.035 -2.63	0.04 -7.49	-0.089 -3.91	0.04 -4.78	-	-
Primary & more	-	-	-	-	-0.073 -1.42	0.04 -8.98
Less than Primary	-0.037 -3.38	0.013 -4.78	-0.027 -1.49	0.009 -1.77	-0.034 -3.23	0.01 (4.93)
Primary	-0.051 -3.22	0.023 -4.22	-	-	-	-
More than Primary ¹	-0.08 -3	0.03 -1.96	-	-	-	-
Primary or more	-	-	-0.029 -1.34	0.01 -1.45	-0.034 -4.37	0.04 -5.73

Table 4: Contd.

Variable	Total Sample		Boys		Girls	
	Work	School	Work	School	Work	School
<i>Household Characteristics</i>						
Female head	-0.001	0.016	-0.021	0.019	0.01	0.011
	-0.58	-8.72	-1.5	-4.98	-1.18	-7.06
Number of children less than 6 years old	0.011	-0.004	0.014	-0.003	0.007	-0.003
Overseas Return Migrant (dummy=1)	-4.3	-6.96	-3.17	-2.46	-2.97	-6.82
	-0.012	0.012	-0.023	0.011	-0.004	0.006
	-1.66	-5.07	-1.82	-3.05	-0.64	-4.38
<i>Market Wages</i>						
Log Male wages	-0.143	0.018	-0.148	0.018	-0.117	0.014
	-6.65	-4.45	-3.7	-2.35	-6.34	-4.35
Log Female wages	-0.079	-0.002	-0.127	0.005	-0.038	-0.004
	-9.11	-0.94	-8.17	-1.19	-4.46	-2.3
Log Child wages	0.063	-0.003	0.07	-0.007	0.05	-0.001
	-5.44	-1.02	-3.44	-1.52	-4.5	-0.59
<i>Regional Characteristics</i>						
Adults engaged in Manufacturing (%)	-0.002		-0.0002		-0.003	
	-2.69	-	-0.21	-	-4.4	-
Adults employed in Public Sector (%)	-0.004		-0.003		-0.003	
	-4.91	-	-2.51	-	-4.74	-
Adults engaged in non-regular employment (%)	0.001		0.002		-0.0003	
	-1.31	-	-1.65	-	-0.48	-
<i>Region (ref.: G. Cairo)</i>						
Alex & Canal Cities	0.003	-0.007	0.003	-0.007	0.026	-0.007
	-0.22	-2.2	-0.86	-0.67	-1.47	-2.83
Lower Urban	0.023	-0.002	0.023	-0.002	0.005	0.003
	-1.74	-0.64	-2.36	-1.77	-0.31	-1.05
Upper Urban	-0.061	-0.001	-0.061	-0.001	-0.034	-0.002
	-3.33	-0.47	-2.58	-0.39	-1.94	-0.95
Lower Rural	0.069	-0.015	0.069	-0.015	0.053	-0.014
	-2.97	-6.12	-2	-1.7	-2.33	-6.58
Upper Rural	0.039	-0.026	0.039	-0.026	0.039	-0.024
	-1.37	-10.54	-0.74	-2.5	-1.41	-11.64
D		-0.58 (31.21)		-0.64 (24.61)		-0.51 (16.99)
Sample size	10742		5466		5276	
Log likelihood	-6939.93		-3422.4		-3361.7	

Notes: Absolute values of t-statistics are in parentheses. D is coefficient of correlation between the two equations.

Table 5: Determinants of Labor Force Participation & School Participation: Rural Areas (Marginal Effects)

Variable	Total Sample		Boys		Girls	
	Work	School	Work	School	Work	School
Constant						
					-9.03	-10.32
Parents Being Child Laborers						
Father was Child Laborer	0.197	-0.006	0.245	-0.005	0.157	-0.003
	-5.93	-1.63	-4.59	-0.97	-4.04	-0.82
Father: age started work	-0.013	-	-0.015	-	-0.011	-
	-4.16		-3.17		-3.04	
Mother was Child Laborer	0.243	0.006	0.228	0.0004	0.22	0.009
	-6.07	-1.81	-3.5	-2.06	-4.81	-2.06
Mother: age started work	-0.004	-	-0.007	-	-0.012	-
	-2.92	-	-1.09	-	-2.79	-
<i>Child Characteristics</i>						
Male	0.062	0.061				
	-5.35	-19.52	-	-	-	-
Age	0.062	-0.008	0.079	-0.006	0.044	-0.009
	-26.21	-12.62	-20.32	-6.44	-16.71	-11.36
Employed in Public Sector	-0.11	0.036	-0.122	0.028	-0.089	0.037
	-7.08	-8.39	-4.98	-4.51	-4.91	-7.13
Illiterate	0.035	-0.043	0.029	-0.031	0.037	-0.047
	-2.61	-11.53	-1.36	-5.7	-2.35	-10.39
Illiterate	0.0371	-0.023	0.035	-0.004	0.036	-0.047
	-1.92	-3.83	-1.17	-0.56	-1.54	-4.51
<i>Household Characteristics</i>						
Female head	0.035	-0.007	-0.006	-0.008	0.064	-0.006
	-1.62	-1.25	-0.16	-0.98	-2.66	-0.8
Number of children less than 6 years old	0.008	-0.006	0.006	-0.002	0.009	-0.008
	-1.59	-4.58	-0.67	-0.94	-1.49	-5.01
Overseas Return Migrant (dummy=1)	0.029	0.022	-0.062	0.022	-0.006	0.018
	-1.86	-5.01	-2.48	-3.39	-0.34	-3.44
Market Wages						
Log Male wages	-0.306	0.046	-0.294	0.04	-0.325	0.055
	-6.55	-4.12	-3.94	-2.4	-5.82	-4.07
Log Female wages	-0.168	-0.004	-0.223	0.009	-0.108	-0.014
	-9.79	-0.84	-8.28	-1.56	-5.22	-2.54
Log Child wages	0.114	-0.002	0.093	-0.005	0.118	-0.002
	-4.32	-0.36	-2.22	-0.66	-3.85	-0.26

Table 5: Contd.

Variable Constant	Total Sample		Boys		Girls	
	Work	School	Work	School	Work	School
<i>Regional Characteristics</i>						
Adults engaged in Manufacturing (%)	-0.005	-	-0.002	-	-0.009	-
Adults employed in Public Sector (%)	-4.01	-	-1.12	-	-5.5	-
Adults engaged in non-regular employment (%)	-0.011	-	-0.011	-	-0.008	-
	-6.13	-	-4.07	-	-3.92	-
	0	-	0.001	-	-0.002	-
	-0.02	-	-0.67	-	-1.15	-
<i>Region (ref.: G. Cairo)</i>						
Lower Rural	0.054	0.025	0.054	0.008	0.046	0.034
	-2.85	-7.33	-1.7	-1.7	-2.2	-7.99
D	-0.52 (21.53)		-0.56 (14.47)		-0.51 (15.38)	
Sample size	5299		2674		2625	
Log likelihood	-4695.61		-2158.51		-2483.36	

Notes: Absolute values of t-statistics are in parentheses. **D** is coefficient of correlation between the two equations.

Table 6: Predicted Probabilities of Child Labor and Child Schooling (%)

	Working & Studying	Working Only	Studying Only
<i>Total Sample (Urban & Rural Areas)</i>			
Boys	15.44	6.87	74.46
Girls	5.68	8.94	72.53
<i>Rural Areas</i>			
Boys	23.14	11.72	60.44
Girls	8.75	15.00	58.65
<i>Urban Areas</i>			
Boys	8.06	2.23	87.90
Girls	2.64	2.95	86.27