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Factors Explaining Child Work and Education in Myanmar

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Abstract

Child workers constitute a significant share of the Myanmar labor force, which has translated into an unprotected child labor market. Given the prevalence of issues surrounding school enrollment and dropout rates, this paper investigates the relationship between child work and education. Using data from the 2015 Labor Force survey, it studies what factors explain child work and how this can in turn affect schooling outcomes. The study differentiates between children's household chores and wage work. To understand if these two types of activities affect schooling differently, the paper explores if and how work intensity (number of hours worked) plays a role. The findings show that child work has a negative correlation with school enrollment and attendance, to differing degrees depending on the type of work and work intensity, regardless of gender. Overall, wage work is negatively correlated with enrollment and attendance disproportionately more than household chores. Work intensity seems to play a smaller role, but it still matters when looking at girls' participation in household chores. Working long hours does not seem to have a link with the likelihood of being enrolled and attending school, although it could affect learning outcomes as it reduces the amount of time dedicated to homework and study. However, the data source being some years old, the analysis may not fully reflect the most recent economic and social developments and conditions in Myanmar.

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Factors Explaining Child Work and Education in Myanmar[Ψ]

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1. Introduction

Child work is a cause and a consequence of poverty and lack of opportunity. Children[1] in poor households in low- and middle-income countries may contribute to their families' welfare by doing household chores or paid work outside the home. Despite the long-term returns to education, the short-term high marginal returns to labor provide a rationale for child work to exist and illustrate the fundamental difficulty in reducing it (Beegle, Dehejia and Gatti 2009). Moreover, although child work can negatively affect education and schooling outcomes, the reverse is true as well: child work can help children be more productive, raising their prospective earnings and providing incentive to join the labor force (Phoumin and Fukui 2006).

There is an important difference between child labor and child work. According to the International Labour Organization (ILO), children's participation in work that does not affect their health and personal development or interfere with their schooling is generally considered as being something positive: it equips them with skills and experience and helps prepare them to be productive members of society in adulthood. By contrast, child labor is usually defined as work that deprives children of their childhood, their potential and their dignity. This refers to work that (1) severely interferes with their ability to attend school, which ultimately harms income-earning potential in adulthood, and (2) is mentally and physically dangerous for children. Child labor depends on the child's age, the type and hours of work performed, the conditions under which it is performed, and the objectives pursued by individual countries.[2]

Child labor has long been a feature of Myanmar's economy, and has translated into a large and unprotected child labor market countrywide. Data from ILO's 2015 Labor Force Survey (LFS) indicates that 9.3 percent of Myanmar's total child population (12.14 million children aged 5-17 years) were engaged in child labor at the time of the survey. Working for pay or profit, child workers fall into one of four main categories: (1) children aged 5-17 engaged in hazardous work[3] for at least one hour per week; (2) children

[1] In this study, a child is defined as anybody between the ages of 5 and 17.
[2] What is child labor? https://www.ilo.org/ipec/facts/lang--en/index.htm.
[3] The definition of hazardous work includes the following: (1) work which exposes children to dust and fumes; fire, gas and flames, loud noise or vibration; extreme cold or heat; (2) work underground, under water, at dangerous heights or in confined spaces; (3) work with dangerous machinery, equipment and tools, or which involves the manual handling or transport of heavy loads; (4) work in an unhealthy environment which may, for example, expose children to hazardous substances, agents or processes, or to temperatures, noise levels, or vibrations damaging to their health; and (5) work under particularly difficult conditions such as working long hours or during the night or work where the child is unreasonably confined to the employer's premises (Department of Labour 2016).

aged 5-12 engaged for at least one hour per week; (3) children aged 13-14 engaged for more than 24 hours per week or working nights (6 pm to 6 am); and (4) children aged 15-17 engaged in work for more than 44 hours a week. A stark statistic is that nearly a third of all children aged 15-17 are classed as child laborers while only a very small share (1.3 percent) are not[4] (Department of Labour 2016). Nevertheless, 35 percent of children are involved in household chores such as cleaning, cooking and childcare and 11 percent in unpaid household subsistence activities such as farming, collecting firewood and fetching water.

At the time of LFS 2015, about 78 percent of children were attending school and not working. Older children, however, were less likely to be enrolled in school and more likely to be working as nearly half of children aged 15 to 17 had quit school (Department of Labour 2016). Myanmar has improved its school enrollment in the last decade: the net primary enrollment rate increased from 88 percent in 2010 to 94 percent in 2017. But there is still a large dropout of students during the transition from primary to middle school with just 71 percent of school-age children enrolled in middle or high school in 2017 (CSO, UNDP and World Bank 2020). Enrollment rates drop at middle and high school, which is consistent with the ages at which children join the labor market.

For the purpose of this paper, we focus on children aged 5 to 17 doing any type of work that involves wage work, household chores, unpaid family work or household subsistence activities. Given the importance of child work in Myanmar and the concomitant persistent problems of non-enrollment and dropout after primary school, the objective of this study is to identify what factors explain child work and how child work affects schooling outcomes. Besides looking at children's participation in market and household activities, the study seeks to understand how work intensity (the number of hours worked) affects school enrollment and attendance.

Drawing on data from LFS 2015, we use a combination of descriptive statistics and econometric analysis to address these questions. Econometric analysis, depending on the outcome of interest, relies on a probit or an OLS model. The outcome variables are enrollment (binary variable on being enrolled), attendance (binary variable on attendance during the past week) and enrollment combined with employment. In the analysis we distinguish between wage work, household chores, and any work. Wage work is defined as

[4] Following the definition used for LFS 2015, the term "working children" in this study refers to all those in the age-group 5-17 years engaged in economic production leading to the production of goods and services for sale (Department of Labour 2016).

any work for a wage, salary, commission, tips or other pay even if only for one hour in the past seven days. Household chores covers any unpaid household activities such as cooking, shopping and washing clothes done in the past seven days.[5] Any work captures wage work, household chores, unpaid family work,[6] farm work outside the household, household subsistence activities,[7] and self-employment (this variable is only valid for children aged 14-17).[8]

To analyze the relationship between work and schooling, we use a bivariate probit model to try to capture the decisions households make to enroll children in school or to send them to work. Our findings indicate that there is a strong negative significant correlation between school enrollment and wage work, and to a lesser extent between school enrollment and household chores. There are gender differences in participation in wage work and household chores, although girls are more likely than boys to be enrolled in school. Parents' education, wealth and remittances matter to keep children enrolled in school. We also find that high-intensity wage work and school attendance can be mutually exclusive because such work usually takes place during school hours, which prevents many children from going to school. The data source is some years old, and the above findings may not fully reflect the most recent economic and social developments and conditions in Myanmar.

The rest of the study is organized as follows. Section 2 summarizes existing literature on the relationship between child work and education. Section 3 describes the data and methodology. A detailed descriptive analysis is provided in Section 4 before uncovering the main findings from this study in Section 5. The conclusion summarizes all the findings and outlines future research.

[5] The variable household chores is a binary variable taking the value of 1 if the child has done any of the following unpaid household activities in the past seven days: cooking, shopping, cleaning, washing clothes, household repairs, childcare and elderly care.

[6] The variable unpaid family work is a binary variable taking the value of 1 if in the past seven days the child helped in a business owned by a household member, even if only for one hour.

[7] The variable household subsistence activities is a binary variable taking the value of 1 if the child has done any of the following unpaid production activities in the past 30 days: farming, craft making, fetching water, collecting firewood, and construction work.

[8] The variable self-employment is restricted to children between 14 and 17 years of age. It does not capture information for younger children as the question was only put to older children. It is a binary variable taking the value of 1 if the child is self-employed.

2. Literature review on links between child labor and educational outcomes

The literature mostly suggests that child work has a negative effect on educational achievement (Bezerra, Kassouf and Arends-Kuenning 2009; Edmonds 2007; Ray 2003). In Brazil, Bezerra and co-authors (2009) study the impact of child labor on school achievement (grades of different subjects) looking at the effects of work intensity and different types of work, either within or outside the home. They find that children and adolescents who do not work perform better at school than those who work. In addition, intensity seems to matter as the educational performance of children working fewer than two hours a day is not affected whereas that of children working more than two hours a day is. When comparing child work within and outside the home, working outside the household significantly negatively affects test scores more than working within the household.

Similarly, when looking beyond the simple act of being enrolled and focusing on learning outcomes, the consensus is that there is a negative relationship between child labor and educational attainment (Emerson, Ponczek and Souza 2014; Heady 2003; Akabayashi and Psacharopoulos 1999). Using panel data from Brazil, Emerson and colleagues show that child work, while still at school, has a strong adverse effect on test scores in math and Portuguese; the average effect on proficiency scores of transitioning to work while in school is equivalent to between one-quarter and an entire year of learning (Emerson, Ponczek and Souza 2014).

At the same time, some research studies report little or no relationship between enrollment and child labor, suggesting that the two activities are not mutually exclusive (No, Sam and Hirakaw 2012; Ravallion and Wodon 2000). In their study on primary school dropout in Cambodia, No and co-authors find that child labor is not a major predictor of whether or not child workers will attend school, but family and school factors are. Putnick and Bornstein (2015), analyzing data from almost 200,000 families with children aged between 7 and 14 in 30 low- and middle-income countries, note that many working children continue to be enrolled in school. Their analysis confirms the findings from Ravallion and Wodon (2000), where a school subsidy program increased schooling attainment but did not decrease child labor.

The divergence in findings on the impacts of child labor on enrollment has been linked to the different definitions of child labor in the literature. Some definitions include both household and wage work, whereas others distinguish between the two.

Another important debate concerns how labor is measured and what really matters. Discussion centers on explaining if what matters is whether the child works or the actual number of hours spent working (i.e., work intensity). Goulart and Bedi (2008) assessed economic work both inside and outside the household and found that while economic work negatively affects school success, household chores are unrelated to schooling outcomes. Guarcello, Lyon and Rosati (2006) present contrasting evidence, however. Their study, looking at children aged 7 to 14 years across 60 developing countries, suggests that the negative effects on schooling are not limited to economic activity but also extend to household chores, and that intensity of work matters. They report that hours of economic work as well as household chores are related to the probability of attending school in Bolivia, Cambodia, Mali and Senegal. Edmonds (2007) and Allais (2009) also suggest that intensity matters most. Edmonds (2007) finds that the difference in school attendance rates for children working inside and outside the household appears to owe more to differences in the total hours worked rather than something else intrinsic to work outside home. Allais (2009), in a study looking at 16 countries, reports that engaging in 28 or more hours of economic work resulted in 30 percent lower school enrollment compared to working fewer than 14 hours. He also looks at work intensity related to household chores and finds that doing household chores for 28 or more hours is associated with almost 20 percent lower school enrollment for girls and 10 percent lower enrollment for boys, when compared to working fewer than 14 hours.

3. Data and methodology

The present analysis uses data from the 2015 Myanmar Labour Force, Child Labour and School-to-Work Transition Survey (LFS). Conducted by the Department of Labour (DOL) at the Ministry of Labour, Immigration and Population (MOLIP), this unique countrywide survey collected detailed information on the population aged 5 years and above on the topics labor force participation, child work and school-to-work transition.[9] The objective of the survey was to provide information on the national labor market to be used in the development, management and evaluation of labor market policies and programs. A two-stage sampling design was used with enumeration areas and households serving as the primary and ultimate sampling units, respectively. Estimates derived from the survey are reliable at national, rural-

[9] The data used here are from 2015 and do not fully capture the socioeconomic improvements Myanmar experienced until the early 2020s before being hit by multiple crises.

urban and state/region levels. The survey was administered to approximately 23,500 households. Data on child work was gathered on individuals aged 5-17.

In the analysis we use a broad definition of child labor, embracing children engaged in wage work, unpaid family work, farming and self-employment. We do not focus on the distinction between working children and child labor as we are interested in understanding if working affects schooling outcomes regardless of whether or not the work is classified as child labor. We also consider a child as working if he or she is engaged in any one or more than one of the following household chores: cooking, shopping, cleaning, washing clothes, household repairs, childcare, elderly care and other household tasks.

For a robust analysis, this study uses two categories of outcomes: those related to work and those related to education. The first covers participation in wage labor, household chores, and any type of work (either wage labor or household chores), and the time spent doing these activities. The second covers school enrollment and attendance, the latter being a binary variable on attendance during the past week, equal to 1 if the child attended at least three days of school in the past week and 0 otherwise. We use a bivariate probit regression to estimate the joint probability of a child's participation in wage work, household chores, or any type of work while simultaneously deciding to be enrolled. The bivariate probit model allows us to focus on the trade-off between current income and higher future income that is the return from education. Implicitly, we have a two-period model. In the first period, parents choose either to invest in children's education or to send them out to work and gain from their earnings. In the second period, parents become inactive and rely on the economic support of their children, whose incomes depend on educational level. Given gender bias in the labor market, this model is often used to explain lower school enrollment for girls. Low expectation of returns to education – due to low quality, poor performance, or job market opportunity – may incline parents to invest little in education. Similarly, preference for present income as opposed to uncertain future income may also lead to scant investment in education.

We use a basic specification for the bivariate probit model in which a structural equation determines the joint model for the two binary outcomes (work and enrollment), which can be correlated with the correlation coefficient even though the decisions are not made at the same time: households decide at the beginning of the school year to enroll or not enroll their children in school and decide later whether to send their children to school or out to work. If the two binary outcomes are not correlated, the two probit models can be estimated separately. However, in the case of a non-zero correlation ($\rho \neq 0$), the two models would be better estimated under a joint distribution using a bivariate probit. A significant

negative value of ρ would indicate that there is a trade-off between working and schooling decisions and that they compete with each other as opposing choices. The bivariate probit model specifies the outcomes as:

$$L_1 = \begin{cases} 1 \;\; if \;\; L_1^* > 0 \\ 0 \;\; if \;\; L_1^* \leq 0 \end{cases}$$

$$S_2 = \begin{cases} 1 \;\; if \;\; S_2^* > 0 \\ 0 \;\; if \;\; S_2^* \leq 0 \end{cases}$$

where L_1 is participation in wage work, household chores or any type of work, and S_2 is school enrollment and attendance. The unobserved latent variables L_1^* and S_2^* are derived from the following functions:

$$L_1^* = x_1'\beta_1 + e_1$$

$$S_2^* = x_2'\beta_2 + e_2$$

where x_i' with $i = 1,2$ are the factors explaining the outcomes of interest and e_i is the error term.

E[e_1]=E[e_1]=0,

Var[e_1]=Var[e_1]=1,

Cov[e_1, e_2]=ρ

We use a probit model to estimate the correlations between school enrollment and attendance, and work intensity. For simplicity, we do not use the continuous variables for number of hours worked. To measure work intensity, the number of hours spent working is converted into a categorical variable, built off the continuous variable and defined such that it takes the value 0 if not working at all, 1 if working fewer than 40 hours, and 2 if working 40 or more hours. We assume that decisions to attend school and to work are interdependent as they are made simultaneously. By contrast, as mentioned above, the number of hours worked and decisions about school enrollment or outcomes related to school attainment are not simultaneous. School enrollment is decided before the number of hours worked is known while educational attainment is achieved once hours have been worked.

The set of covariates includes both child and household characteristics. We control for age and gender, as we know that in Myanmar older children are less likely to be enrolled in school and that girls overall participate more in household chores. We control for whether the child has any disability and whether the mother and/or father is alive as being an orphan might push children to drop out of school and participate in wage work prematurely. Household-level characteristics include location as there is a

substantial urban-rural education gap at higher levels. We also control for household composition – total number of children (aged 0-17) and total number of adults (aged 18-60), whether the head of household is female, whether the most educated household member is female, and whether anyone in the household achieved a secondary level of education or higher as parents who have attained a certain educational level are more likely to want their children to reach at least the same (see, for example, Breen and Goldthorpe 1997). Household wealth can also account for the decision to keep a child in school or to send a child out to work. We therefore control for whether the household's weekly income is in the 4th or 5th income quintile, or whether the household receives remittances (both from within and outside the country), and for the household's welfare quintile (Basu and Van 1998; Webbink, Smits and de Jong 2012).

4. Descriptive analysis

As mentioned in the introduction, in 2015 one out of 10 children in Myanmar works for wage (6 percent) or for profit. Added to this, 35.3 percent of children do household chores (cooking, mending, washing and ironing clothes, caring for household members, collecting firewood and fetching water), 11.4 percent produce foodstuff and do craft and construction work for household consumption, and 3.8 percent do unpaid family work (Table 1).[10] Of the children working outside the home for a wage, 56.5 percent are engaged in the agriculture sector, often in farming, including rubber, sugarcane, beans and pulses, rice, betel nut and bamboo, fishing and fish processing and seafood activities, and forestry including on teak plantations. About 21.4 percent of children work in the industry sector across a wide range of activities: garment manufacturing, construction work, carrying stones, food processing, brickmaking, quarrying and mining including for jade and rubies. About 22.1 percent of children work in the service sector where they mostly do household chores, work in teashops and restaurants waiting on tables and washing dishes, sell in markets, collect garbage and recyclables, and work in transport. At the same time, the data does not account for the worst cases of child employment and forced child labor that have been reported in Myanmar (U.S. Department of Labor 2018). On average, children engaged in wage work have been employed at their place of work for 1 to 2 years and usually the work is undertaken at a fixed location but without a structure. Most working children are employed in private businesses, including household businesses owned by nationals, which require no type of registration. The average weekly salary for working children is 18,260 kyats (USD11), while the average weekly income reported for a household in

[10] Unpaid help in a business owned by a household member in the past seven days.

our sample is 28,270 kyats (USD17). Furthermore, working children spend more time at work than adults, working an average of 6.3 days per week compared to 5.9 for adults.

Most children carry out one or more wage or domestic activities with almost all children doing wage work being also involved in household chores. In addition, the vast majority of children working for pay or profit are child laborers according to the definition of child labor used for this study (see the Data and Methodology section). Table 1 presents the total number of children employed in each type of work and doing any work at all. Overall, 40 percent of children in Myanmar are working. However, it is important to note that one child may do more than one type of work.

Table 1 Basic statistics on child labor/work in Myanmar, 2015

	Boys	Girls	Total
Proportion of children engaged in different types of work			
Wage work:	6.2	5.6	6.0
Share of wage workers in agriculture	54.0	59.2	56.5
Share of wage workers in industry	26.1	16.1	21.4
Share of wage workers in services	19.8	24.4	22.1
Household chores	30.9	39.4	35.2
Household production:	10.9	11.8	11.4
Farming activities	7.5	6.8	7.1
Unpaid family work	4.1	3.5	3.8
Any type of work	*36.6*	*42.2*	*39.7*
Place where child workers mainly work (wage labor)			
Inside the home	1.6	5.5	3.4
Workspace next to/in front of the home	6.0	5.0	5.5
Private house of employer/client	20.7	21.4	21.1
Fixed location with permanent structure	6.3	8.3	7.2
Fixed location with temporary structure/kiosk/stall	1.2	1.0	1.1
Fixed location without any structure	2.3	1.6	1.9
No fixed location (street vendors)	3.8	3.4	3.6
Farm, agricultural plot, sea, river, construction site	57.6	53.5	55.7
Other	0.5	0.4	0.4
Total	100.0	100.0	100.0
Position held by child workers (wage labor)			
Employee	54.2	57.4	55.7
Paid apprentice/intern	1.3	0.6	1.0
Employer (with regular employees)	0.1	0.0	0.1
Own-account worker (without regular employees)	4.8	4.8	4.8
Co-operator of household/family business	15.6	13.3	14.5
Unpaid help in household/family business	24.1	23.9	24.0
Total	100.0	100.0	100.0

Note: Children can carry out more than one type of work. Wage work captures children working for income in the past seven days across three sectors; household chores captures cooking, cleaning, taking care of household members, and so on in the past seven days; household production captures farm work, fetching water, collecting wood, and so on for the family; unpaid family work captures unpaid help in a business owned by a household member; any work captures children doing any of these types of work and/or chores.
Source: authors' estimates using LFS 2015

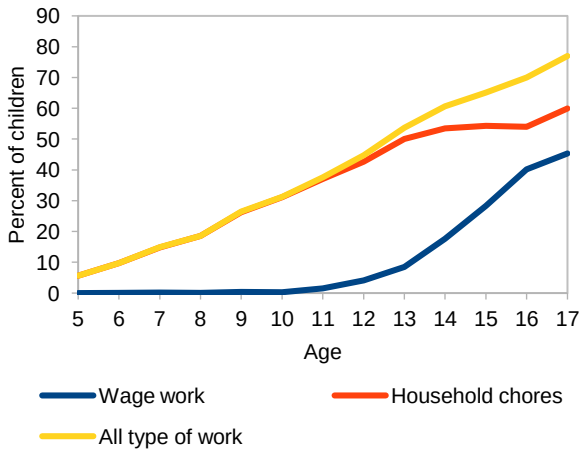
Table 1 shows that there are gender differences across all the different types of work carried out. Although the wage work participation rates for girls and boys are similar, with slightly more boys than girls (0.6 percentage points difference), girls are more likely to be employed in the agriculture and service sectors and boys in the industry sector. Girls are disproportionately more engaged (~9 percentage points) in household chores than boys, with girls outnumbering boys in every single chore. Even though girls are more engaged than boys in agriculture, when looking at wage work, boys actually carry out more farming activities for the household (0.7 percentage point difference) than girls. However, overall, 1 percent more girls than boys are busy with household production tasks including fetching water, doing craftwork and collecting wood. Overall, more girls (42.2 percent) than boys (36.6 percent) are engaged in some form of work or chores.

The above data should be interpreted with caution, however. Importantly, there are significant time differences across activities. Wage work is more time consuming than other occupations, with children working on average 53 hours per 6-day week in this type of work compared to 9 or 10 hours in household production or chores during a typical week. Further, household chores are more likely to be done at weekends or after school and do not seem to be a barrier to school attendance. Overall, girls spend one hour more a week than boys doing household chores. Boys, instead, spend more time doing household production activities. Despite the gender differences in types of work and overall work participation, there is no difference in school enrollment between boys and girls unless the data is disaggregated by age. At age 15, girls are more likely to be enrolled in school, whereas boys are more likely to be engaged in wage work. Despite there being almost no gender difference between hours spent on wage work during a typical week (53.4 girls and 53.1 boys), girls earn less money. On average a girl employed in wage work earns 17,120 kyats (USD10.4) per week and a boy earns 19,321 kyats (USD11.7), over a dollar more per week.

Participation in any type of work increases with age along with concomitant decreases in school enrollment. Participation in wage work begins at age 11 and involvement in household chores starts at age 5. By the age of 13, more than half of the children are involved in some type of work (Figure 1). Across

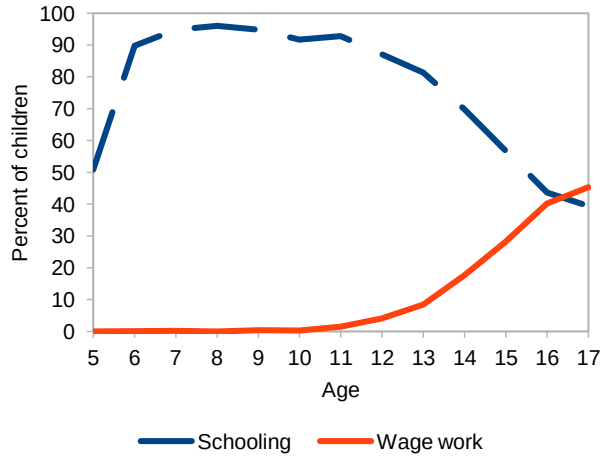
ages, the relationship between participation in wage work and enrollment is negative. At age 6 almost all children are enrolled in school and the share remains virtually unchanged until age 11. Starting from age 11 there is an inverse relationship between participation in wage work and schooling, with an increase in labor market participation being accompanied by a simultaneous decrease in school enrollment (Figure 2). At the same time, working does not affect whether younger children, especially those in elementary school, are in the correct grade. Younger children who participate in household chores are able to keep up with school and be enrolled in the correct grade.

Figure 1 Share of children working in domestic and wage work by age, 2015



Source: authors' estimates using LFS 2015

Figure 2 Probability of schooling and wage work by age, 2015

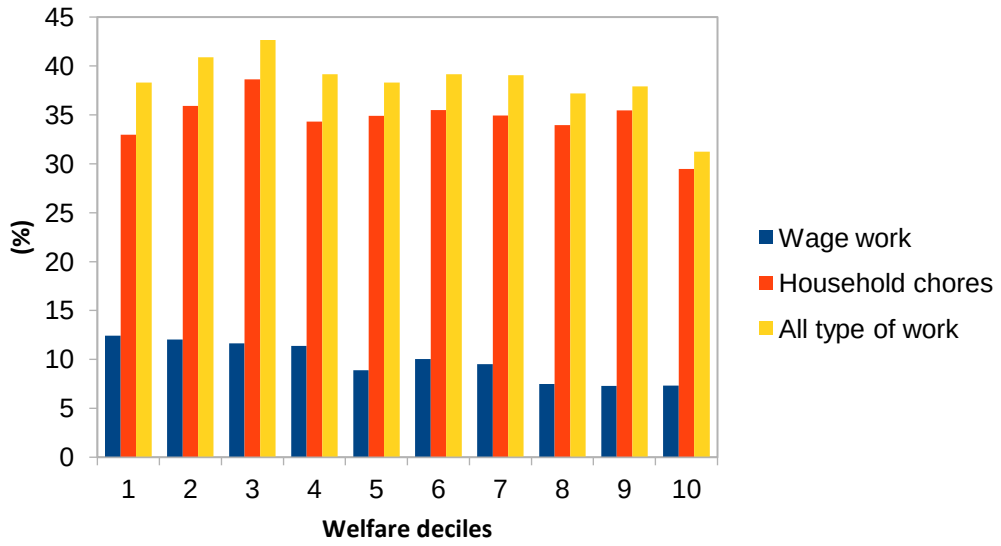


Source: authors' estimates using LFS 2015

Participation in any type of work decreases with wealth, from 38.3 percent for children in the lowest decile to 31.2 percent for children in highest decile (Figure 3). There is no clear trend in labor market and household chores participation across wealth deciles and no gender differences. Using imputed consumption, the probability of being engaged in domestic or wage work remains quite constant across consumption deciles. Children in richer households are almost as likely to be engaged in any type of work as children from poorer households. Although the probability declines in the top deciles, especially when looking at wage work, the difference is not significant. Overall, it seems that participation in any type of work is not affected by household wealth, whereas participation in paid labor market activities is significantly influenced by the age of the child. To recap, engagement in household chores starts as early

as age 5, but participation in wage work does not begin until age 11. Only in the 6th and 7th welfare deciles do girls' enrollment rates outperform boys' enrollment rates, as reflected in the larger share of working boys.

Figure 3 Share of household chores and wage work by welfare decile, 2015



Note: authors' estimates using LFS 2015

The majority of children (78 percent) in our sample were enrolled in school at the time of the survey. Furthermore, of those enrolled, the majority attended school regularly. Despite a very low share (1.2 percent) of children reporting missing school in the past week, those who did, missed over 2.5 days, a significant amount for a 5-day school week.

Of the remaining 22 percent not enrolled in school, 6.5 percent reported never having attended, with more boys (6 percent) than girls (5 percent) never having gone to school, while 15.5 percent were previously enrolled but had dropped out. For children reporting dropping out of school, the mean age at which they left school was 11.4, with girls leaving school slightly earlier than boys (11.3 vs 11.4). For boys, the main reason for dropping out was the inability to afford school (39 percent), followed by exam failure (18 percent) and need to help in family business (12 percent). For girls, inability to afford school was also the main reason for dropping out (41 percent), followed by having to help with household chores (15

percent). On average, children who had dropped out of school reported completing some middle school, which is still a higher level of completed education than that reported by adults in the sample.

Overall, literacy rates do not vary significantly between children and adults, with 92 percent of children and 89 percent of adults in our sample reporting being able to read and write a short simple sentence with understanding in any language. Rather than age, the important difference is gender. Whereas among adults there is a 6 percent literacy skills gap between men and women, among children, 0.7 percent more girls than boys report being literate, signaling an improvement in basic educational attainment over time.

5. Findings

Work participation and school enrollment

The bivariate probit equations allow us to uncover what factors explain whether or not a child is enrolled, and whether or not he or she is participating in wage work, household chores, or any type of work. The latter includes wage work, household chores, other unpaid family work, farm work and own business.[11] These categories are not mutually exclusive, and 40 percent of sampled children take part in at least one of these activities. Looking at any type of work allows us to investigate the relationship between any extra-school activities and probability of enrollment.

As shown in Table 2, there is a strong negative significant correlation (rho value -0.88) between wage work and school enrollment, which signals an important trade-off between the two, while the trade-off between household chores and school enrollment is smaller (rho value -0.17).

Overall, living in an urban area positively significantly affects participation in wage work and enrollment but negatively affects participation in household chores. Children living in larger households, in terms of a larger number of siblings, are less likely to be enrolled and more likely to participate in wage work. While Patrinos and Psacharopoulous (1997) argue that the relationship between more siblings and child work is not straightforward, in Myanmar it seems that children with more siblings have to work which decreases their likelihood of going to school. While having more siblings does not significantly explain differences between participation in household chores, it still reduces children's likelihood of attending school due to

[11] The distribution of children aged 5-17 across the different work categories is as follows: 35% household chores, 11% household production (collecting wood, fetching water), 5% wage work, 4% unpaid family work, 1% farm work and 0.56% self-employment. These categories are not mutually exclusive and 40% of the children in the sample participate in at least one of these activities.

limited household resources. Conversely, having a larger number of adults in the household reduces the likelihood of children doing household chores, which is probably due to a substitution effect.

Table 2 Correlates of school enrollment and different types of work

	Wage work		Household chores		Any type of work	
	Enrolled in school	Wage work	Enrolled in school	Household chores	Enrolled in school	Any type of work
Urban [yes=1]	0.111***	0.176***	0.174***	-0.081***	0.119***	-0.155***
	(0.030)	(0.045)	(0.032)	(0.026)	(0.029)	(0.025)
Age	0.881***	-0.042	0.810***	0.377***	0.816***	0.199***
	(0.024)	(0.181)	(0.025)	(0.022)	(0.024)	(0.020)
Age squared	-0.044***	0.012*	-0.040***	-0.011***	-0.042***	-0.001
	(0.001)	(0.006)	(0.001)	(0.001)	(0.001)	(0.001)
Female [yes=1]	0.119***	-0.247***	0.057**	0.279***	0.055**	0.177***
	(0.025)	(0.040)	(0.026)	(0.022)	(0.024)	(0.021)
Any disability [yes=1]	-0.990***	-0.276	-0.987***	-0.403***	-0.866***	-0.406***
	(0.109)	(0.231)	(0.102)	(0.114)	(0.103)	(0.109)
Child does hh chores	-0.579***	1.851***				
	(0.027)	(0.104)				
Child does wage work			-2.776***	2.170***		
			(0.124)	(0.105)		
Mother alive [yes=1]	0.173***	-0.085	0.183***	-0.093	0.191***	-0.139***
	(0.060)	(0.083)	(0.066)	(0.058)	(0.060)	(0.054)
Father alive [yes=1]	0.237***	-0.252***	0.201***	-0.005	0.240***	-0.052
	(0.049)	(0.076)	(0.053)	(0.046)	(0.048)	(0.044)
Total number of children [>14] in hh	-0.097***	0.070***	-0.090***	-0.008	-0.096***	0.015**
	(0.008)	(0.012)	(0.008)	(0.008)	(0.008)	(0.007)
Total number of adults [18-60] in hh	-0.006	0.003	-0.004	-0.071***	0.006	-0.072***
	(0.009)	(0.014)	(0.009)	(0.008)	(0.008)	(0.008)
Female hh head [yes=1]	-0.062*	0.029	-0.051	-0.052	-0.052	-0.071**
	(0.037)	(0.065)	(0.039)	(0.033)	(0.036)	(0.033)
Female most educated hh [yes=1]	0.137***	-0.162***	0.122***	-0.059**	0.144***	-0.067**
	(0.032)	(0.053)	(0.034)	(0.027)	(0.032)	(0.027)
HH edu at least secondary [yes=1]	0.087**	-0.222***	0.021	-0.069**	0.100***	-0.163***
	(0.036)	(0.062)	(0.037)	(0.029)	(0.036)	(0.029)
HH receives remittances [yes=1]	0.224***	-0.216***	0.176***	0.137***	0.197***	0.072**
	(0.044)	(0.071)	(0.046)	(0.036)	(0.043)	(0.036)
High income hh [yes=1]	0.156***	-0.016	0.175***	-0.034	0.158***	-0.078***
	(0.025)	(0.041)	(0.027)	(0.023)	(0.025)	(0.022)
Welfare quintile 1	ref.	ref.	ref.	ref.	ref.	ref.
Welfare quintile 2	0.109***	-0.055	0.102***	0.056	0.098***	0.055*
	(0.035)	(0.059)	(0.037)	(0.034)	(0.035)	(0.033)
Welfare quintile 3	0.212***	-0.076	0.226***	-0.042	0.214***	-0.064*
	(0.037)	(0.058)	(0.039)	(0.034)	(0.037)	(0.033)
Welfare quintile 4	0.331***	-0.190***	0.331***	-0.023	0.329***	-0.052
	(0.040)	(0.065)	(0.041)	(0.036)	(0.039)	(0.035)
Welfare quintile 5	0.498***	-0.414***	0.464***	-0.084**	0.495***	-0.169***
	(0.045)	(0.074)	(0.047)	(0.038)	(0.044)	(0.037)
Constant	-3.154***	-4.355***	-2.900***	-2.994***	-2.937***	-1.989***
	(0.149)	(1.292)	(0.153)	(0.145)	(0.145)	(0.129)
Rho	-1.369***		-0.172***		-0.486***	
	(0.060)		(0.017)		(0.017)	
Number of observations	23,752		23,752		23,752	

Note: Robust standard errors in brackets.
HH edu at least secondary is defined as at least one member had secondary education or higher in the household.
High income hh is in the 4th or 5th quintiles of the income distribution.
*** p<0.01; ** p<0.05; * p<0.1

Gender and age matter: girls are less likely to be engaged in wage work but more likely to be involved in household chores and at the same time more likely to be enrolled. Older children are significantly more likely to be enrolled in school than younger children but are also more likely to be doing household chores. Disability plays a significant role in reducing the chance of being enrolled but has no correlation with participating in wage work.

Having a parent alive is an overall positive factor, increasing the likelihood of being enrolled and decreasing the probability of doing wage work, though having a mother alive only increases the likelihood of enrollment (Table 2). Having at least one parent who is alive is important as it is positively related with school enrollment, but having a mother or father alive does not affect participation in household chores. Whereas having a female head of household is negatively related with enrollment, having a female holding the highest level of education in the household is a positive factor. This characteristic increases the likelihood of enrollment while reducing the probability of wage work participation. Moreover, belonging to a household where at least one member completed either secondary or tertiary education is positively related to enrollment and negatively to wage work.

Belonging to a high-income household or a remittance-receiving household increases the likelihood of enrollment, but only remittances are significantly negatively related to participating in wage work. All levels of household welfare (when compared to the lowest quintile) are positively correlated with enrollment, and the magnitude of correlation increases with the quintiles. However, belonging to a household in the 4^{th} or 5^{th} welfare quintile significantly reduces the chance of children engaging in wage work. Again, welfare is increasingly positively related with enrollment. But in this case, only belonging to a household in the richest quintile decreases the chance of doing household chores.

Older children, girls and boys, from poorer households are more likely to be working. When considering all types of work, the correlation between any type of work and school enrollment is still negative but smaller (rho -0.45) than when looking at wage work independently. Overall, some characteristics explain the trade-offs between enrollment and work. Children living in urban households, in more educated households, with a mother who is alive, and in richer households are less likely to do any type of work and are more likely to be enrolled. At the same time, being disabled reduces a child's likelihood of doing any type of work and being enrolled. Living in households with more adult members and living in female-headed households reduces a child's likelihood of doing any type of work but does not have any effect on

school enrollment. Girls and older children are more likely to work than others but are also more likely to be enrolled in school.

In Myanmar, as suggested in the literature, participating in any type of work seems to reduce the probability of enrollment. However, different types of work have different outcomes. Wage work reduces the likelihood of being enrolled significantly more than household chores. This could also be because household chores are done after school hours, whereas wage work usually occurs during school time. The next section looks at work intensity, aiming to better understand whether it is only a matter of the type of work or whether time spent working also plays a role.

Schooling and work intensity

Here we focus on the relationship between work intensity, school enrollment and weekly attendance to understand whether it is the type of work, the intensity of work, or both that matter in enrollment, looking at the whole sample of children, as well as gender separately. The explanatory variables used in this model are the same as the ones in the bivariate probit model with the addition of categorical variables for number of hours spent doing household chores, wage work, or any type of work. Because we assume that households first decide to enroll their children in school and later the number of hours the child would work, the two decisions are not made at the same time. However, if we were to assess the impact of the number of hours worked on schooling (enrollment and attendance), these decisions would have been made at the same time, and we would have to use an instrumental variable to control for endogeneity of the number of hours of work to the number of households at school. One commonly used instrument in the literature is the Jackknife Instrumental Variables Estimator, popularly known as a leave-out mean estimator. For this study, the instrumental variable is the leave-out mean of hours by cluster. This variable affects the number of hours worked by a child as it reflects work opportunities as well as the local culture in the area where the child lives, but not necessarily the schooling decision of a child conditional on the number of hours worked.

Looking at school enrollment correlates, the relationship between household chores and wage work with school enrollment is in all cases significant and negative, except when looking at boys working more than 40 hours and household chores where the effect is not significant (Table 3). There is a considerable difference in the magnitude of the relationship: spending time on wage work has a much larger negative effect on enrollment than spending time on household chores. Wage work has a similar relationship with enrollment regardless of gender and work intensity. On the other hand, household chores has a large

negative effect on enrollment, which decreases as the hours worked increase, especially for girls. Doing household chores affects the probability of girls' non-enrollment more than boys' non-enrollment. For girls spending fewer than 40 hours or more than 40 hours per week on household chores, the likelihood of being enrolled decreases by 10 percent to 17 percent, respectively. For boys, the relationship between a large number of hours spent doing household chores and enrollment is non-significant, most likely because only 1 percent of boys spend 40 or more hours on household chores.

The difference in magnitude between wage work and household chores can be explained by the fact that wage work usually takes place during school hours, thus preventing a child from engaging in both work and school. By contrast, household chores can be done at any time. When looking at girls, who are primarily engaged in this type of work, working many hours doing household chores substantially reduces the likelihood of being enrolled. From these results, intensity seems to matter and even more so when the results are disaggregated by gender. If information were available, it would be possible to determine whether working long hours, which reduces the time available to study and do homework, has a detrimental effect on learning outcomes, as done in studies by Emerson, Ponczek and Souza (2014), Heady (2003), and Patrinos and Psacharopoulous (1997).

Besides work intensity, children with a father who is alive and those from urban and wealthier households (considering income, receipt of remittances and overall wealth) are more likely to be enrolled. Enrollment also increases with age but at a smaller rate. On the other hand, having a greater number of siblings reduces the likelihood of enrollment regardless of gender. But when looking at gender-disaggregated results, there are some characteristics that are only related to girls' enrollment. Having a mother alive increases the probability of enrollment for girls only, whereas having a father alive matters for both boys and girls. Having a female household head has no significant effect on boys' enrollment but is negatively correlated with girls' enrollment. Having a female holding the highest level of education in the household is positively related to both boys' and girls' enrollment but is more significant and has a larger magnitude when looking at girls. Having better educated women in the household is a crucial factor in improving school enrollment, especially enrollment of girls.

Analysis of the relationship between wage work and school attendance reveals similar trends to school enrollment. Participation in wage work reduces the likelihood of attending school more (by at least three days a week) than participation in household chores does, especially for boys. Looking at the results for the entire sample, participating in wage work for fewer than 40 hours per week reduces the probability

of attendance by 77 percent, compared to just 9 percent for the same time spent doing household chores. Focusing on wage work, boys and girls present similar results, with wage work affecting boys' attendance slightly more than girls' attendance regardless of the number of hours worked. Moreover, intensity also plays a small role in wage work, increasing the magnitude of wage work by 2 percent for girls and 1 percent for boys. However, the work intensity of household chores seems to matter more for girls than for boys. As with enrollment, the coefficient of household chores on school attendance almost doubles from 10.5 percent to 19 percent for girls working more than 40 hours per week, whereas the correlation between boys spending more than 40 hours per week on household chores and school attendance is not significant. This implies that working long hours doing household chores has no effect on boys' attendance, but the combination of household chores and wage work has a significant effect on girls' attendance, especially when working over 40 hours. Girls are more likely to be disadvantaged than boys when it comes to both enrollment and attendance: girls are often left in charge of activities that are done during school hours.

When controlling for other characteristics, school attendance increases with age, regardless of gender but at a decreasing rate. Although enrollment rates are lower for older children, those who are enrolled are more likely to attend school for most of the week. This reflects the fact that children reaching higher levels of schooling would be more dedicated. The likelihood of attending school for at least three days a week also increases with wealth (considering income, remittances and welfare) because wealthier households can better afford the costs of having children outside their homes for more days a week than poorer households. School attendance is also higher for children living in an urban household and with an alive father. Similarly to enrollment, having a greater number of siblings and having a disability both reduce weekly school attendance. For girls, attendance is positively correlated with having a mother alive, having a female holding the highest level of education in the household, and being from a household that has an overall high level of education. For boys, all of these characteristics are non-significant. Again, having better educated women in the household has a strong effect on encouraging girls' education.

Table 3 Correlates of school enrollment and attendance (marginal effects)

	Enrolled in school			Attended school		
	All children	**Girls**	**Boys**	**All children**	**Girls**	**Boys**
Wage work – not working	ref.	ref.	ref.	ref.	ref.	ref.
Wage work – fewer than 40 hrs	-0.779***	-0.760***	-0.797***	-0.771***	-0.754***	-0.787***
	(0.025)	(0.048)	(0.013)	(0.025)	(0.046)	(0.013)
Wage work – 40 or more hrs	-0.794***	-0.783***	-0.806***	-0.785***	-0.775***	-0.797***
	(0.015)	(0.023)	(0.018)	(0.015)	(0.023)	(0.017)
Household chores – not working	ref.	ref.	ref.	ref.	ref.	ref.
Household chores – fewer than 40 hrs	-0.090***	-0.104***	-0.072***	-0.092***	-0.105***	-0.074***
	(0.009)	(0.011)	(0.013)	(0.009)	(0.011)	(0.013)
Household chores – 40 or more hrs	-0.098***	-0.172***	-0.005	-0.106***	-0.190***	0.003
	(0.033)	(0.047)	(0.045)	(0.034)	(0.047)	(0.045)
Urban [yes=1]	0.042***	0.036***	0.048***	0.034***	0.028**	0.040***
	(0.008)	(0.011)	(0.012)	(0.008)	(0.011)	(0.012)
Age	0.226***	0.206***	0.248***	0.228***	0.206***	0.252***
	(0.007)	(0.009)	(0.010)	(0.007)	(0.010)	(0.010)
Age squared	-0.011***	-0.010***	-0.012***	-0.011***	-0.010***	-0.012***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Female [yes=1]	0.025***			0.026***		
	(0.007)			(0.007)		
Any disability [yes=1]	-0.371***	-0.322***	-0.442***	-0.381***	-0.312***	-0.477***
	(0.041)	(0.058)	(0.057)	(0.040)	(0.057)	(0.053)
Mother alive [yes=1]	0.051**	0.073***	0.023	0.054***	0.082***	0.018
	(0.020)	(0.028)	(0.028)	(0.020)	(0.029)	(0.028)
Father alive [yes=1]	0.058***	0.042**	0.073***	0.056***	0.038*	0.072***
	(0.016)	(0.021)	(0.024)	(0.016)	(0.021)	(0.024)
Total number of children [>18] in hh	-0.024***	-0.025***	-0.023***	-0.024***	-0.025***	-0.024***
	(0.002)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)
Total number of adults [18-60] in hh	-0.003	-0.002	-0.003	-0.003	-0.004	-0.003
	(0.002)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)
Female hh head [yes=1]	-0.017	-0.028*	-0.005	-0.015	-0.028*	-0.002
	(0.011)	(0.015)	(0.016)	(0.011)	(0.015)	(0.016)
Female most educated hh member [yes=1]	0.031***	0.036***	0.026*	0.026***	0.036***	0.015
	(0.009)	(0.011)	(0.013)	(0.009)	(0.011)	(0.014)
HH edu at least secondary [yes=1]	0.002	0.020	-0.017	0.009	0.026*	-0.008
	(0.010)	(0.013)	(0.015)	(0.010)	(0.013)	(0.015)
HH receives remittances [yes=1]	0.047***	0.044***	0.051***	0.050***	0.042***	0.058***
	(0.011)	(0.014)	(0.016)	(0.011)	(0.014)	(0.016)
High income hh [yes=1]	0.046***	0.056***	0.034***	0.049***	0.059***	0.037***
	(0.007)	(0.010)	(0.010)	(0.007)	(0.010)	(0.010)

Welfare quintile 1	ref.	ref.	ref.	ref.	ref.	ref.
Welfare quintile 2	0.028***	0.026**	0.031**	0.025***	0.025*	0.025*
	(0.009)	(0.012)	(0.014)	(0.010)	(0.013)	(0.015)
Welfare quintile 3	0.057***	0.032**	0.084***	0.056***	0.034**	0.079***
	(0.009)	(0.013)	(0.013)	(0.010)	(0.014)	(0.014)
Welfare quintile 4	0.080***	0.074***	0.086***	0.081***	0.077***	0.084***
	(0.009)	(0.012)	(0.014)	(0.009)	(0.013)	(0.014)
Welfare quintile 5	0.105***	0.106***	0.104***	0.103***	0.103***	0.103***
	(0.009)	(0.012)	(0.014)	(0.009)	(0.013)	(0.014)
Observations	23,752	11,975	11,777	23,752	11,975	11,777

Note: Robust standard errors in parentheses.
Regressions are done using probit displaying marginal effects but no constant.
Enrollment: child is enrolled in current school year.
Attendance: child attends school at least three days (out of five) a week.
Wage work and household chores: children not engaged in these activities recorded as doing 0 hours of work.
HH edu at least secondary: at least one household member has completed secondary education or higher.
High income hh: households in the 4th or 5th income distribution quintiles.
*** p<0.01; ** p<0.05; * p<0.1

6. Conclusion

This study finds that child work to differing degrees, depending on the type and intensity, negatively affects school enrollment and attendance, regardless of gender. In 2015, there is a clear trade-off between child work and schooling,[12] especially after the age of 11. The results suggest that children participating in wage work are less likely to be enrolled in school, regardless of the number of hours spent working and gender. However, wage work could reduce in a greater magnitude the likelihood of being enrolled and attending school for boys than for girls, whereas household chores affects girls disproportionately more. Hours spent working has different outcomes for both enrollment and attendance depending on the type of work and gender: for both girls and boys wage work intensity does not seem to matter, working less than or more than 40 hours significantly negatively affects enrollment and attendance. Intensity of household chores matters more for girls than for boys when looking at both schooling outcomes, affecting girls disproportionately more than boys. Focusing on the whole sample, wage work intensity does not seem to have a strong relationship with either enrollment or attendance probably because, regardless of the time actually spent participating in wage work, this most likely occurs during school hours, thus making it impossible for the child to do both. Intensity, as we mentioned, does matter for girls when looking at the effect of household chores on both schooling outcomes.

[12] With schooling we refer to both the measures of enrollment and attendance.

Overall wage work is negatively associated with both enrollment and attendance disproportionately more than household chores, regardless of gender or work intensity. Intensity seems to play a smaller role, but still matters for girls participating in household chores. Moreover, it is important to remember that even though working longer hours might not directly be correlated with enrollment and attendance, it could affect learning outcomes as it reduces the available time to study and do homework as shown in other studies (Emerson, Ponczek and Souza 2014;, Heady 2003;, Patrinos and Psacharopoulous 1997). The analysis highlighted some other important factors that contribute to the probability of being enrolled in school. The education level of the household and who holds the highest level of education, the level of household welfare, income and whether they receive remittances, and having an alive parent positively affect schooling, while the child's age, the number of siblings, disabilities and having a female head of household negatively affect our outcomes of interest. However, as Myanmar quickly developed after 2015 before being hit by multiple crises in the early 2020s, the findings might not reflect this changing socioeconomic environment and the most recent challenges faced by Myanmar.

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