



The Tradeoff of Child Labor: Evidence from Indonesia

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Authors' contributions

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ABSTRACT

Using data from the Indonesia Family Life Survey (IFLS), this study examines the influence of child labor on wages and educational attainment in Indonesia. Several statistical methods, such as Propensity Score Matching (PSM), Quantile Regression, and robust Ordinary Least Squares (OLS) models, are used to analyze the relationship between child labor, income, and education while controlling for confounding variables. The findings indicate that child labor is initially associated with reduced wages, but this association becomes insignificant when other variables, such as years of education, are considered. Longer educational periods mitigate the negative effects of child labor on wages. In addition, the analysis reveals a tradeoff between child labor and educational attainment, highlighting the impact of child labor on education. Access to economic resources, however, mitigates this tradeoff, highlighting the importance of economic factors in children's decision-making. The study highlights the significance of child protection measures and effective socioeconomic policies to guarantee children's access to education and enhance their opportunities. It provides valuable insights into the effects of child labor on education and the role of economic factors in determining how children allocate their time.

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1. INTRODUCTION

How do decisions to work as children affect wages and educational attainment as adults in developing countries? The answer to this question is critical to debates about designing policies against child labor and enhancing human capital in developing countries. For example, from a policy perspective, there is a perception that the benefits of eliminating child labor worldwide are enormous [1]. In recent decades, there has been a notable commitment by international organisations to safeguard the rights of children and combat the issue of child labour [2]. The issue of child labour is frequently seen as a significant concern in numerous developing nations (see Kamruzzaman & Hakim, [3]; Öncü et al., [4]). Multiple research have reached the consensus that the eradication of child labour can be accomplished by the augmentation of household income and the implementation of educational initiatives targeting both children and parents (see Ahad et al. [5]). However, it does not address the dangers of child labor to human capital in adulthood.

Almost everyone agrees that child labor is undesirable, but there is wide disagreement about tackling this problem [6]. Most child laborers work in the agricultural, mining, fishing, manufacturing, and construction sectors, facing various safety and health risks [2]. Due to their smaller size, dependence on adults, and their developmental immaturity, children are more vulnerable to hazardous working conditions [7]. These dangers form the basis of many suggestions and policies for eliminating child labor. However, it should be remembered that measures that reduce child wages may improve conditions for low-income families but negatively impact poorer families [8]. Prohibiting child labor can improve the well-being of children and families by encouraging them to attend school and increasing investment in education. However, this policy is still a hot topic of debate among economists [9]. Prohibition of child labor may exacerbate the poverty of low-income families and cause other negative impacts, such as increased crime and crime due to the loss of essential family resources, as well as hindering the ability of families to meet basic needs such as food, clothing, and shelter. National bans on child labor can encourage children to work for lower wages and looser regulations, encouraging parents to send their children to work more [10].

However, the reasons behind this policy decision still need to be stronger because there is yet to be strong enough evidence to quantify a negative relationship between early work and one's achievement in adulthood.

In underdeveloped nations, it is common for children to be engaged in labor inside the familial agricultural industry [11], but in developed nations, children are more likely to be employed in external job settings as a means of generating cash. Children in developing nations are engaged in a diverse range of work environments, encompassing not only formal paid labor but also informal and household labor [12]. The occurrence of child labor in both developing and industrialized nations exhibits considerable variation. There is limited empirical support connecting child labor with educational results in underdeveloped nations [13]. The correlation between child work and schooling is a topic of ongoing inquiry, particularly with regards to the distinct effects of child labor on females and boys [14].

Low income in the country of residence, poverty, and poor institutions drive the prevalence of child labor worldwide [8,11,15]. In developing countries, child labor is often related to several socio-economic factors, such as low levels of development, poverty, and lack of good institutions [2]. In Indonesia, BPS reported a decrease in the number of child workers in 2021 of 1.05 million from 1.33 million in 2017. However, when viewed from a historical perspective, in 2000, child labor was common in Indonesia and often associated with developing countries [16,17]. Low-income families are forced to force children to work, resulting in limited knowledge and jeopardizing other aspects of human capital, such as health, negatively impacting future adult income [9,18]. Each form of child labor is negatively correlated with school enrollment [14]. Through decreased human capital investment activity, the quantity of time spent working has a negative correlation with literacy and math skills. This discovery indicates a tradeoff between juvenile labor and the development of human capital [12].

If the luxury axiom explained by Basu [19] is valid, then child labor is considered a result of poverty, not a choice; perhaps CCT, such as PKH, is not a solid reason to replace UCT, such as BLT, in reducing child labor. Fortunately,

however, CCT aims not only to increase children's hours in school but also to increase access to health care. The conditional cash transfer program (PKH) encourages children to attend school and helps reduce the inter-generational cycle of poverty, thereby increasing consumption and providing hope for a better future. Case examples The conditional cash transfer program in Nicaragua shows that compensating families for having children registered and attending school increases schooling and reduces child labor [20].

Although there is a decrease in the number of working children each year, the long-term impact of this practice in Indonesia needs to be adequately evaluated. As an initial assumption in this study, children forced to work may have different opportunities than other children to obtain adequate education and income, so they may not reach their full potential in adulthood. This practice of child labor considered destructive, can result in the loss of a bright future for children and perpetuate the cycle of poverty and social injustice.

Parents place a high value on their children's education as a means of securing future prospects. However, economically disadvantaged parents are compelled to allow their children to engage in employment in order to fulfill their immediate need. This phenomenon may lead to a decrease in investment in the field of education, therefore affecting several social effects like poverty alleviation, decelerated population growth, enhanced public health, diminished crime rates, and reduced dependence on government transfer programs [21].

2. REVIEW OF RELATED LITERATURE

Becker's seminal research on time allocation and its subsequent expansions pertaining to family behavior have contributed significantly to elucidating the theoretical underpinnings of adult life by examining the influence of household variables, such as parental education and childhood environment [22]. Highly educated and cross-racial parents tend to provide intensive care, focusing on skills training, and organizing activities with children, while parents with low education tend to provide less intensive care [23]. In the domestic sphere, decisions pertaining to several aspects, including family size and the distribution of time among employment, education, recreation, and domestic

responsibilities, are collaboratively determined. The objective is to fulfill the requirements of the household as a whole.

In situations when parents are unable to adequately fulfill the financial requirements of their children due to restricted family income, they may find themselves compelled to let their children to engage in employment in order to contribute towards meeting the household's needs. However, according to the argument put up by Basu [19], it is possible to repress children's job activities provided their parents possess sufficient wealth. Abdullah et al.'s study [24] highlights the need to invest in children from low-income families to ensure a better future, with the necessary support from government and non-government organizations.

The article by Emerson & Souza [9] examines the influence of childhood employment on adult earnings. Despite the importance of this investigation, little is known about the impact of child labor on adulthood. A research study was done in Brazil using the instrumental variable income model to estimate the influence of child work on adult wages. Even after controlling for levels of schooling, the results showed that child work substantially influences adult wages, especially for boys. According to the results, starting a job while young has fewer negative effects between 12 and 14.

While child labor may offer short-term economic advantages to families, the potential negative implications in the long run may surpass these benefits [25]. Stricter rules have been implemented to safeguard children from hazardous labor and enhance their access to education and training, therefore reducing their reliance on child labor as a means of supporting their family's economic needs. In the majority of instances, the temporal allocation of a child's labor is manifested by a reduction in their school hours.

2.1 The Child Labor-Wage Tradeoff

Numerous studies have explored the tradeoff that exists between child work and adult income, but with less attention given to directly examining the direct link between these two variables. The majority of previous studies have mostly concentrated on the impact of health problems and socioeconomic position in childhood on the level of income attained in adulthood. Persson et al. [26] shown that persons who have type 1

diabetes from infancy exhibit a decline in income during their adult years. Moreover, the impact of this decline on income becomes more pronounced as individuals age and as the duration of their condition persists. This association may have significance as it is shown that child work is linked to adverse impacts on child health in the short term (see Fassa et al. [27]; Ibrahim et al., [28]).

Emerson & Souza [2] have conducted extensive research elucidating the explicit relationship between early employment experiences and subsequent adult income. A study was undertaken in Brazil, whereby it was shown that child work had a substantial adverse effect on the income of adult males, even when accounting for educational attainment. The researchers also noted the adverse consequences associated with commencing employment during the developmental stage of early adolescence, often occurring between the ages of 12 and 14. This implies that the initiation of child work at an early stage might result in enduring ramifications for an individual's capacity to generate income as an adult.

Burrone & Giannelli [29] investigated the effects of juvenile labor on the earnings of adults in Tanzania as part of their study. Their findings disclosed that engaging in juvenile labor had a significant negative impact on the adult salaries of men. This result was primarily attributable to a tradeoff between child labor and education. This suggests that the employment of minors in labor can have lasting effects on their ability to generate income as adults.

The study conducted by Justus et al. [30] revealed a quadratic correlation between the age at which individuals begin employment and their subsequent income in adulthood. The objective of the research conducted by Justus et al. [30] was to assess the impact of early labor market participation in Brazil on adult wages. Prior research has indicated that commencing employment at a young age has detrimental consequences for those who begin work at an early stage. However, it is seen that this impact transitions into a favorable outcome for those who commence employment between the ages of 12 and 14. However, employing more contemporary data, this analysis demonstrates that the current age at which individuals enter the labor market after reaching 14 years of age has significantly increased, resulting in a continued upward trajectory of salaries. The study further

discovered a threshold phenomenon regarding the impact of schooling on employment outcomes, which becomes more pronounced when individuals enter the workforce at a later stage in life.

This study underscores the inherent tradeoff that exists between child labor and adult wages. The involvement of children in labor during their formative years might result in adverse repercussions on their prospective income in the future. The influence of child labor on adult wages can fluctuate based on several factors, including gender, educational attainment, and the wider economic circumstances. Gaining insight into these patterns might provide valuable knowledge for the development of policies and interventions aimed at mitigating child labor and enhancing economic results for individuals throughout their adult years.

Previous studies have brought attention to the potential tradeoffs that exist between child labor, childhood experiences, and adult wages. Various factors, including child labor, childhood health problems, socioeconomic position, and physical activity, have the potential to exert an influence on economic results during adulthood. Gaining insight into these associations might provide valuable knowledge for the development of policies and interventions aimed at enhancing economic possibilities and overall well-being for persons who have encountered difficult childhood conditions.

2.2 The Child Labor-Schooling Tradeoff

The trade-off between child labor and education has been a complex topic extensively researched in the literature. Previous studies have examined the relationship between the various factors involved in the exchange between child labor and education. Generally, child work results in a loss of study time at school. However, little recent research has examined this relationship in the long term or its impact on educational attainment as children age.

The study conducted by Lee et al. (2021) examined the impact of child labor on academic achievement in 10 French-speaking countries in Africa. The data includes information from 25,288 sixth graders in 1,803 schools. The findings show that child labor harms academic performance in all subjects, regardless of gender and age. Reading and math scores were lower among children involved in childbirth, regardless of sex

and age. This highlights the constraints of child labor on human capital accumulation in African countries, thereby compromising future well-being.

The influence of agricultural shocks on schooling has been subject to investigation. The study conducted by Beegle et al. [31] revealed a statistically significant inverse correlation between disruptions in the agriculture industry and educational outcomes. This discovery suggests that in the event of unfavorable economic circumstances, such as crop failures, households prefer to resort to child work as a means of coping, prioritizing it above educational pursuits. However, it has been noted that child labor may not have a detrimental impact on school enrollment or completion rates, particularly in the West African area [32]. This observation may be attributable to the correlation between certain types of labor, such as domestic and intermittent agricultural work, and educational pursuits.

Gunnarsson et al. [13] emphasized the significance of evaluating learning outcomes, specifically test scores, in order to assess the impact of juvenile labor on the generation of human resources. The authors argue that cognitive aptitude, not the number of years of formal education, is the primary factor influencing earnings in developing countries. Understanding the impact of child labor on academic performance has consequential implications for its long-term effects on adult income and socioeconomic standing.

Most studies show correlation, not causality [33]. Some have attempted to show causation. However, according to causality [33], some research still needs further validation because the method is still questionable. Reducing child labor does not necessarily mean increasing study time. The causal effects of child labor are difficult to identify because too many confounding variables might influence long-term outcomes, such as education, that can be affected by variables that are difficult to observe. For instance, the correlation between a kid's labor and their degree of schooling may be observed when the youngster engages in employment as a means to finance their educational pursuits. The observed disparity in outcomes suggests that the relationship between juvenile labor and education is not uniformly negative, but rather has complex effects. Temporally, asserting a causal relationship with sufficient evidence may be deemed more appropriate.

The study conducted by Beegle et al. [33] utilizing data from Vietnam unveiled a pronounced shaking phenomenon. It was shown that child work exerts a substantial detrimental effect on academic performance, although no consistent adverse influence on health was detected. Nevertheless, the research brings forward positive findings: the engagement of children in labor activities might enhance the probability of securing a remunerative occupation, so fostering an improvement in overall living conditions. However, it is important to acknowledge that this study possesses several limitations and need more research in order to fully elucidate the enduring implications and advantages of child labor.

3. MATERIALS AND METHODS

This research utilized data from the Indonesian Family Life Survey (IFLS) waves 3 (2000) and 5 (2014) [34,35] to examine the influence of engaging in labor activities at the ages of 5 to 14 on the subsequent income of individuals aged 19 to 28 who are employed as workers. The Indonesian Family Life Survey (IFLS) is a comprehensive study that encompasses a substantial portion of Indonesia's population, around 83%. It involves a significant number of participants, over 30,000 respondents, who reside in 13 out of the 27 provinces within the country. The analysis excludes outlier data pertaining to income and any missing values.

This study employs the technique of Propensity Score Matching (PSM) to guarantee a fair comparison between two groups of minors - those who are employed and those who are not - who are the subject of the study. The objective is to obtain credible estimates of the effects of child labor on both educational outcomes and prospective earnings. Various factors, such as per capita income, are indicative of work choices. PSM employs the per capita income indicator as a crucial component in the comparison of working and non-working children. This is based on the axiom of luxury, which posits that children would engage in labor only when home money is inadequate to fulfill their fundamental necessities. PSM has the potential to mitigate bias in analytical procedures and yield more precise findings about the effects of child work on individuals' well-being. The proposed model for the PSM is as follows:

$$\text{ChildLabor} = F(\text{LnExpCapMonth})$$

Table 1. Variable operational definitions

Variable	Operational Definition
Dependent Variable:	
SchYear	Number of school years completed by respondents when interviewed in 2014
LnWage	The natural logarithm of the total monthly salaries and allowances, measured in Indonesian rupiah, received by the respondents during the 2014 interview.
Independent Variable:	
ChildLabor	Dummy variable indicating whether the respondent was a child (age 5-14 years) in 2000 worked or not (1 for working, 0 for not working).
Control Variable:	
Age	Respondent's age when interviewed in 2014.
Experience	Respondents' work experience in months at the time of interview in 2014.
Married	Dummy variable indicating whether the respondent in 2014 was married or not (1 for married, 0 for not married).
Male	Dummy variable indicating whether the respondent is male or female (1 for male, 0 for female).
Rural	Dummy variable indicating whether the child lived in a rural or urban area in 2000 (1 for rural, 0 for urban).
HHMale	Dummy variable indicates whether the head of the household in 2000 was male (1 for male, 0 for female).
Electric	Dummy variable indicating whether the respondent's house in 2000 had access to electricity or not (1 for having access to electricity, 0 for not having access to electricity).
LnExpCapMonth	The natural logarithm of the respondent's monthly capita expenditure in rupiah units.

Table 2. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
LnWage	1705	14.238	.781	12.101	16.053
SchYear	1693	11.979	3.563	0	20
ChildLabor	1705	.09	.286	0	1
Age 14	1681	23.504	2.63	18	29
Experience	1704	29.939	27.644	0	180
Married	1702	.379	.485	0	1
Male	1705	.594	.491	0	1
Rural	1705	.535	.499	0	1
HHMale	1705	.904	.294	0	1
Electric	1705	.918	.274	0	1
LnExpCapMonth	1705	11.757	.744	9.32	15.043

This study examines the association between child labor status in 2000 and income in 2014. A Quantile Regression robust approach is employed to achieve this objective, allowing for hypothesis testing without relying on classical assumptions. This methodology is necessary due to the likelihood of non-normally distributed residuals resulting from regressing the independent variable on wage, even after applying a logarithmic transformation. Robust Quantile Regression enables estimation of the effects of child labor at various

quintiles of income, providing a thorough understanding of the relationship. This method addresses heteroscedasticity issues by employing robust standard error estimation, resulting in more precise results when data deviates from normality and displays variable variances across various quantile points.

Two models estimate the tradeoff between child work, education outcomes, and income. Here are some of these models:

Child Labor-Schooling Model: $SchYear = F(\text{ChildLabor}, \text{Control Variable})$

Child Labor-Wage Model: $LnWage = F(\text{ChildLabor}, \text{Control Variable})$

Or

Or

Child Labor-Schooling Model: $SchYear = \beta_0 + \beta_1\text{ChildLabor} + \beta_2\text{Age} + \beta_3\text{LnExpCapMonth} + \beta_4\text{HHMale} + \beta_5\text{Electric} + \beta_6\text{Male} + \beta_7\text{Rural} + \varepsilon$

Child Labor-Wage Model: $LnWage = \beta_0 + \beta_1\text{ChildLabor} + \beta_2\text{Age} + \beta_3\text{SchYear} + \beta_4\text{Experience} + \beta_5\text{Married} + \beta_6\text{Male} + \beta_7\text{Rural} + \varepsilon$

Using the Ordinary Least Squares (OLS) robust method, this study investigates the correlation between child labor status in the year 2000 and the number of years of education. This particular approach is employed to address the issue of heteroscedasticity present within the dataset. In this scenario, the Ordinary Least Squares (OLS) robust method is employed to get a more precise estimation of the association between the independent and dependent variables. By adopting this approach, a more comprehensive comprehension of the ramifications of child work on schooling and subsequent income may be attained. In general, the use of Quantile Regression robust and OLS robust methodologies serves to mitigate the issue of heteroscedasticity and yield more precise outcomes when examining the associations between variables.

It is worth mentioning that there are notable disparities in the outcomes observed between rural and urban locations, suggesting that the occurrence of child labor in these distinct contexts is influenced by varying causes [36]. Hence, the geographic location of an individual can serve as a control variable.

4. RESULTS AND DISCUSSION

The density figure illustrates a resemblance in the distribution of the p-score variable between the child labor and non-child work groups. This finding suggests that the two groups have comparable beginning features. In this scenario, it is possible to conduct a hypothesis test to determine the statistical significance of the disparity between the two groups in terms of years of education and wages.

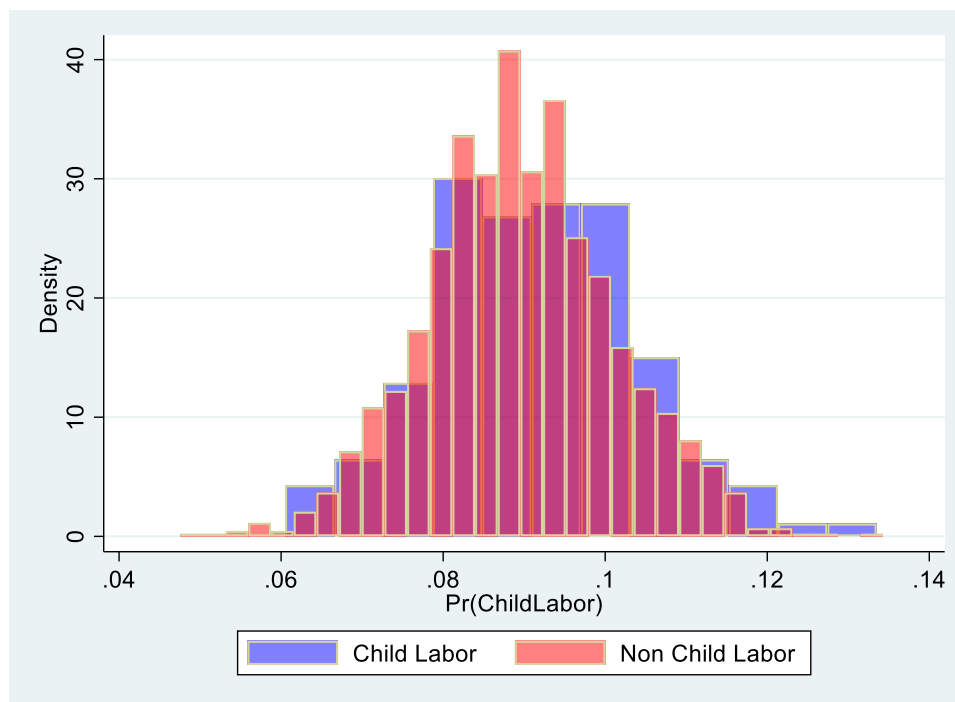


Fig. 1. Propensity score distribution in the child labor and non-child labor groups

4.1 Child Labor-Wage Tradeoff

Robust Quantile Regression is used to evaluate the impact of child labor on monthly wage. This method is intended to reduce the inherent bias frequently observed in ordinary least squares (OLS) models. Quantile regression allows for the efficient exclusion of outliers from regression analysis. The initial regression model included age as a control variable because the self-sampling data is restricted to individuals aged 5-14 in 2000 and 19-28 in 2014.

The density plot reveals a resemblance in the distribution of the p-score variable among both the child work and non-child labor groups. This observation suggests that the two groups possess comparable beginning features. In this scenario, it is possible to conduct a hypothesis test in order to determine the statistical significance of the disparity between the two groups in terms of years of schooling and wage.

According to the results of the estimation, there is no statistically significant relationship between child labor and lower remuneration when age is ignored. In 2014, however, when controlling for age, a significant negative correlation between child labor and wage emerges. To elucidate,

there is a correlation between children's employment in the year 2000 and their subsequent reduced adult wage levels in 2014.

Nevertheless, the correlation between child labor and salary appears to be statistically negligible when accounting for additional characteristics such as educational attainment, work experience, marital status, gender, and geographical location. The length of education has the potential to mitigate the negative wage effects of child labor. This phenomenon can be attributed to the significant role that years of education play in augmenting an individual's credentials and skills, thereby increasing their chances of procuring more lucrative employment opportunities and achieving higher levels of compensation. Enhancing one's qualifications might lead to improved employment prospects and greater remuneration, so mitigating the adverse consequences associated with prior engagement in child labor. Additional control factors, such as experience, marital status, gender, and place of residence, may also affect the correlation between child labor and income, so it's necessary to account for these as well. Incorporating these factors into the model can help reduce the negative wage impacts of child labor in early adulthood.

Table 3. Quantile regression: The relationship of child labor to wage as adults

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	LnWage	LnWage	LnWage	LnWage	LnWage	LnWage	LnWage
ChildLabor	-.074 (.068)	-.186** (.076)	-.045 (.07)	-.04 (.088)	-.092 (.089)	-.087 (.094)	-.087 (.094)
Age_14		.049*** (.009)	.042*** (.008)	.028*** (.008)	.032*** (.009)	.03*** (.008)	.03*** (.008)
SchYear			.049*** (.006)	.05*** (.005)	.049*** (.005)	.046*** (.005)	.046*** (.005)
Experience				.004*** (.001)	.005*** (.001)	.004*** (.001)	.004*** (.001)
Married					-.123*** (.045)	-.102** (.045)	-.102** (.045)
Male					.251*** (.049)	.247*** (.05)	.247*** (.05)
Rural						-.047 (.043)	-.047 (.043)
_cons	14.311*** (.026)	13.18*** (.212)	12.764*** (.208)	12.972*** (.206)	12.764*** (.202)	12.864*** (.206)	12.864*** (.206)
Observations	1705	1681	1669	1668	1665	1665	1665
Pseudo R ²	0	.015	.037	.047	.062	.063	.063

Robust standard errors are in parentheses
 *** p<.01, ** p<.05, * p<.1

Child labor has a significant negative effect on the income of adults, especially men, according to research conducted by Emerson & Souza [2]. It is just that Emerson & Souza's research [2] showed that the child labor effect remained significant after considering the control variable, namely education. The similarity of the results of this study with Emerson & Souza [2], which can be the focus, is that working when young may have unfavorable financial consequences later in life.

This discovery aligns with the findings of the aforementioned study, which demonstrated a consistent relationship between child labor and adult income results. Furthermore, it is essential to acknowledge that there were commonalities in the situations of Brazil and Indonesia, which might perhaps account for the resemblance shown in the data. The two nations exhibit comparable social and economic attributes, including economic disparity, degrees of poverty, and educational accessibility, which may exert an impact on the ramifications of child labor.

This research significantly contributes to academic knowledge by deepening our understanding of how child labor affects adult earnings. The research cited above provides conclusive evidence that exposure to child labor

can significantly reduce a child's financial security as an adult. Based on these findings, it is clear that we must take stronger steps to protect children from exploitative work environments and implement more effective social and economic assistance programs to help children get the education they need to enhance their opportunities in the future.

4.2 Child labor-Schooling Tradeoff

OLS robust estimate is employed in order to evaluate the influence of child labor on the number of years of schooling completed by adults. The use of robust ordinary least squares (OLS) enables the removal of outliers from the regression analysis.

In the year 2000, a significant proportion of the IFLS sample included of children engaged in labor activities, with the bulk of them being enrolled in elementary education. The inclusion of primary school-aged children within this particular sample facilitates the computation of the tradeoff between labor and educational years. In order to substantiate this assertion, we offer supplementary data that offers a more comprehensive understanding of children's allocation of time in Indonesia.

Table 4. OLS Robust: The relationship of child labor to school years as adults

	(1)	(2)	(3)	(4)	(5)	(6)
	SchYear	SchYear	SchYear	SchYear	SchYear	SchYear
ChildLabor	-.674** (.329)	-1.117*** (.345)	-.754** (.309)	-.695** (.302)	-.74** (.3)	-.732** (.3)
Age_14		.196*** (.033)	.123*** (.031)	.133*** (.03)	.146*** (.03)	.146*** (.03)
LnExpCapMonth			1.886*** (.112)	1.77*** (.112)	1.723*** (.112)	1.709*** (.115)
HHMale				.91*** (.299)	.908*** (.298)	.904*** (.298)
Electric				1.302*** (.352)	1.228*** (.354)	1.198*** (.361)
Male					-1.033*** (.162)	-1.033*** (.162)
Rural						-.095 (.162)
_cons	12.04*** (.09)	7.454*** (.75)	-13.028*** (1.406)	-13.917*** (1.386)	-12.979*** (1.388)	-12.74*** (1.457)
Observations	1693	1669	1669	1669	1669	1669
R-squared	.003	.023	.176	.191	.211	.212

Robust standard errors are in parentheses
 *** p<.01, ** p<.05, * p<.1

The initial regression analysis (refer to Table 4, Column 1) reveals an inverse relationship between child labor and the duration of formal education. This discovery suggests a negative correlation between the prevalence of child work and the educational attainment of children.

Nevertheless, the most recent regression analyses (refer to Table 4, specifically Column 6) continuously indicated a discernible tradeoff between the amount of labor children engage in and the number of years they spend in school. However, it is worth noting that this association weakened to some extent after accounting for the influence of other control factors. In essence, while it is acknowledged that several factors influence a child's educational achievement, the correlation between a child's employment and their years of schooling remains evident.

Regressions that account for per capita spending (Table 4, Column 6) provide exciting results, as they reduce the tradeoff between child work and school years. This suggests that access to economic resources can be essential in reducing children's propensity to work and increasing their opportunities for a better education.

Thus, through these regressions, this study provides a better understanding of the relationship between child work and education. Although control factors and economic variables can influence this relationship, there is still a tradeoff between children's work and school years and the importance of economic factors in making decisions about allocating children's time.

5. CONCLUSION

The findings of this study point to an important trade-off between child labor, educational attainment, and future wage levels. The results indicate that the association between child labor and pay lacks statistical significance when the age component is not taken into account. Nevertheless, when accounting for age as a controlling variable, a notable inverse correlation between child labor and wages emerges, particularly in the year 2014. This finding implies that the job status of individuals throughout their childhood in the year 2000 is correlated with reduced wages during their maturity. Nevertheless, the results also indicate that the inverse correlation lacks statistical significance when accounting for additional covariates, such as educational attainment, work experience,

marital status, gender, and geographical location. Research has demonstrated that the duration of formal education has a significant influence on mitigating the adverse effects of child work on individuals' earnings. Additional variables, including but not limited to, prior work experience, marital status, gender, and geographical location, exert influence on the aforementioned association. Consequently, incorporating these factors into the analysis might potentially mitigate the adverse effects of child labor on adult wages. The present study significantly contributes to the broadening of knowledge about the long-term effects of child labor on adult income results. This statement underscores the need of safeguarding children from perilous labor and highlights the necessity of implementing robust social and economic measures to facilitate children's access to quality education and enhance their prospects for a more promising future.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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