Understanding Children's Economic Activities: Evidence from Financial Diaries of Cocoa Farmers in Ghana

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Abstract

In the face of ongoing discussion on child labour, children from cocoa producing communities in West Africa are most often at the centre. This paper studies the economic activities of children using data from financial dairies of cocoa farmers in Ghana. A year long financial diaries survey was conducted for 360 households from 76 cocoa producing communities between July 2020 and February 2022. Results from our study shows that schooling holds the largest proportion of children's economic activities, followed by non-farm activities and farming activities taking the third position. Our results show a clear seasonal trend in children's work with majority of them engaging mostly in schooling between January and June, and having less schooling in July, August, September, and December. These findings highlight the significant impact of economic pressures and seasonal demands on children's work activities, labor hours, and household borrowing behaviours. In terms of hours of work, we find the highest monthly average hours of work to be about 15

hours, and it occurs between December and March.

Keywords: Child work, financial diaries, cocoa farmers, economic activities, schooling, Ghana

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1. Introduction

Child labor continues to present a formidable challenge to global development, impeding the fundamental rights of children and hindering their physical, emotional, and cognitive development (ILO, 2017). Despite international efforts and legislative measures aimed at abolishing child labor, it persists due to a confluence of economic, social, and cultural determinants (Edmonds and Shrestha, 2014). To devise effective policy interventions and strategies, it is imperative to comprehend the multifaceted dynamics of child labor over time.

From a human rights perspective, child labor is unequivocally a violation of children's rights as enshrined in international conventions such as the United Nations Convention on the Rights of the Child (UNCRC) and various International Labour Organization (ILO) conventions (UNICEF, 2020). These frameworks recognize that every child has the right to be free from economic exploitation, to receive an education, and to enjoy an adequate standard of living. Addressing child labor through this lens emphasizes the moral and legal imperative to protect children's inherent dignity and their rights to development and well-being.

Economically, child labor is both a consequence and a perpetuator of poverty. Families in economically disadvantaged contexts may rely on their children's labor as a coping mechanism to meet basic needs (Basu and Van,

1998). However, this short-term solution often results in long-term socioeconomic disadvantages, as child laborers typically forgo education, limiting their future employment opportunities and perpetuating cycles of poverty (Beegle et al., 2009). Thus, understanding the economic underpinnings of child labor is crucial for developing interventions that address not only the immediate needs of families but also the structural factors contributing to poverty and inequality.

Andvig et al. (2001) emphasize the importance of a comprehensive strategy to address child labor, arguing that targeted approaches are insufficient to tackle the complex problems linked to child labor and school attendance in many African countries. They advocate for understanding child labor in its totality—cultural, social, and economic—to design effective interventions.

Kielland and Tovo (2006), on the other hand, highlight the role of children in household risk management and the need for social protection mechanisms to support vulnerable children and their families. Their work underscores the importance of integrating child labor issues into broader social protection frameworks to ensure sustainable development and poverty alleviation.

All these facts indicate that without a thought, there exist a trade-off between school attendance and child labor. However, in trying to provide an explanation for this trade-off, studies usually relied on cross-sectional data. We see this as a gap in the literature because the reliance on cross-sectional data does not help us to capture to the fullest the dynamics of children activities. Therefore, this study employs a financial diaries methodology to elucidate the prevalence, and ramifications of child labor. Financial diaries involve detailed, frequent tracking of household financial activities over an

extended period, providing granular insights into income flows, expenditure patterns, and financial decision-making processes (Vincent and Cull, 2011). This methodological approach facilitates the examination of variations and trends in child labor by observing the financial behaviors and circumstances of households, thereby yielding a nuanced understanding of the factors perpetuating or mitigating child labor.

The rest of the paper is structured as follows. Section 2 discusses the literature review. Section 3 describes the data used in the study. The empirical results is presented in Section 4, while Section 5 concludes.

2. Literature Review

Child labor has been an issue that gained considerable attention since the early 2000s, emerging as a significant topic of discussion due to its pervasive nature and the socio-economic factors that contribute to it. ILO estimates that approximately 160 million children are involved in child labor worldwide, underscoring the urgent need for effective intervention ILO (2021). Ghana stands out in this global context, with one of the highest child labor rates worldwide. Ghana Living Standards Survey (GLSS) 6 reports that approximately 21% of Ghanaian children are engaged in some form of labor, sparking significant concerns about the impact on their well-being and future prospects. Among Ghanaian children aged 5 to 14, about 10.9% participate in the labor force while remaining out of school. Notably, this rate is slightly higher for boys (11.2%) than girls (10.5%). Additionally, a rural-urban disparity is evident, with rural children (15.4%) far more likely to engage in labor than urban children (2.9%).

In Ghana, child labor spans several sectors, most prominently agriculture, followed by services and industry. The agricultural sector alone employs 79.2% of child laborers aged 5 to 14, with these children involved in activities such as cocoa farming, livestock herding, and fishing (Pugmire, 2022). Further research by the Ministry of Manpower, Youth and Employment in Ghana has identified hazardous agricultural activities such as independent work in the fields, use of machetes, use of pesticides, etc. FAO (2010). Household chores also absorb a significant portion of children's time, with 88.3% of those aged 5 to 14 engaged in non-economic tasks. This participation rate is even higher for girls (over 90%) than for boys (85%) (IPEC+ 2024).

Several studies have identified the factors contributing to child labor at the individual, household, and community levels. Abebe and Fikre, 2021, studying rural Ethiopia, found that female children are more likely to participate in child labor than their male counterparts, highlighting gender differences in labor engagement. On the household level, factors such as family income, agricultural land ownership, literacy level of the household head, and family size significantly influence child labor rates. Community-level influences include education access, government oversight, and awareness-raising initiatives, which are shown to mitigate child labor prevalence.

Cultural factors further complicate child labor interventions. Research by Takyi (2014) illustrates how cultural norms that value hard work play a substantial role in sustaining child labor in Ghana, with children often introduced to various work-related tasks as part of their socialization process. This cultural orientation promotes a strong work ethic but also obscures the line between acceptable child work and exploitative child labor, especially in

agricultural and household settings. Moreover, differing cultural definitions of child labor across demographic groups complicate enforcement of child protection measures Gamlin et al. 2015.

Socio-economic factors, particularly household income, are significant determinants of child labor. A study by ILO/Internation Labour Organization Global Glaship Progragmme (IPEC+) Ghana (2001) found that economic hardships, exacerbated by declining household income, increase parental reliance on child labor to meet basic family needs, including educational expenses. This economic strain has also shifted family structures, with a growing focus on nuclear rather than extended family networks, representing a departure from traditional values emphasizing collective family support. The literature establishes a strong correlation between poverty and child labor. For instance, Blunch and Verner (2001) assert that poverty drives child labor, a finding further explored by Maitra and Mani (2017), who examined how negative income shocks compel impoverished families to depend on children's earnings. Limited access to credit is another critical factor, with researchers like Jacoby (1994) demonstrating that in Peru, children from poorer households are more likely to drop out of school than their wealthier peers. Menon (2004) expanded on this issue in Pakistan, showing that while improved credit access could alleviate poverty, it may not necessarily translate into better educational outcomes if families prioritize investments over education. Geographic factors and accessibility to schools also contribute to the substitution effect between schooling and child labor. Adonteng-Kissi (2018) interviews with 60 rural Ghanaian families revealed that long distances between schools and rural communities often lead parents to engage their children in agricul-

tural work instead of sending them to school. Krauss (2013) further identifies geographical disparities within Ghana, where child labor is more prevalent in the Northern regions, suggesting that location has a stronger impact on labor participation than household welfare.

Economic theory offers insight into the relationship between income changes and child labor. Duryea and Arends-Kuenning (2003) argue that income has both an income and a substitution effect on child labor. An increase in parental income may reduce child labor hours and increase schooling hours; however, children whose earnings support their family's consumption may work more when household income rises, reflecting the substitution effect. Krauss (2013)'s study collaborated with the notion and discovered that in Northern and rural Ghana, the even for petty-services, the opportunity costs associated with schooling are significantly high for family engaged in subsistence farming. Schooling is therefore viewed as a luxury rather than a necessity, leading to a lower school participation. Gender differences in labor participation and school participation are also evident. Wolf et al. (2016) found that Ghanaian boys are more likely than girls to miss school for work, underscoring how gender roles shape educational and labor outcomes in the country.

Birth order has also shown evidence of its effect on child labor. Seid and Gurmu (2015) found that lower birth order correlates with decreased labor participation, though a reduction in child labor does not necessarily result in increased school attendance. Furthermore, the relationship between child labor and broader economic factors such as unemployment has garnered scholarly attention. Using autoregressive distributed lag (ARDL) bound testing,

Shahateet (2022) examined child labor's impact on unemployment in Jordan from 1993 to 2018, finding a significant relationship between child labor and unemployment but little correlation with overall labor force participation. To conclude, the literature reveals a complex interplay of factors that drive child labor, ranging from individual characteristics and household economics to cultural norms and community influences. In addition to that, in Ghana, socio-economic constraints, educational barriers, and geographical disparities exacerbate the prevalence of child labor, especially in rural areas.

3. Data and Methods

3.1. Study Area

This study is based on data from household survey conducted in selected cocoa producing districts in Ghana with cooperation from the Economics Department of the University of Ghana (see Figure 1 in Appendix A). The selected districts were mostly in the southern part of the country with latitudes $32^{o}12$' and $0^{o}37$', and longitudes $4^{o}54$' N and $7^{o}10$' N, which covers the following regions: Ahafo, Ashanti, Bono Ahafo (Bono, Bono East), Central, Eastern, and Western (Western North and Western South).

The agro-climatic conditions of the study area in Ghana include; a tropical climate characterized by weak temperature amplitudes ranging between 26℃ and 30 ℃, and high humidity that ranges between 80 percent and 90 percent. According to Snoeck et al. (2010), the mean annual rainfall for the cocoa growing districts in Ghana ranges between 1,200 mm to 2,000 mm. Statistics from GCB (2022) indicate that the studied regions produced about 99 percent of the total 766,977 tonnes of the annual cocoa purchased

in 2019/2020, with the Western region contributing 43 percent, followed by the Ashanti (22 percent), Eastern (12 percent), Brong Ahafo (12 percent), and Central (11 percent).

3.2. Sampling Technique

Our sampling selection in Ghana started from obtaining information on regional and district cocoa production in the country from COCOBOD. The data we obtained had information on cocoa production in the six regions mentioned above and sixty-eight cocoa producing districts across Ghana. Using this information, a three-stage sampling technique was employed to select sample respondents for the interviews. In the initial stage, from the available sixty-eight cocoa producing districts across the regions; four from the Ashanti region, three from the Eastern region, three from the Brong Ahafo region, and nine from the Western region were randomly selected. In the second stage, we randomly selected the number of communities to be studied within the district based on unequal probability sampling method. A total of 76 communities were selected from the nineteen districts. In the third stage, simply random sampling was employed to select respondents for the interviews. Within each district, the Cocoa Health and Extension Division (CHED) manager provided us complete membership lists of the cooperatives. The number of farmers per community was then determined proportionally to the size of the community. Under probability sampling, the simply random sampling was employed to select 360 cocoa farmers from these communities.

4. Empirical Results

This section presents the empirical results for our study. We begin by examining the type of economic activities undertaken by children in the cocoa farming communities then we will proceed to investigate the hours of work by these children, and the borrowing behaviour of their households.

4.1. Types of Economic activity undertaken by children:

The results show that schooling dominates across both age groups, accounting for highest percentage of activities for children under 12 and below with 44.03% and for children under 15 and below with 39.13%. This underscores the importance of education in the lives of children, though the slight reduction as they age indicates a potential trade-off where older children prioritize work over education. This pattern underscores the competing demands on children's time, particularly during peak farming seasons. Non- farm activities are the second highest activity for both age groups with 29.79% and 27.47% respectively, followed by collection. The rise in agricultural labor and household maintenance tasks with age suggests that as children mature, they are increasingly relied upon to contribute to household and economic productivity. While this may be essential for family livelihoods, it raises concerns about the long-term impact on educational outcomes. The slight decline in non-farm activities for older children further indicates a narrowing focus on specific labor roles.

The least undertaken activities are spraying pesticides (0.679% and 0.13%) and harvesting(1.22% and 1.67%). When comparing children under 12 with those under 15, there are notable shifts in activity distribution. Weeding,

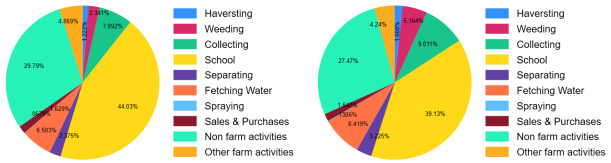

Figure 1: Types of Economic Activity Undertaken by Children

Notes: This figure plots the economic activities of children. The pie chart on the left is illustrate the economic activities of children aged 12 and below, while that of the right is for children aged 15 and below.

for example, increases significantly from 2.34% to 5.16%, and fetching water also rises by nearly 2%. These changes suggest that as children grow older, they take on more physically demanding tasks, particularly in agriculture and other farm related activities.

4.2. Economic Activities by Month

The seasonal patterns reflected in the pie charts show a clear and strong relationship between agricultural cycles and the allocation of children's time between farm work and schooling for both age groups. During the peak months of January, and December, a significant portion of children's time is dedicated to farm activities such as harvesting, weeding, and fetching water. These months align with critical agricultural periods, likely the planting and harvesting seasons, when the demand for labor is at its highest. As a result, children are expected to contribute substantially to their households' farming activities. The charts indicate that during these times, farm work takes up a dominant share of their time, reducing the time available for other activities, especially schooling. This suggests that economic necessity drives children's involvement in labor, highlighting the role they play in supporting household

survival during these key seasons.

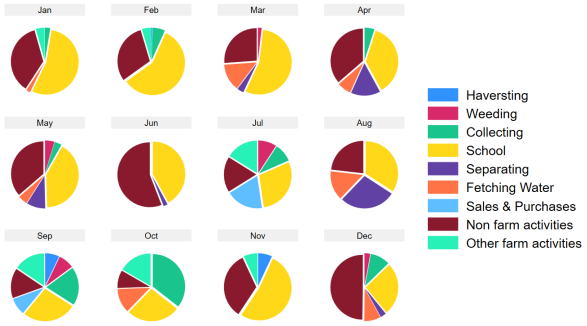

Figure 2: Monthly Economic Activities Undertaken by Children Aged 12 and Below

Notes: This figure plots the monthly economic activities of children aged 12 and below.

In contrast, during the months of June through August, when agricultural activities slow down, children's engagement in farm work significantly decreases. The reduction in work hours during these months provides children with more opportunities to attend school, which is reflected in the pie charts by an increase in the proportion of time spent on education. However, despite the relative increase in schooling time during the off-season, the data still shows that farm activities are a regular part of children's routines year-round. This fluctuation between high work hours and school attendance demonstrates a delicate balance that children must navigate, where education often takes a back seat during times of intense agricultural work.

This seasonal pattern underscores the economic pressures that families face, where children's labor is crucial to household income, especially during the peak agricultural months. These months are not only critical for farming but also coincide with times when children should ideally be focusing on their education. However, the need for labor in the household often forces children

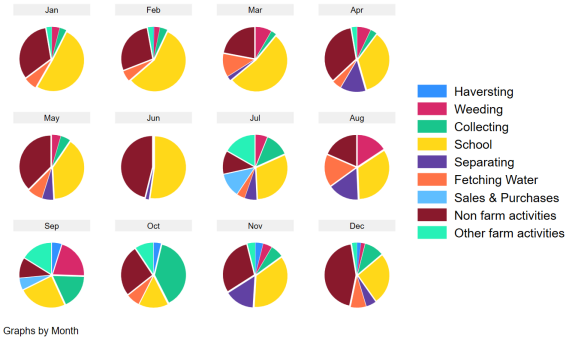

Figure 3: Monthly Economic Activities Undertaken by Children Age 15 and Below

Notes: This figure plots the monthly economic activities of children aged 15 and below.

to miss school, potentially affecting their long-term educational development and well-being. The seasonal nature of these activities also highlights the broader issue of child labor in agricultural economies, where children's contributions are often prioritized over their education and personal growth.

The clear seasonal division between high work hours and schooling further points to the trade-offs that children and their families must make. The economic necessity of child labor during peak agricultural periods means that children are often pulled away from school to contribute to farming tasks, affecting their educational continuity and physical well-being. The charts indicate that, while schooling is more prevalent during the agricultural off-season, it is often insufficient to overcome the negative impacts of long work hours during peak seasons. This reinforces the need for policy interventions that can reduce the dependency on children's labor during these periods, allowing children to pursue their education without the constant conflict between economic needs and personal development. Financial support for families or alternative income-generating activities during peak farming sea-

sons could help ease the burden on children and give them the opportunity to balance both school and work responsibilities more effectively.

4.3. Hours of Work

The analysis of work hours for both age groups clearly illustrate the influence of seasonal agricultural cycles and the demands they place on children's labor. For children aged 12 and below, the highest average work hours are recorded in February, with an average of around 14 hours. This suggests that February might align with a particularly labor-intensive period in the agricultural cycle, possibly related to the peak harvesting or planting seasons. The data shows a significant decrease in work hours from March to October, where average hours fluctuate but generally decrease to their lowest point, hovering around 8-10 hours. This decline may reflect the off-season for agriculture, where the need for labor is reduced, and children have more time for other activities like schooling or rest. However, the work hours do not reach zero, indicating that even in the off-season, children continue to contribute to household chores or minor agricultural tasks, though at a lower intensity.

The significant rise in work hours during December and January, reaching levels similar to February (around 15 hours), suggests that these months coincide with another peak in agricultural activity. This seasonal fluctuation reflects the cyclical nature of agricultural work, where children's labor is required during critical periods such as the harvest or preparation for planting, aligning with the higher work hours recorded during this time.

For children aged 12 and above, the work hours follow a similar seasonal pattern but at a slightly higher intensity. From January to February, they work the most, with an average of 15 hours per week. This mirrors the pat-

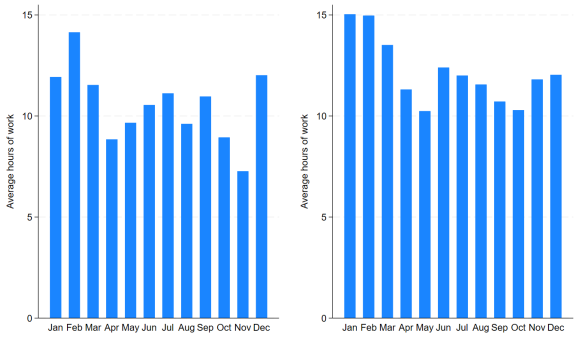

Figure 4: Monthly average hours of work by children.

Notes: The sample is divided by age status. The figure on the left is for subsample of children aged 12 and below, whilst that of the right is for those aged 15 and below.

tern seen in the younger age group, indicating that the agricultural season's demands are the primary factor driving these high work hours. Just like their younger counterparts, children aged 12 and above see a decline in work hours from March to October, with fluctuations but an overall drop to an average of around 10 hours. This decrease suggests that the off-season impacts both age groups, similarly, reducing the need for child labor during these months.

In November and December, work hours for children aged 12 and above steadily rise, mirroring the seasonal increase seen in the younger group. This rise towards 15 hours during these months signals another peak agricultural period, perhaps linked to post-harvest tasks or preparations for the upcoming planting season. The trend suggests that both age groups face similar seasonal demands, though children over 12 may experience slightly more responsibility or have more hours allocated to their tasks.

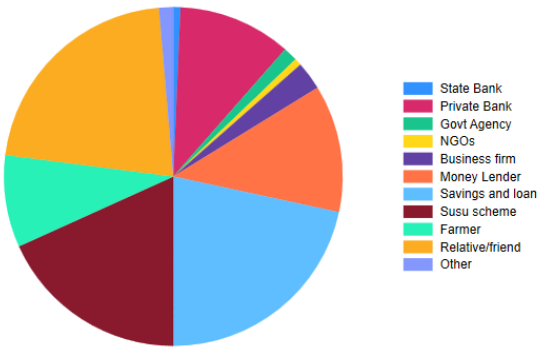

Figure 5: Sources of loan

Notes: This figure plots the sources of loan for households.

4.4. Loans- Sources and Purposes

Further analysis on the sources of loans and the purposes for which households utilize borrowed funds reveals the diversity in loan sources, with state banks being the most prominent lender, accounting for the largest share of loans. This indicates a reliance on formal financial institutions for borrowing, likely due to accessibility or favourable terms. Private banks also play a notable role, though less significant compared to state banks, reflecting their reach in the community. Informal sources such as money lenders and relatives or friends constitute a considerable portion of borrowing, emphasizing the role of social networks and traditional financial mechanisms in the borrowing landscape. Savings and loan groups, often community-based, provide another key source, underscoring the importance of collective financial efforts. Marginal contributions from NGOs, business firms, and other minor sources suggest that these avenues are either less accessible or less preferred.

The second chart highlights the purposes for which households allocate their borrowed funds. Day-to-day expenses dominate, indicating that many

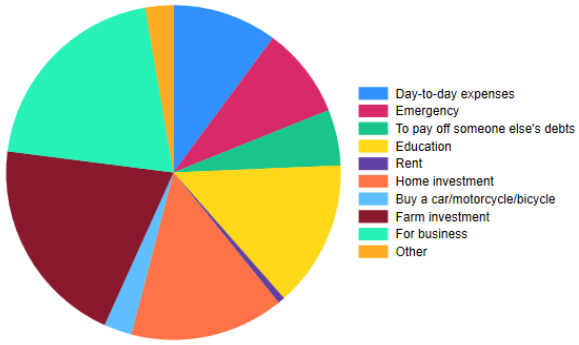

Figure 6: Purpose of loan

Notes: This figure plots the purpose of loan.

households rely on loans for basic subsistence rather than investment. This dependence points to economic vulnerability and an inability to meet routine expenses without external financial support. Emergency expenses are the second-largest category, showing that unexpected crises frequently necessitate borrowing. Other significant allocations include business investments, farm-related expenses, and home improvements, indicating attempts to enhance livelihoods or assets despite limited resources. Borrowing for education and vehicle purchases also reflects aspirations for better living standards, while smaller portions for rent and debt repayment underline the cyclical nature of financial constraints in these households.

The two charts collectively suggest that while households access a mix of formal and informal loan sources, their borrowing is often driven by immediate needs rather than long-term investment. This reliance on loans for survival and emergencies highlights the economic pressures on these households, suggesting a need for financial inclusion policies that promote sustainable income sources and reduce dependence on borrowing for basic needs.

5. Conclusion

This study highlights the significant impact of economic pressures and seasonal demands on children's work activities, labor hours, and household borrowing behaviors. The data shows that children, both older and younger, are involved in agricultural activities. This suggests a high dependency on child work within the surveyed households, potentially due to economic necessity. These periods of increased labor likely conflict with schooling and personal well-being, underscoring the trade-offs between economic contributions and children's development. The reliance on child labor during peak agricultural periods suggests that families are economically dependent on children's work to sustain household. There is a clear need for policies and interventions that address the economic pressures leading to high child labor. Providing financial support or alternative income sources during peak seasons could reduce the burden on children.

Analysis on household borrowing patterns reveal the financial strains that drive these dynamics. Loans are predominantly sourced from state and private banks, with savings schemes and informal lenders also playing significant roles. Borrowing is largely directed toward meeting daily expenses, managing emergencies, and funding farm or business investments, reflecting the economic dependence on children's labor during peak seasons. Further research will needed to explore the relationship between emergency borrowing and children's work hours to better understand how financial pressures perpetuate child labor and identify potential policy interventions.

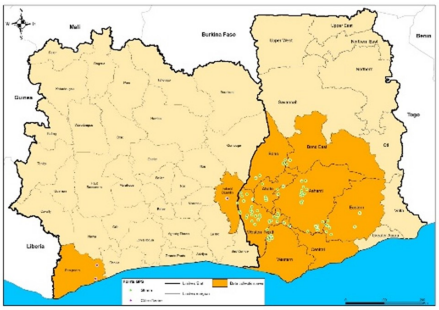

Figure A.7: Study Area in Ghana

Appendix A. Appendix: Study Area in Ghana

References

Abebe, G., Fikre, S., 2021. Individual, household, and community level factors of child labor in rural ethiopia. Cogent Social Sciences 7, 1961402.

Adonteng-Kissi, O., 2018. Causes of child labour: Perceptions of rural and urban parents in ghana. Children and Youth Services Review 91, 55–65.

Andvig, J.C., Canagarajah, S., Kielland, A., 2001. Issues in child labor in Africa. World Bank, Africa Region.

Basu, K., Van, P.H., 1998. The economics of child labor. American economic review , 412–427.

Beegle, K., Dehejia, R., Gatti, R., 2009. Why should we care about child labor?: The education, labor market, and health consequences of child labor. Journal of Human Resources 44, 871–889.

Blunch, N.H., Verner, D., 2001. Revisiting the link between poverty and child labor: the ghanaian experience .

Duryea, S., Arends-Kuenning, M., 2003. School attendance, child labor and local labor market fluctuations in urban brazil. World Development 31, 1165–1178.

Edmonds, E.V., Shrestha, M., 2014. You get what you pay for: Schooling incentives and child labor. Journal of development economics 111, 196–211.

FAO, 2010. Child labourChild labour in agriculture: A study of its impact on children and youth. Technical Report. Food and Agriculture Organization.

Gamlin, J., Camacho, A.Z., Ong, M., Hesketh, T., 2015. Is domestic work a worst form of child labour? the findings of a six-country study of the psychosocial effects of child domestic work. Children's Geographies 13, 212–225.

GCB, 2022. Sector Industry Analysis-Cocoa Sector Report 2022. Technical Report. Ghana Commerical Bank.

ILO, 2017. Global estimates of child labour: Results and trends, 2012–2016.

ILO, 2021. Child labour: Global estimates 2020, trends and the road forward. Technical Report. International Labour Organization.

IPEC+, 2024. Towards a world free from child labour and forced labou. Technical Report. International Labour Organization Global Flagship Programme, International Labour Organization.

Jacoby, H.G., 1994. Borrowing constraints and progress through school: Evidence from peru. The Review of Economics and Statistics , 151–160.

Kielland, A., Tovo, M., 2006. Children at Work. Lynne Rienner Publishers, Boulder, USA. URL: https://doi.org/10.1515/9781685857776, doi:doi:10.1515/9781685857776.

Krauss, A., 2013. Understanding child labor in ghana beyond poverty: The structure of the economy, social norms, and no returns to rural basic education .

Maitra, P., Mani, S., 2017. Learning and earning: Evidence from a randomized evaluation in india. Labour Economics 45, 116–130.

Menon, N., 2004. The effect of investment credit on children's schooling: Evidence from pakistan. Available at SSRN 624125 .

Pugmire, C., 2022. Child labor in ghana. Ballard Brief 2022, 2.

Seid, Y., Gurmu, S., 2015. The role of birth order in child labour and schooling. Applied Economics 47, 5262–5281.

Shahateet, M.I., 2022. Does child labour increase unemployment and reduce labour force participation? empirical evidence from jordan. Children and Youth Services Review 137, 106444.

Snoeck, D., Afrifa, A., Ofori-Frimpong, K., Boateng, E., Abekoe, M., 2010. Mapping fertilizer recommendations for cocoa production in ghana using soil diagnostic and gis tools. West African Journal of Applied Ecology 17, 97–107.

Takyi, E., 2014. Child labour in ghana: ecological perspective. Developing Country Studies 4, 35–44.

Vincent, K., Cull, T., 2011. Portfolios of the poor: How the world's poor live on $2 a day.

Wolf, S., McCoy, D.C., Godfrey, E.B., 2016. Barriers to school attendance and gender inequality: Empirical evidence from a sample of ghanaian schoolchildren. Research in Comparative and International Education 11, 178–193.