Household Shocks and Child Labour: Panel Survey Evidence from Tanzania

Monica Sebastian Kauky*

Abstract
Household shocks can significantly affect a family's well-being, often leading them to resort to child labour as a coping mechanism. However, child labour not only impedes a country's progress but also detrimentally affects children's welfare. This study investigates the effects of household shocks on child labour in Tanzania, utilising data from two waves of the National Panel survey conducted in 2014–15 and 2019–20. The study employs a fixed-effects regression model to examine the effects of household shocks on child labour measured by child hours of work. The findings of this study reveal that both climate and food price shocks correlate with increased child labour hours. We also observe that child school attendance acts as a deterrent to child labour. To address these challenges, the government should prioritize implementing social safety nets and assistance programs to alleviate the impact of climate and food price shocks on vulnerable households. Furthermore, there is a pressing need for policymakers to focus on expanding access to and enhancing the quality of education, particularly in rural areas where child labour rates are disproportionately higher. Such measures have the potential to effectively reduce child labour incidence and simultaneously improve schooling outcomes.

Keywords: Household shocks, child labour, National Panel Survey, Fixed effects regression, Tanzania.

1. Introduction
Low- and middle-income countries (LMICs) frequently confront significant household shocks stemming from their susceptibility to natural disasters, economic fluctuations, and the limited accessibility of social safety nets (Hyder et al., 2015; Onisanwa and Olaniyin, 2019; Skoufias and Vinha, 2012). A substantial portion of households in these nations rely on agriculture as their primary income source, rendering them particularly vulnerable to household shocks and income instability (Baez & Santos, 2007; Smith, 2016). Consequently, these households often employ various strategies such as borrowing funds, selling assets, diversifying crop portfolios, and utilizing formal insurance to mitigate the impact of household shocks and sustain their

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living standards (Huang & Acheampong, 2018; Beegle et al., 2006; Kauky et al., 2022)

In response to household shocks, child labour frequently emerges as a coping strategy for many households (Guarcello et al., 2008; Bandara et al., 2015). Despite numerous studies examining the determinants of child labour in sub-Saharan Africa (SSA) (Sahu, 2013; Krutikova, 2009; Okpukpara & Odurukwe, 2006), few have delved into the intricate dynamics of how household shocks affect both child labour and school attendance (Ray, 2002; Huang & Acheampong, 2018). Thus, this study aims to examine the effects of household shocks on child labour and school attendance in Tanzania. In addition, the study aims to expand the existing literature by presenting further insights into how various household shocks such as droughts, floods, increases in food prices, and the death of a family member affect child labour and school attendance.

According to Dercon et al. (2005), household shocks are unanticipated and unfavourable events that cause a household to experience income loss, decreased consumption, or asset depletion. These shocks intertwine with child labour in various ways. According to Mahmud & Riley (2021) the principal repercussion of shocks on households is a reduction in income, prompting families to explore alternative revenue streams, including the labour contributions of their children. As households encounter shocks and grapple with elevated expenses for essentials, the necessity to involve children in income-generating activities intensifies (Maccini & Yang, 2009). The empirical evidence also suggests a negative correlation between child labour hours and school attendance (Huebler, 2008; David et al., 2012), potentially resulting in inadequate literacy and numeracy skills, elevated dropout rates, and diminished educational attainments (Beegle et al., 2006; Duryea et al., 2007). These circumstances detrimentally impact the prospects and earnings potential of children.

Household shocks pose significant challenges to household income stability, particularly in developing countries heavily reliant on agriculture (Wossen et al., 2018). With over 50% of households depending on agriculture, these shocks can severely impact income, potentially driving families to enlist their children in the labour market to cope with economic hardships (Delap, 2001; Woldehanna et al., 2008). A rise in food prices further exacerbates the situation, diminishing the purchasing power of households and compelling some to turn to child labour to offset income losses (D’Souza and Tandon, 2019; Bhalotra and Heady, 2003; Dumas, 2007). In a similar vein, the loss of the parent can significantly deplete family resources, thus pressuring children to enter the workforce to compensate for the income shortfall, potentially leading to their involvement in child labour (Webbink et al., 2013).
In Tanzania, the issue of child labour is a growing concern across various sectors, including agriculture, fishing, artisanal and small-scale mining and domestic tasks, with many children engaged as houseboys and girls (Nyamubi, 2015; Andre et al., 2019). According to the Tanzanian National Population Census Survey data of 2022, approximately 4.2 million children aged 5–17 are involved in various child labour activities, accounting for 28.8% of children in this age group (NBS, 2022). A higher proportion of child labour occurs in rural areas (35.6%) compared to urban areas (18%). Also, approximately 67.1% of child labourers aged 5-17 are involved in housekeeping and economic activities such as agriculture and mining (URT, 2022), significantly impacting their schooling time.

Recognizing the magnitude and repercussions associated with child labour, the Tanzanian government has undertaken proactive measures to address the issue. Internationally, the government entered into a Memorandum of Understanding (MOU) with the International Labour Organization (ILO) in 1994, launching national programs to combat child labour. Tanzania ratified ILO Convention No. 182 in 1999, aiming to eliminate the Worst Forms of Child Labour (WFCL). Nationally, legislative frameworks such as the Employment Ordinance Cap. 366 (1955) and the Employment and Labour Relations Act No. 6/2004 were enacted to prohibit child employment under specific age limits. In addition, the Law of the Child Act No. 21/2009 targeted the elimination of child labour in hazardous environments, including in mining areas.

To reinforce these efforts, Tanzania formulated the National Action Plan (2009) for the elimination of child labour and introduced the poverty reduction strategy, i.e., National Strategy for Growth and Reduction of Poverty famously known as MKUKUTA in swahili. MKUKUTA aimed to alleviate income poverty, indirectly addressing child labour by increasing school enrollment, attendance, and completion rates among children. However, despite these measures, income poverty persists in Tanzania, necessitating further investigation into whether household shocks contribute to increased child labour for policy purposes.

The rest of the paper is organized as follows; Section 2 presents a literature review, section 3 discusses the child labour theories, section 4 presents the methodology of the study, section 5 discusses the findings of the study and Section 6 concludes the paper and provides policy implications of the study.

2. Literature Review
Numerous studies have extensively documented the effects of household shocks on child labour. Beegle et al. (2006) assessed the impact of crop shocks on child labour in Tanzania and found a positive correlation between
agricultural shocks and child labour. Similarly, Bandara and Lavie-Rouse (2015) linked agricultural shocks to child labour, noting an increase in child labour hours, particularly for boys. In addition, Huang and Acheampong (2018) observed that health shocks affecting men had a more significant impact on children's labour in Nigeria than those affecting women, highlighting the importance of considering gendered aspects of household shocks. In a similar vein, Webbink et al. (2013) found that children in Rwanda who experienced the loss of a parent were more likely to engage in labour activities and spend less time in school. Abou (2014) reported a similar trend, noting that the children who lost their parents were more likely to be involved in labour activities and less likely to attend school.

However, most of these studies have focused on a single measure of shocks, such as death shocks (Abou, 2014; Webbink et al., 2013), parental health shocks (Huang and Acheampong, 2018), or crop shocks as a proxy for agricultural shocks (Beegle et al., 2006). Others, such as the study by Bandara and Lavie-Rouse (2015), consider two measures of shocks. While studies in Tanzania, such as those conducted by Beegle et al. (2006) and Bandara and Lavie-Rouse (2015), have employed longitudinal datasets, these datasets are now outdated.

This study aims to fill the existing knowledge gap by examining additional shocks and their link to child labour. These shocks include weather shocks, food price rise shocks, and the death of a family member. Examining multiple shocks allows for a more comprehensive understanding of how they influence child labour (Duryea et al., 2007). Further, the current study addresses the limitation of using outdated datasets by utilizing a more recent panel dataset compared to previous studies (Bandara and Lavie-Rouse, 2015; Alam, 2015). Using up-to-date information enables policymakers to make informed decisions based on the current situation (Giest, 2017).

Further, we also add to the existing literature by using reported shocks by households during the survey, unlike previous studies that used proxy shock variables (Bandara and Lavie-Rouse, 2015; Beegle et al., 2006). It has been demonstrate that reported shocks enable direct measurement of household experiences, providing a more accurate evaluation of their exposure to shocks (Wagstaff & Lindelow, 2010). Again, the reported shocks offer context-specific information, capturing subtleties that proxy measures might overlook (Dercon, 2005). Reported shocks tend to be more timely and accurately represent the current state of household vulnerability than proxy measures (Dercon, 2004; Hoddinott & Kinsey, 2001; Skoufias & Quisumbing, 2005).
3. Child Labour Theories
Numerous theoretical frameworks have been used to study child labour in great detail, illuminating the complexity of this complicated societal issue. The Economic Theory, which contends that families are compelled by poverty and economic hardship to send their children to work to supplement the family income, is one of the most widely accepted hypotheses explaining child labour. This viewpoint, which is frequently credited to academics like Edmonds (2005), highlights the need for families to economically force their children to participate in labour-intensive activities, particularly in poor nations where financial limitations are very tight. Ennew and Swart-Kruger (2003) introduced the Cultural-Cognitive Theory, which explores the cultural norms and beliefs that support child labour. Due to engrained customs and social norms, some civilizations often make it acceptable for children to begin earning money at a young age. This idea emphasizes how child labour is maintained by deeply rooted cultural practices, which turn it into a norm.

However, Bhagwati (2004) presented the Globalization Theory, which looks at how globalization and demands from foreign markets can encourage child labour. According to the hypothesis, businesses in a global marketplace that is competitive look for low-cost labour, frequently abusing under-age labourers in developing nations with lax labour laws. This hypothesis focuses on the demand-side elements that contribute to the continuation of child labour by creating a market for it as a result of globalization.

The opportunity cost of schooling for children involved in labour is examined by the Human Capital Theory, which was promoted by Becker in 1964. This hypothesis holds that children are pulled out of school because their labour is valued higher than knowledge. This viewpoint, which sees education as an investment that can eventually raise families out of poverty, emphasizes the importance that education plays in ending the cycle of child labour. On the other hand, Bandura (1977) explored the Social Learning Theory, which explores the impact of social settings on child labour. Growing up in households or places where labour is accepted as normal can cause children to internalize these attitudes and so continue the cycle. This theory emphasizes how crucial social interventions and awareness campaigns are to changing public perceptions of and expectations around child labour.

4. Methods and Data
4.1 Data
This study utilizes the National Panel Survey (NPS) datasets covering the years 2014 to 15 and 2019 to 20. This data is part of the Standard Living Measurement Survey. The data is collected by the National Bureau of Statistics (NBS) in Tanzania in collaboration with the World Bank. This dataset provides comprehensive details of hours allocated for different
activities of children aged year 5 and above. In addition to child labour and household data, it has information on various socioeconomic characteristics of households, such as age, gender, geography, and marital status. The data also contains information on household shocks including weather shocks, food price rise shocks, and death shocks, and the respective years of occurrence. To address household variations, the study employed a random fixed effects model. Further, the analysis incorporates a wide range of child and household characteristics.

The unit of analysis for this study consists of children aged 7-13 years attending primary school in Tanzania. Students in Tanzania are expected to enter primary school at age 7 and graduate at 13, provided they are enrolled on time. The legal minimum working age in the country, as established by the International Labour Organization, is 14. Therefore, children below this age range who engage in activities that impede their development are involved in child labour. This study adheres to the ILO's definition of child labour. We merged the two datasets of the NPS by tracking all children aged 7-13 years at the time of the interviews across both years. A balanced panel of 588 participants was created, monitoring individuals aged 7 to 13 during the 2014–15 and 2019–20 waves. This approach enabled the examination of child labour trends and the impact of household shocks on these children over time.

4.2 Variables
4.2.1 Outcome Variable
The main outcome variable in this study is child labour measured using child working hours. Child labour is defined as the total hours spent by a child aged 7-13 years on economic activities for wages, household-run businesses, farming, and unpaid household tasks during the previous week. Measurements of child labour were adopted from previous studies (Bandara et al., 2015; Edmonds, 2008).

4.2.2 Explanatory variables
Household shocks are the main explanatory variable in this study. The three significant household shocks that severely affect a household's income and welfare are considered in this study, which are weather shocks, a death of the family member (the one who is a bread earner in the family) and food price rise shocks. During the survey, the households were asked to mention the significant shocks that affect their income and distort the assets of the household. Then the household shocks were measured as a dummy variable indicating 1 if the household member experienced one of the three shocks (food price rise, weather, and the death of a family member) in the two years before the survey and 0 otherwise.
4.2.3 Control Variables
This study incorporated several control variables, including household size, children's age, household head's age, marital status, children's sex, household head's sex, location, and school attendance. Both child and household head ages were measured in years. Child sex and household head sex were measured as dichotomous variables, with a value of "1" if the child or the household head was a male and "0" otherwise. The household size was measured as the number of individuals residing in each household. Location, which captures the household's geographical setting, was measured as a dichotomous variable, with a value of "1" for rural and "0" for urban households. Finally, children's school attendance was measured as a dichotomous variable, with a value of "1" if the child was currently attending school and "0" if not attending school.

4.3 Estimation Strategy
This study uses a panel dataset to show the association between household shocks measured as parental death, climatic shock (floods or drought), and food price rise shocks. We use the Hausman Specification Test to choose the proper model between Random Effects (RE) and Fixed Effects (FE), whose results are presented in Table 1. The null hypothesis states that the preferred model has random effects due to its higher efficiency. The study adopted the fixed-effects approach when the p-value was more significant than 0.05.

Table 1: Hausman (1978) Specification Test Results

<table>
<thead>
<tr>
<th>Coefficient</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-square test value</td>
<td>32.25</td>
</tr>
<tr>
<td>P-value</td>
<td>0.021</td>
</tr>
</tbody>
</table>

Source: Own Computation, NPS (2014/15 &2019/20)

To estimate the effects of household shocks on the child-labour, we use equation (1).

\[ n_{ijt} = \beta_0 + \beta_1 X_{ijt} + \beta_2 HHD\_Shock_{jt} + \beta_3 Child\_SCH + \theta_j + \gamma_t + \epsilon_{ijt} \]  \hspace{1cm} (1)

Where: \( n_{ijt} \) represents the dependent variable, the child labour hours for individual \( i \) in household \( j \) at time \( t \). The \( Shock_{jt} \) refers to the measure of household shocks, \( X \) represents a set of control variables, including individual and household characteristics \( \theta \), which is the household fixed effect, \( \gamma_t \) is the survey wave fixed effect, and \( \epsilon_{ijt} \) is an error term. Household and child characteristics can influence the relationship between household shocks and child labour. Many of these factors are unobservable. Estimates that do not account for unobserved heterogeneity are biased. However, using panel data allows for controlling omitted variables even if these variables are unobserved.
(Beegle et al., 2002). This approach enables the generation of more reliable and accurate results on the effects of household shocks on child labour.

5. Findings

5.1 Summary Statistics
Table 2 presents the summary statistics of this study. A sample size of 588 individuals was used for the analysis, consisting of 47% male and 53% female children on average. As shown in Table 2, the children worked an average of 28.55 hours per week. For children aged 12-14, working 28.55 hours per week was above the ILO's recommended limit for light work. An average age of around 50 years for household heads implies that many households are old, and about 80% of households are male-headed, suggesting that Tanzanian society is predominantly patrilineal. Married household heads account for approximately 74% of the sample population.

Similarly, the data indicate that approximately 70% of households reside in rural areas, with the remaining 30% living in urban areas. This implies that many children also live in rural areas where they work as child labour, including farming. On average, 88% of children aged 7-13 are enrolled in primary school. The average distance from home to the nearest school is approximately 21 minutes, indicating that children typically travel for approximately 21 minutes to reach school.

Table 2: Summary statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Observations</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child labour (Hours)</td>
<td>588</td>
<td>28.55</td>
<td>0</td>
<td>84</td>
</tr>
<tr>
<td>Child age (Years)</td>
<td>588</td>
<td>9.98</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>Household head sex (Male=1)</td>
<td>588</td>
<td>.80</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Household head age (Years)</td>
<td>588</td>
<td>50.52</td>
<td>28</td>
<td>93</td>
</tr>
<tr>
<td>Marital status (Married=1)</td>
<td>588</td>
<td>.74</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Child school attendance (Yes=1)</td>
<td>588</td>
<td>.88</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Distance to school (Minutes)</td>
<td>588</td>
<td>21.70</td>
<td>1</td>
<td>120</td>
</tr>
<tr>
<td>Location (Rural=1)</td>
<td>588</td>
<td>.70</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Climatic shock</td>
<td>588</td>
<td>.22</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Food price rise shock</td>
<td>588</td>
<td>.27</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Death shock</td>
<td>588</td>
<td>.07</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Authors’ computations from NPS (2014/15 and 2019/20).

5.2 Effects of Household Shocks on Child Labour
Column [1] in Table 3 shows the estimations or regression models when shocks enter the regression equation without control variables, whereas Column [2] shows the estimations when shocks enter the regression equation with other control variables.
Table 3: Effects of Household Shocks on child labour (Fixed effects estimations)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Hours [1]</th>
<th>Hours [2]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climatic shock</td>
<td>0.869**</td>
<td>0.621*</td>
</tr>
<tr>
<td>Food price rise shock</td>
<td>-0.179*</td>
<td>-0.0287*</td>
</tr>
<tr>
<td>Death shock</td>
<td>-0.308*</td>
<td>-0.182*</td>
</tr>
<tr>
<td>Child sex (Male=1)</td>
<td>0.722**</td>
<td>-0.71</td>
</tr>
<tr>
<td>Child age (years)</td>
<td>0.440***</td>
<td>-0.17</td>
</tr>
<tr>
<td>Household head sex (Male=1)</td>
<td>0.544</td>
<td>-0.192</td>
</tr>
<tr>
<td>Household head age (years)</td>
<td>0.007</td>
<td>-0.026</td>
</tr>
<tr>
<td>Marital status (married=1)</td>
<td>0.321</td>
<td>-0.07</td>
</tr>
<tr>
<td>School Attendance</td>
<td>-0.971***</td>
<td>-0.089</td>
</tr>
<tr>
<td>Location (Rural=1)</td>
<td>0.922**</td>
<td>-0.782</td>
</tr>
<tr>
<td>Constant</td>
<td>0.587***</td>
<td>-0.653</td>
</tr>
<tr>
<td>Observations</td>
<td>588</td>
<td>588</td>
</tr>
</tbody>
</table>

Robust Standard errors in parentheses: *** p<0.01, ** p<0.05, *p<1

From Table 3, climatic shocks such as floods or droughts significantly affect child labour hours. In column [1], the coefficient is 0.869 (significant at the 5% level), suggesting that children work 0.869 more hours per week, on average, when a climatic shock occurs. In column [2], the effect is slightly lower, with a coefficient of 0.621 (significant at the 10% level), but it still indicates that climatic shocks increase child labour hours. However, the effects of a food price rise and death shock are not statistically significant.
indicating that they do not have a discernible impact on child labour hours in this sample. Male children worked 0.722 more hours per week on average than female children (significant at the 5% level) compared to their female counterparts; for each additional year of age, children worked 0.440 more hours per week on average (significant at the 1% level). On average, children who attended school worked 0.971 fewer hours per week, significant at the 1% level). Children living in rural areas worked an average of 0.922 more hours per week than those living in urban areas (significant at the 5% level).

5.3 Individual Household Shocks on Child Labour

Table 4 presents the fixed-effects regression estimates of the impact of various household shocks on child labour when all shocks are included in a single regression model. Column 1 shows the regression estimates for climatic shocks and control variables, Column 2 shows the fixed-effects regression results for food price rise shocks and control variables, and Column 3 shows the fixed-effects regression results for death shocks and other control variables. This analysis examines the individual correlation of each shock with the outcome variable of child labour. As reported in Table 4, the coefficient for climatic shock is positive and significant at the 5% level in column [1], indicating that climatic shock increases child labour hours by 0.611 on average. In contrast, the coefficient for the food price rise shock is positive and significant at the 1% level in column [2]. This suggests that an increase in food prices leads to an average 0.308-hour increase in child labour hours. Exposure to death shocks in column [3] is negative but insignificant. Similarly, age increases with an increase in hours in all three columns at the 1% or 5% levels, indicating that labour hours also increase as the child's age increases.

Child school attendance decreased child labour hours in columns (1), (2), and (3). These results suggest that children who attend school have fewer working hours. Further, the coefficient for rural location is positive and significant at the 1% level in column [2] and [3], indicating that children living in rural areas work more hours than those in urban areas. Column [1] of Table 4 results indicate that when all other factors remain constant, and shocks enter the regression model individually, climatic shocks have a statistically significant positive effect on child labour at the 5 percent significance level. This shows that climatic shocks are associated with significantly higher child labour hours. Specifically, when households experience climatic shocks, child labour increases by 0.61 hours per week. Further, the results indicate that when a household experiences food price shocks child labour hours increase by 0.30 per week in column 2. This implies that food price rise shocks have a statistically significant positive effect on child labour. When a household
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experiences food price shocks, child labour hours increase by 0.30 per week. The results in Column [3] do not show a statistically significant effect of death shocks on child labour hours, indicating that the death of a family member does not significantly impact child labour hours. It is important to note that other factors, such as child sex, age, school attendance, and location, remain significant in each regression model, suggesting that these factors consistently influence child labour hours across different household shocks.

Table 4: Household Shocks and Child labour: Fixed effects regression results (Individual shocks)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Climatic shock</td>
<td>0.611**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.856)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food price rise shock</td>
<td></td>
<td>0.308***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.787)</td>
<td></td>
</tr>
<tr>
<td>Death shock</td>
<td>-0.173</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.355)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child sex (Male=1)</td>
<td>0.729**</td>
<td>0.784**</td>
<td>0.776**</td>
</tr>
<tr>
<td></td>
<td>(0.710)</td>
<td>(0.711)</td>
<td>(0.710)</td>
</tr>
<tr>
<td>Child age (years)</td>
<td>0.447***</td>
<td>0.416**</td>
<td>0.402**</td>
</tr>
<tr>
<td></td>
<td>(0.168)</td>
<td>(0.169)</td>
<td>(0.168)</td>
</tr>
<tr>
<td>Household sex (Male=1)</td>
<td>0.615</td>
<td>1.713</td>
<td>0.653</td>
</tr>
<tr>
<td></td>
<td>(0.190)</td>
<td>(1.192)</td>
<td>(0.192)</td>
</tr>
<tr>
<td>Household head age (Years)</td>
<td>-0.092</td>
<td>-0.055</td>
<td>-0.0405</td>
</tr>
<tr>
<td></td>
<td>(0.026)</td>
<td>(0.026)</td>
<td>(0.026)</td>
</tr>
<tr>
<td>Marital status (Married=1)</td>
<td>0.310</td>
<td>0.225</td>
<td>0.222</td>
</tr>
<tr>
<td></td>
<td>(1.070)</td>
<td>(0.073)</td>
<td>(0.070)</td>
</tr>
<tr>
<td>Child school attendance (Yes=1)</td>
<td>-0.936***</td>
<td>-0.932***</td>
<td>-0.963***</td>
</tr>
<tr>
<td></td>
<td>(0.087)</td>
<td>(0.090)</td>
<td>(0.090)</td>
</tr>
<tr>
<td>Location (Rural=1)</td>
<td>0.934**</td>
<td>0.079***</td>
<td>0.085***</td>
</tr>
<tr>
<td></td>
<td>(0.782)</td>
<td>(0.781)</td>
<td>(0.778)</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.835</td>
<td>-0.590</td>
<td>-0.282</td>
</tr>
<tr>
<td></td>
<td>(0.466)</td>
<td>(0.489)</td>
<td>(0.472)</td>
</tr>
<tr>
<td>Observations</td>
<td>588</td>
<td>588</td>
<td>588</td>
</tr>
</tbody>
</table>

Robust Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

5.4 Discussion
Household shocks and unexpected events such as rising food prices and climatic shocks, such as droughts and floods, can increase child labour. In these circumstances, children may be required to supplement family money
frequently at the expense of their education and general welfare. This study has examined the effects of household shocks on child labour in Tanzania, specifically targeting children aged 7-13 enrolled in the Tanzanian education system. This study employed two waves of Tanzanian National Panel Survey data (2014/15 and 2019/20) to explore the link between household shocks measured by food price rise shocks, death of a family member and climatic shocks and child labour measured in hours. The findings of this study indicate that droughts and floods increase child labour hours. These findings suggest that households that rely on agricultural activities are vulnerable to income loss and decreased consumption levels owing to climatic shocks (Amare et al., 2018; Mehar and Prasad, 2016; Opiyo et al., 2014). These findings align with those of Koohi-Kamali and Roy (2021). Further, Mengstu (2017) also observed a similar trend in Ethiopia, where child labour increased as drought conditions worsened.

Consequently, families may employ their children as coping mechanisms in response to drought, interpreting such events as signs that their consumption has fallen below subsistence levels (Mengstu, 2017). Drought also affects child labour through the health and nutrition of affected children. Existing literature provides substantial evidence that drought leads to food insecurity, resulting in malnutrition among children. These children may be forced to miss school and engage in work to support themselves and their families (Frempong, 2019). It is essential to recognize that many Tanzanian households rely on agriculture for their livelihood, an industry heavily influenced by climate fluctuations (Paavola, 2008). As a result, parents whose income is dependent on agriculture might resort to involving their children in the labour market to compensate for lost income (Beegle et al., 2002). These findings corroborates a study conducted by Beegle et al. (2006) in Tanzania, which demonstrated that agricultural shocks, including rainfall deviations, cause an increase in child labour by one standard deviation (5.7 hours). This increase ultimately results in a loss of approximately one year of education for affected children.

The study further reveals that child labour hours increase as food prices increase. Food security may influence child labour in two ways. First, when food prices rise, households experience diminished purchasing power because of the inability of suppliers to rapidly augment food production (Yousif et al., 2014). As a result, food price shocks cause families to lose their actual income, reducing household purchasing power and causing food scarcity. In response, households may resort to involving their children in their work to supplement
their family income, thereby enabling more efficient access to food. Frempong & Stadelmann (2019) found similar results in Uganda.

Along side this, child school attendance was strongly negatively correlated with child labour hours. This indicates that as children attend school, their involvement in child labour tends to diminish. Education, providing children with alternative options and a road to a better future, may be one explanation for this correlation, which would reduce the amount of child labour hours they engage in (Huebler, 2008). According to earlier research, children from wealthier families and those with household heads with formal education, are more likely to attend school and less likely to engage in child labour than children from low-income families and families without formal education (Huebler, 2008). This is explained by the fact that families with stable finances can better invest in their children's education and depend less on child labour to make ends meet (Humphries, 2013; Jensen and Nielsen, 1997). Some previous studies found no correlation between child school attendance and child labour (De Hoop and Rosati, 2014), while the study by Friedrich (2008) found similar results.

The findings of this study have further indicated that household education is associated with lower level of child labour. This implies that household heads with higher levels of education are more likely to recognize the long-term advantages of education and place a higher value on their children's education than on short-term financial gains from child labour (Duryea & Arends-Kuenning, 2003). Previous studies have found that children from wealthier homes and those whose heads have formal education are more likely to attend school (Magnuson et al., 2007). These children are also less likely to engage in child labour than those from families with no formal education or low-income households (Huebler, 2008). These results are similar to previous findings (Huebler, 2008; Khanam, 2008).

The findings of this study have also indicated that child labour affects children residing in rural areas more than their urban counterparts. In the Tanzanian context, child labour may persist in rural areas regardless of a family's wealth. It may be challenging to gauge a family's financial situation in rural areas because revenue sources are frequently sporadic or dependent on the season. Also, social services and educational opportunities may be scarce in rural areas, which can make child labour more pervasive. Owing to cultural conventions, a lack of educational possibilities, or the necessity of helping with household survival activities, even children from reasonably
wealthy households may be forced to work in these situations. Devi and Roy (2008) also supported this finding.

6. Conclusion and Policy Implications
This study examined the impact of household shocks on child labour in Tanzania, specifically targeting children aged 7-13 enrolled in the Tanzanian education system. This study employed two waves of Tanzanian National Panel Survey data (2014/15 and 2019/20) to explore the link between household shocks measured by food price rise shocks, parental death shocks, and climatic shocks including (drought and floods) and child labour measured in hours. The findings of this study indicated that household shocks, such as climatic shocks and increased food prices, significantly increase child labour hours. In addition, the study found that child school attendance reduces child labour hours. These findings imply that governments should prioritize implementing social safety nets and assistance programs to alleviate the impact of climate and food price shocks on vulnerable households. Similarly, there is a pressing need for policymakers to focus on expanding access to and enhancing the quality of education, particularly in rural areas where child labour rates are disproportionately higher. Such measures have the potential to effectively reduce child labour and simultaneously improve schooling outcomes. Lastly, future studies could evaluate the efficacy of various policy interventions, investigate the role of cultural norms and gender dynamics in influencing child labour practices, and examine the long-term effects of household shocks on children's well-being.

References
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