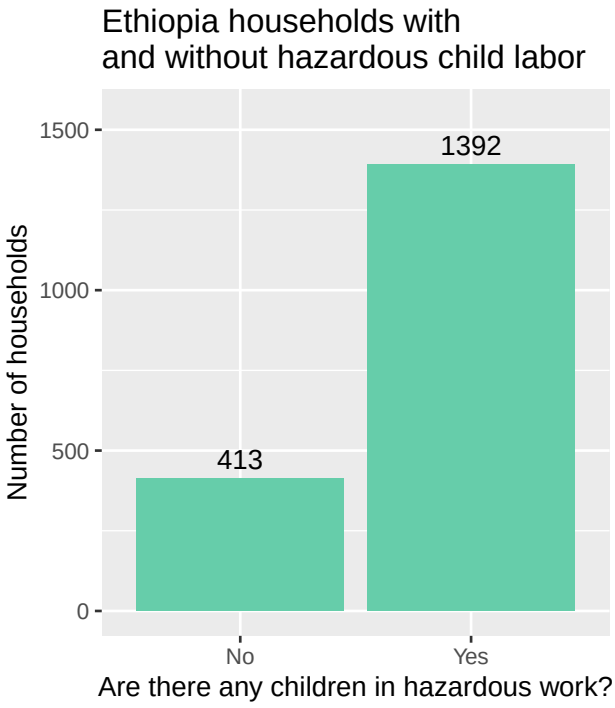
Assessing the risk of child labor in Ethiopia and Uganda

4. Results

4.2 Exploratory Data Analysis of Outcome Variables

In this section, the distribution for each outcome variable is assessed, as well as the relationships between predictor and outcome variables. All variables in this section are assessed through logistic regression modeling.

4.2.1 Ethiopia Household Level EDA



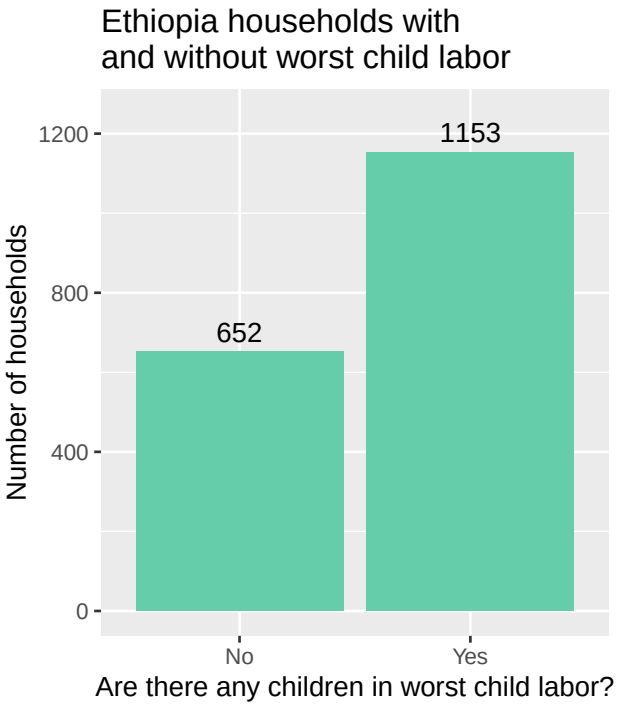
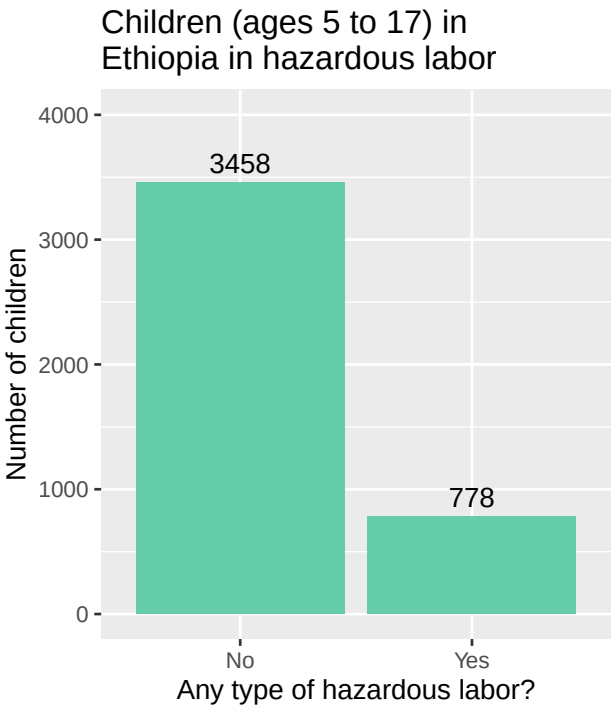


Table 1: Overlap between worst and hazardous labor outcomes for Ethiopia households

Any children in worst child labor?	Hazardous Labor: Yes	Hazardous Labor: No
Yes	1081	72
No	311	341

4.2.2 Ethiopia Individual Level EDA



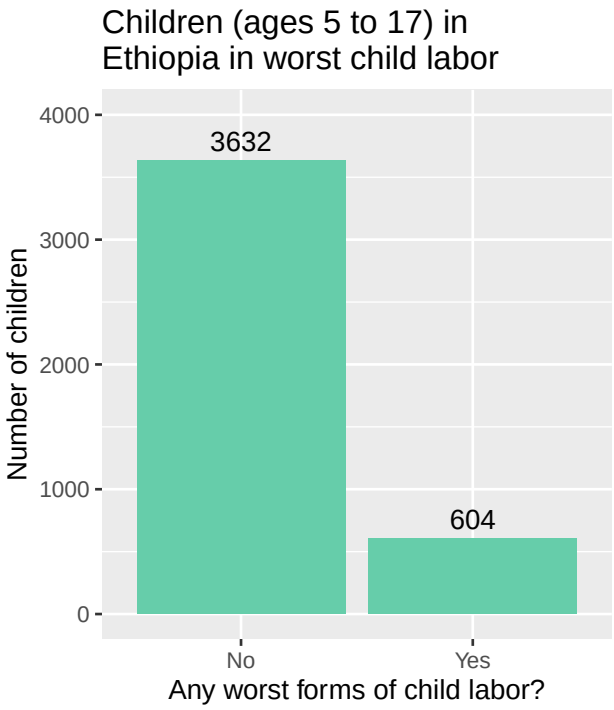
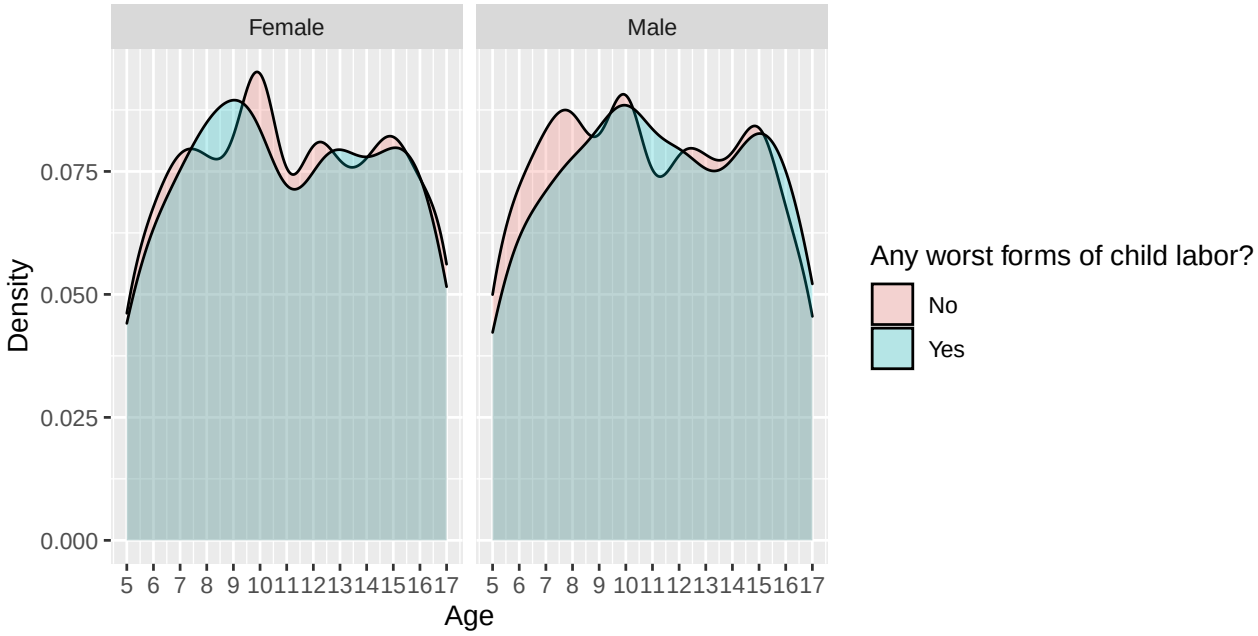


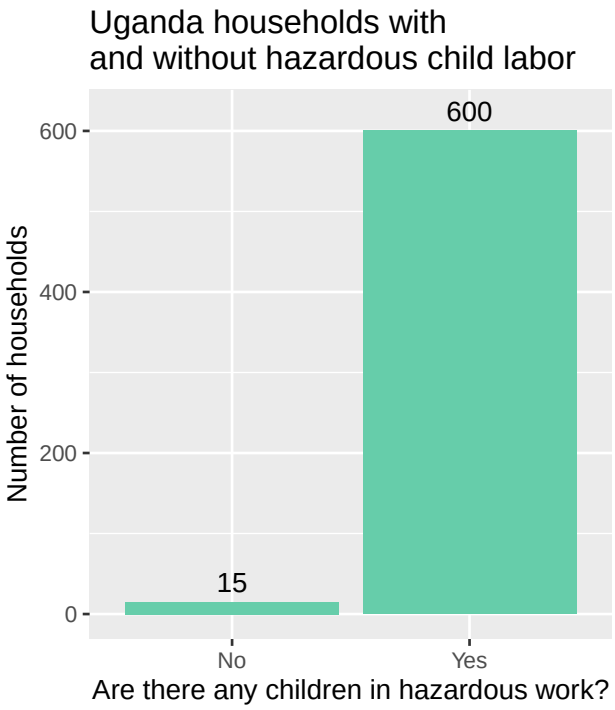
Table 2: Overlap between worst and hazardous labor outcomes for children in Ethiopia

Any children in worst child labor?	Hazardous Labor: Yes	Hazardous Labor: No
Yes	214	390
No	564	3068


Distributions of age between males and
females for Ethiopia hazardous labor outcome
Female
Male
Density
0.075
0.050
0.025
0.000
5 6 7 8 9 10 11 12 13 14 15 16 17
Age
Any type of hazardous labor?
No
Yes


Distributions of age between males and
females for Ethiopia worst child labor outcome
Female
Male
Density
0.075
0.050
0.025
0.000
5 6 7 8 9 10 11 12 13 14 15 16 17
Age
Any worst forms of child labor?
No
Yes

4.2.3 Uganda Household Level EDA



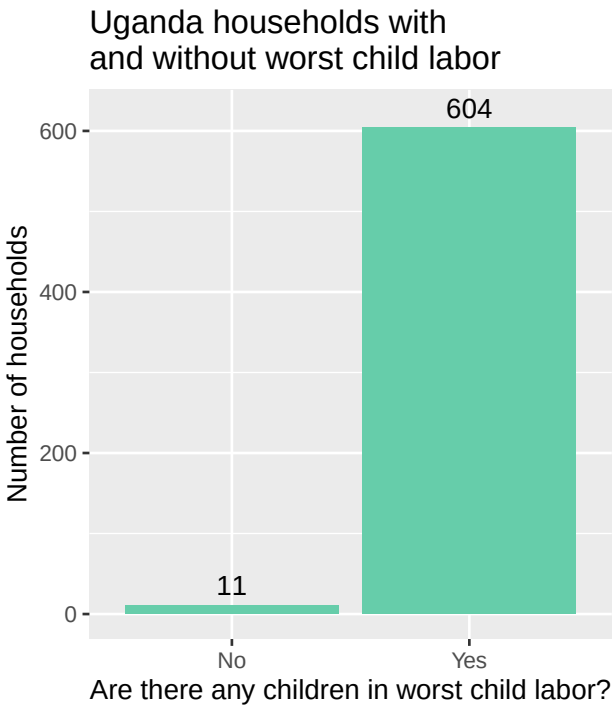


Table 3: Overlap between worst and hazardous labor outcomes for Uganda households

Any children in worst child labor?	Hazardous Labor: Yes	Hazardous Labor: No
Yes	600	4
No	0	11

Table 4: Counts for residence type and hazardous labor outcome for Uganda households

Any children in hazardous labor?	Rural	Urban	Missing
Yes	389	134	77
No	11	3	1

Table 5: Counts for residence type and worst child labor outcome for Uganda households

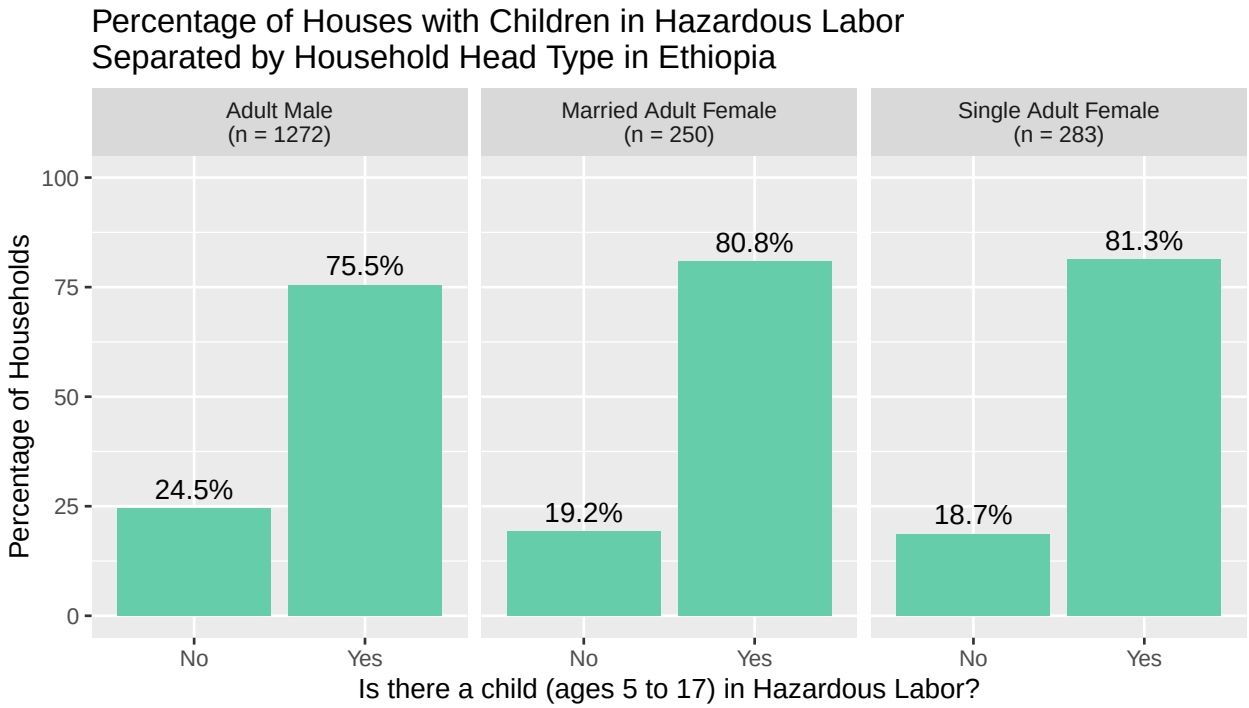
Any children in worst child labor?	Rural	Urban	Missing
Yes	391	135	78.00
No	9	2	0.00

4.4.1 Female vs. Male Headed Households

The figure below displays the number of children in hazardous labor per household in Ethiopia, separated by household head. Note instead of a binary indicator of whether or not the house has any children in hazardous work, the exact number of children in hazardous work in the household are shown. The number of observations for each type of household head is displayed as "n", and instead of counts, the instances of how many houses contain a certain number of children in hazardous labor are displayed as proportions. For example, about 50% of single adult female headed houses have exactly one child in hazardous labor. Looking at these proportions across the three groups, adult male headed houses tend to have no children in hazardous labor at a higher rate than both married and single adult female headed houses.

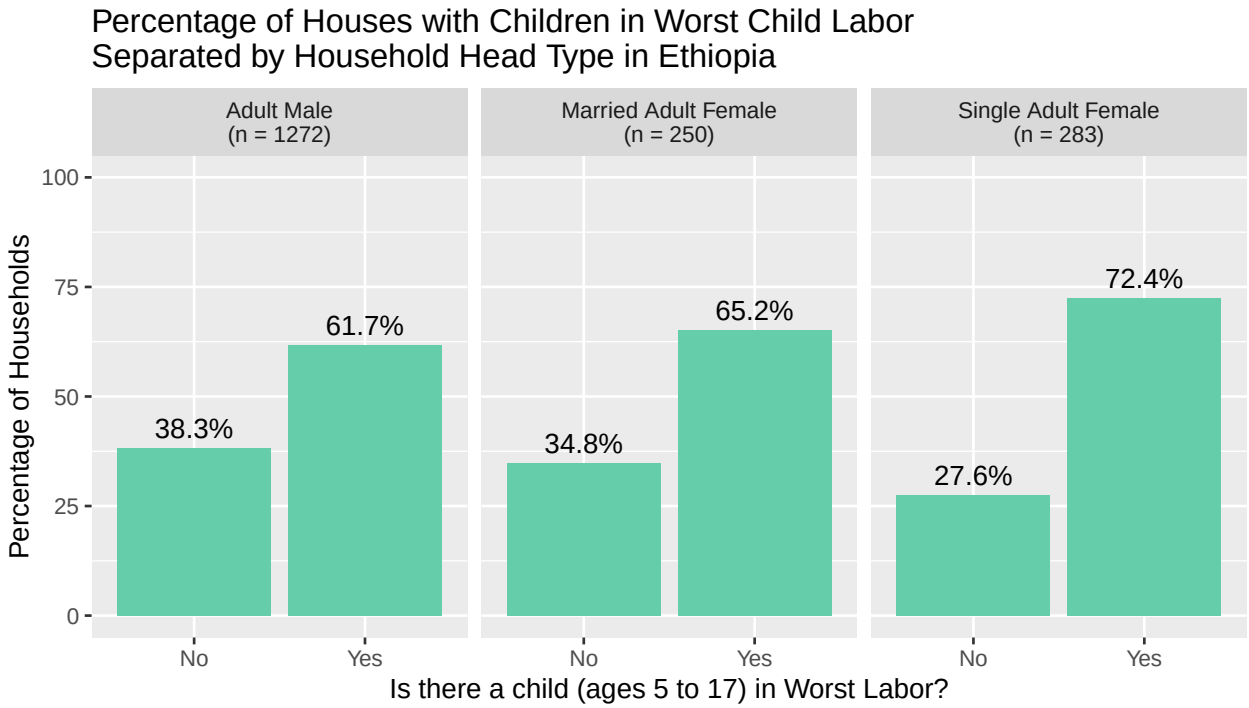
In fact, 25% of adult male headed households have no children in hazardous labor, meaning that 75% of adult male headed houses have at least one child in hazardous labor. Approximately 80% married adult female headed houses have at least one child in hazardous labor, and the same is true for single adult female headed houses. Among the houses that do have a child in hazardous labor, all household types tend to have only one child in hazardous labor, but adult male headed households proportionally have more households with more than one child in hazardous labor.

When this variable was included in predicting hazardous labor for Ethiopia households, it was found that both married adult female heads and single adult female heads were significant predictors, and associated with higher odds of hazardous labor compared to male headed households. Therefore, there is evidence to suggest that male headed households are associated with lower odds of housing a child in hazardous labor.



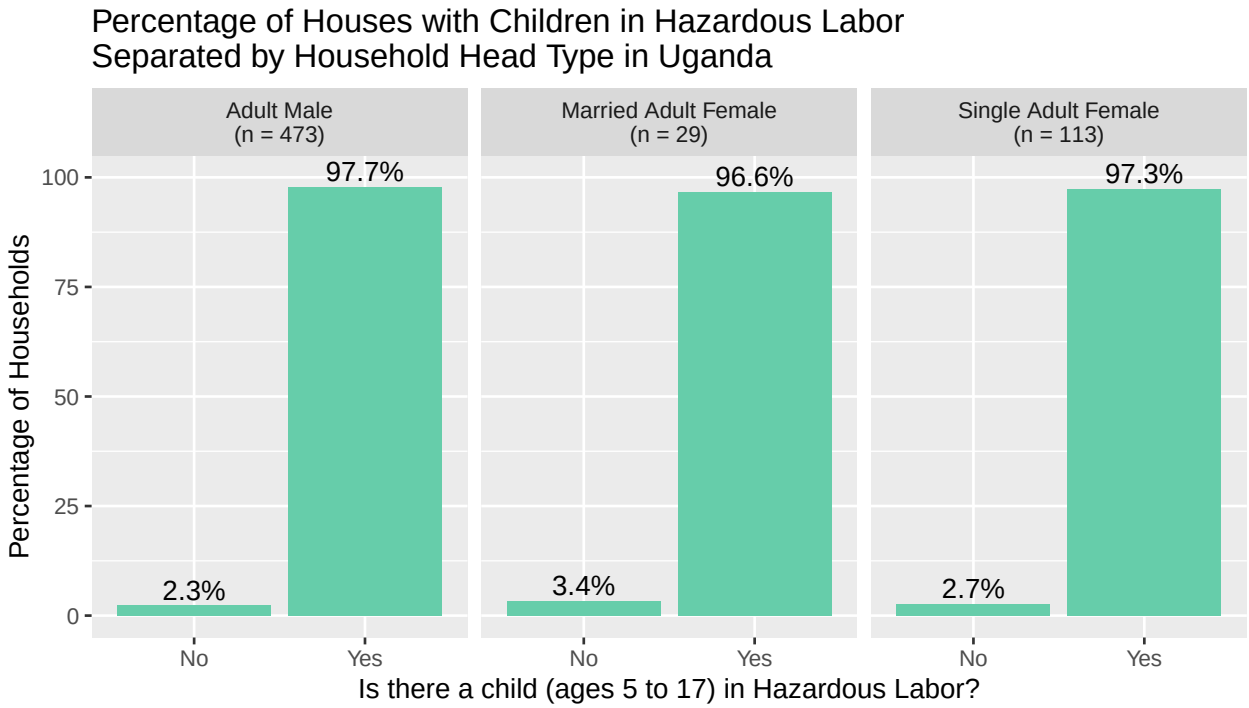
The figure below displays the same information except with children in the worst forms of child labor. The majority of all households have at least one child in the worst form of child labor, but adult males proportionally have more households with no children in the worst forms of child labor (with almost 40%) than married and single adult female households, which have 35% and 28% households with no children in the worst forms of child labor, respectively. Therefore, based on this graphic, it appears that female headed households (both married and single) have higher instances of having a child in child labor than adult male headed houses in Ethiopia.

When this parameter was included in predicting worst child labor instances at a household level in Ethiopia, single adult female headed households were significantly associated with increased odds of worst child labor household instances compared to male headed households. However, married adult female headed households were not found to be significantly different than male headed households.

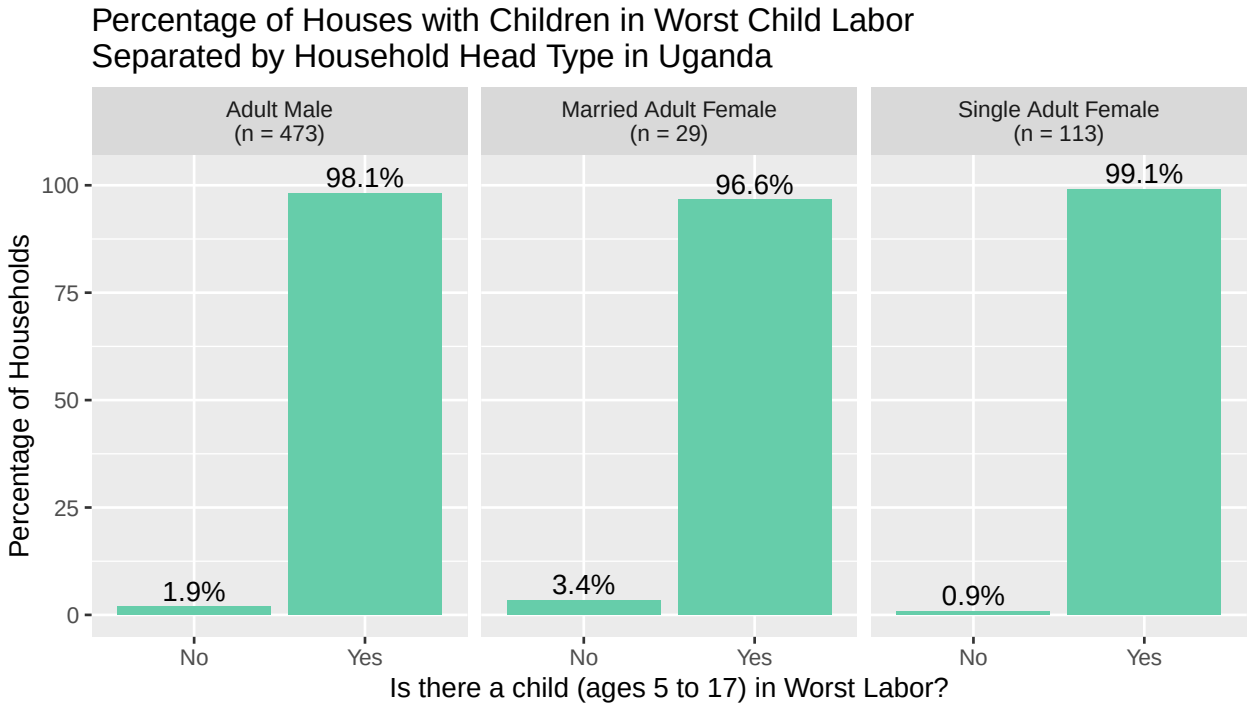


The figure below shows the same information concerning hazardous labor, except for Uganda. The first thing to note is that the maximum number of children in hazardous labor in one household observed is 11, which is more than what was observed in Ethiopia. Less than 5% of households for each household head type have no children in hazardous labor, and the majority of households have either 3 or 4 children in hazardous labor for all head types.

Based on this graphic, there does not seem to be a large difference between adult male, married adult female, and single adult female headed households in terms of the number of children in hazardous labor that live in the household. Furthermore, this predictor was not found to improve model performance for the logistic regression model. It is unclear whether these results are due to how the outcome variable (hazardous labor) was defined and created in the dataset, or if these results are due to only targeting areas in Uganda that were previously believed to have the highest instances of hazardous labor and worst forms of child labor.



Lastly, the figure below displays the same information except with worst forms of child labor. The same conclusions can be made for Uganda households and the number of children in the worst forms of child labor, and this may be because there was an overlap of variables as to what contributed to counting children in hazardous labor or the worst forms of child labor. Again, these high proportions of households with at least one child in the worst forms of child labor may be due to how the outcome variable (worst forms of child labor) were defined and created from the survey data, and also the targeted areas from which data was collected.



4.4.2 Child Headed Houseohlds

In Ethiopia, there are exactly 10 households that were reported being headed by children, and there were 2 households in Uganda that were headed by children. Since this is a small subset of households, these households were removed from modeling, but are analyzed here. The table displays the number child headed households that housed each possible value of the number of children in hazardous labor. The table shows the same information except with the worst forms of child labor. Among the 10 households, 5 of them did not house children in hazardous labor, while the other 5 housed atleast one child in hazardous labor. Similarly, 5 households did not house any children in the worst forms of child labor, while 5 of them housed at least one child.

Table 6: Number of Children in Hazardous Work per Household for Child Headed Households

Number of children in Hazardous Labor	Number of Households
0	5
1	4
3	1
Total	10

Table 7: Number of Children in Worst Child Labor per Household for Child Headed Households

Number of children in Worst Child Labor	Number of Households
0	5
1	4
3	1
Total	10

Uganda only had 2 households headed by children. One household housed one child in hazardous work (which was in fact the household head, and the only person in that household), while the other housed 3 children in the worst forms of child labor and hazardous work. These children were the only members in that household, and were all considered to be in both hazardous and worst forms of child labor by the definitions outlined in this report.

Since only 12 households out of the entire survey data for both Ethiopia and Uganda were headed by children, it is difficult to discern whether or not child headed households have higher instances of housing a child in hazardous or worst forms of child labor than households headed by adults. Furthermore, one household in Ethiopia was reported as being headed by a child, while still housing adults aged above 40 years old. Therefore, some of the households in this small subset may have been inaccurately reported as being headed by children.