



Children in the Developing World

Analyses Using the World Bank Living Standards and Measurement Surveys



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Ethiopia: The Effects of Child Marriage on Young Females



Ethiopia Description

Ethiopia is Africa's oldest independent country and its second largest in terms of population, with 86.5 million people residing within the country. The major religions practiced are Christianity and Islam, both of which have become more prevalent recently after a period of civil wars and communist purges in the 70's and 80's. The country has begun to recover and now has the largest economy (by GDP) in all of East and Central Africa.

Survey Sampling Process

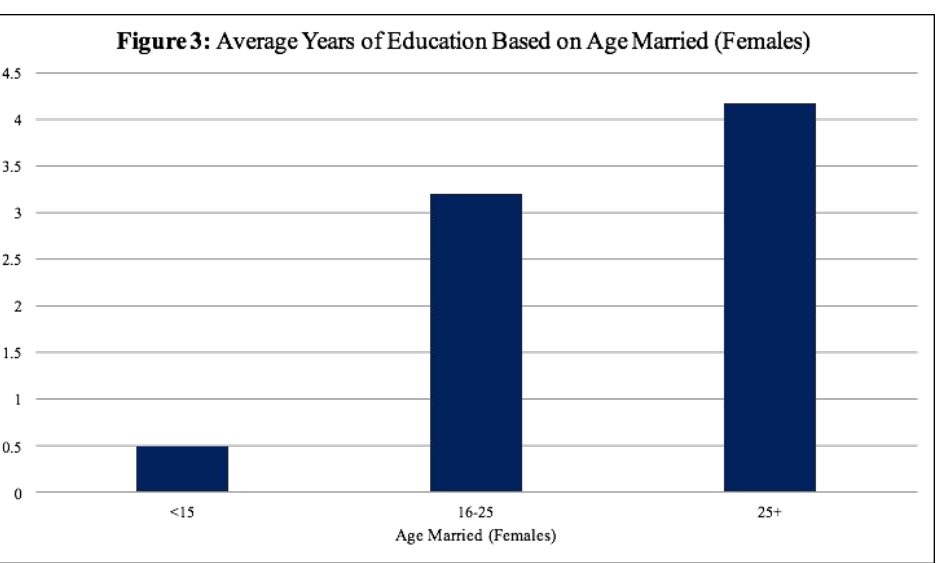
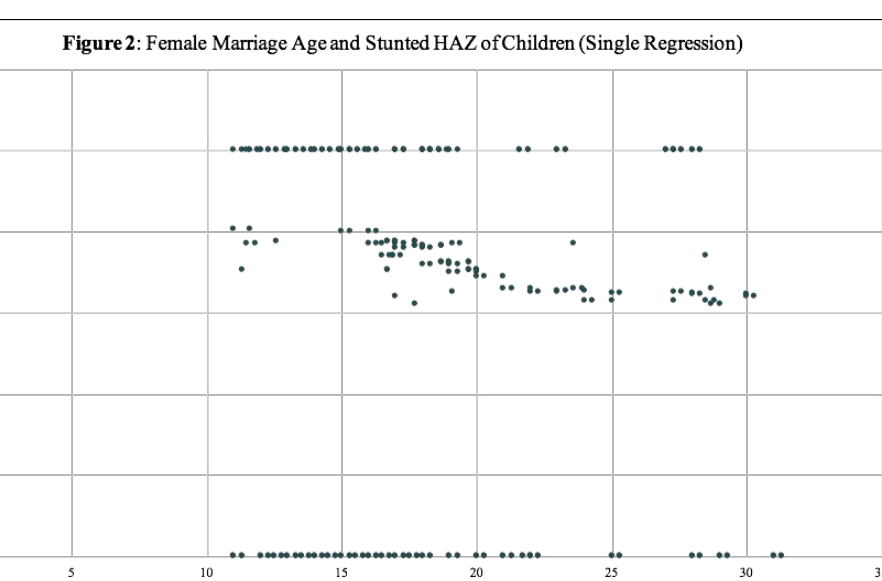
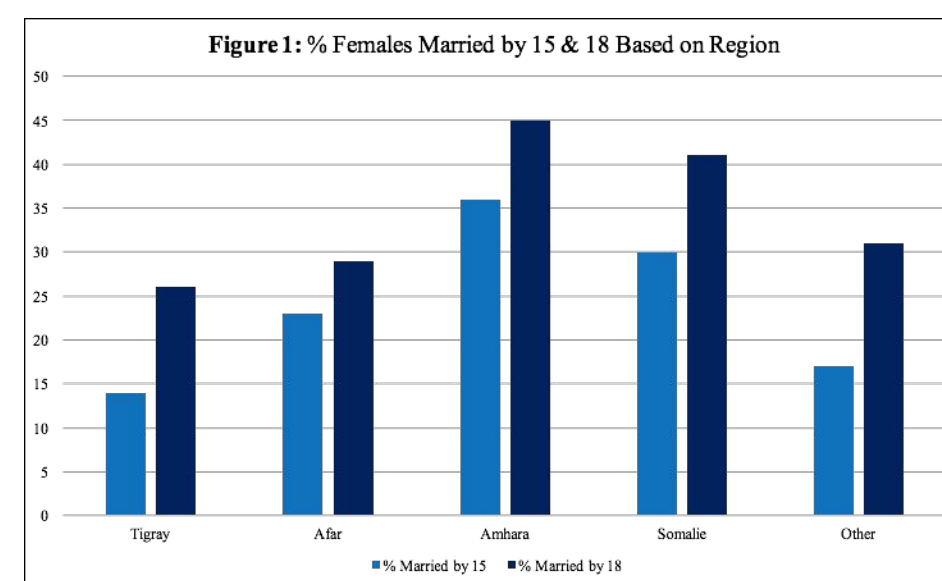
The survey from 2013 consists of answers from 26,000 citizens of Ethiopia and is taken from three rounds of visits to the household. Five different questionnaires were used per household (including household, community, and agriculture), and household samples were chosen at random based on a spread of rural versus urban households. The data was later aggregated in the end.

Sample Summary Statistics

Total Individuals	26,158
Total Households	5,262
Men	58%
Women	42%
% Married Females	62%
% Females <15 Married	17%
% Females <18 Married	41%

Significance in Literature

In Ethiopia, two in every five girls are married before their 18th birthday and nearly one in five girls marries before the age of 15. The legal age of marriage in Ethiopia is 18 years for both girls and boys, but these laws are not always enforced (as we can see from the statistics). Child marriage is perpetuated by poverty, a lack of access to education and an absence of economic opportunities. However, there has been government initiatives such as the Action Plan on Harmful Traditional Practices Against Women and Children (2013) to reduce child marriage.



Discussion & Limitations

Based on my analysis, females who are married at a younger age are less likely to have an education and have fewer years of education, if they do have any education at all. Their household is also more likely to be poor and the children in these households have a higher stunted HAZ. Overall, child marriage does not put females in a situation to have wealthier or healthier families. This is not surprising, and hopefully this data continues to spur actions against child marriage in Ethiopia! The next survey taken (2018) will be able to demonstrate the effect of the legislation in 2013 on child marriage rates and the health of these families with younger spouses overall.

Ghana: Distance to Water Source and Child Development Measures



Ghana Description

Ghana is a small nation located in sub-Saharan west Africa. Its population in 2010 was approximately 24.2 million, with a steady growth rate of 2.4% for the first half of the current decade. Ghana is classified as developing nation, and with an infant mortality rate of 51 per 1,000 live births and dependency ratio of 73 persons aged 0-14 and 65+ per 100 persons aged 15-64.²

Survey Sampling Process

The survey consisted of a two-stage stratified sample design with 334 enumeration areas. The first round of stratification was the selection of enumeration areas based on the 2009 population statistics for the 10 regions of Ghana. The second round of stratification consisted of random sampling of 15 houses from each enumeration area.

Sample Survey Statistics

Children <5 Years in Survey	1620
Children with Available Data	1291 (~80%)
Average Distance to Source	0.35 km
Average Time to Source	17.51 min
Percent Stunted	30.21%

Significance in Literature

Several sources have pointed to distance to water source being strongly correlated with child health and anthropometric measures in sub-Saharan Africa.³ This correlation is thought to be due to the effects of time and distance on freshwater availability and consumption in children. Thus this study compare distance to water source and height for age z-scores (HAZ).

Graphs & Tables

Figure 1: Distribution of Water Source Type

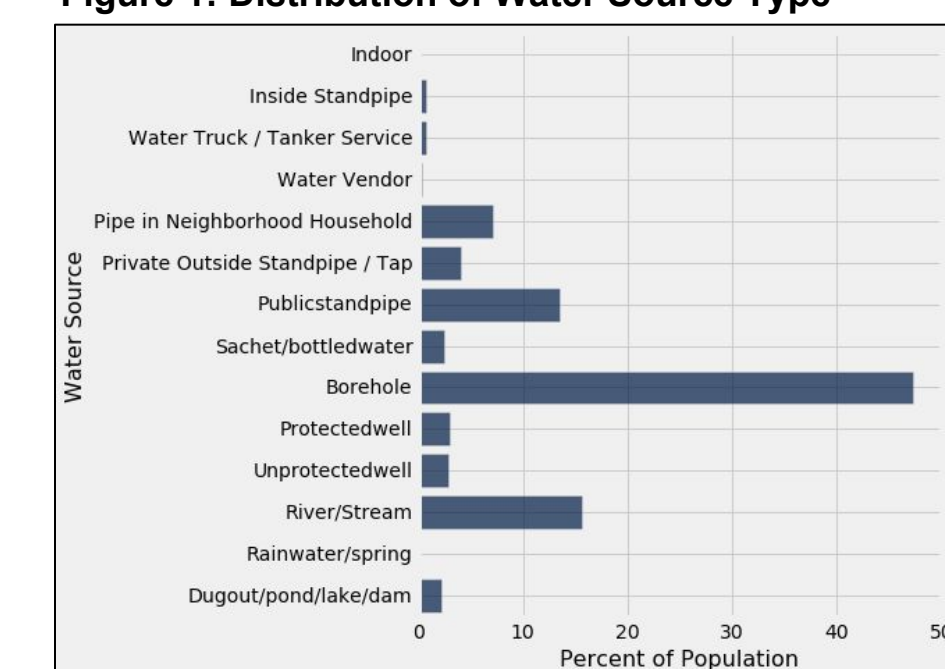


Figure 2: Distance to Water Source vs. HAZ (Single Regression)

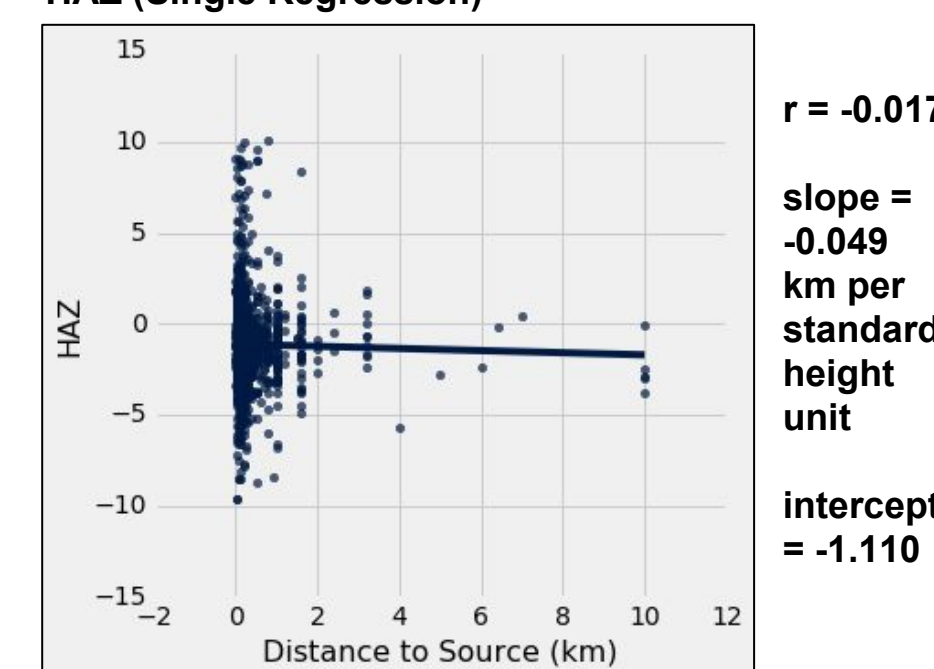


Figure 3: Mean Distance to Water Source (Stunted Mean - Not Stunted Mean = 0.059)

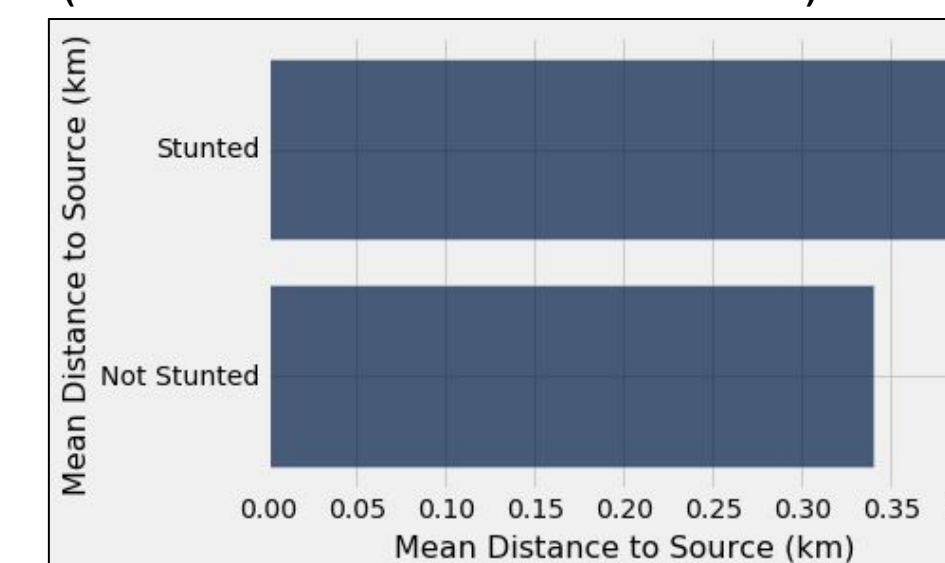
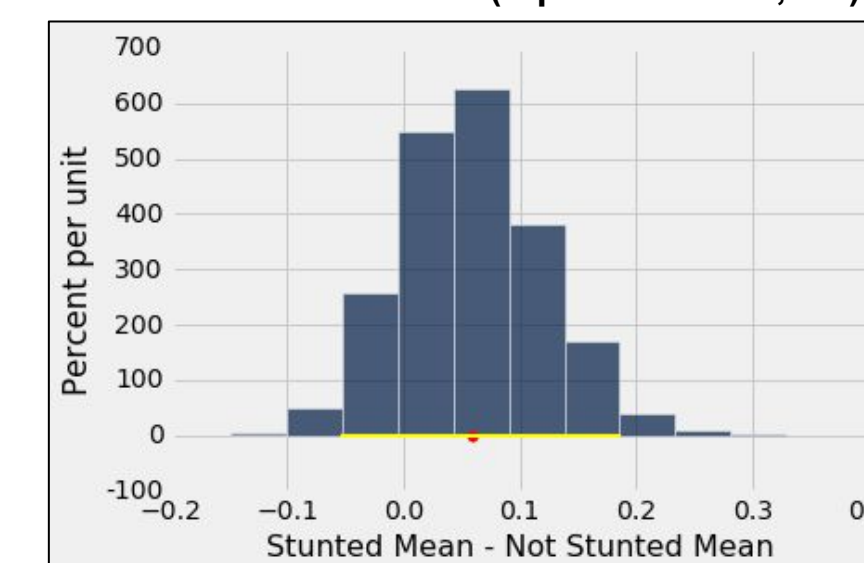


Figure 4: 95% CI of true Stunted Mean - Not Stunted Mean difference (repetitions = 10,000)



Discussion & Limitations

This does not appear to be any statistically significant correlation between distance to water source and child height for age z-score (HAZ). Figure 4 above shows a 95% confidence interval for the true difference between average distance to water source for stunted children and non-stunted children based on 10,000 bootstrapped samples. Because this interval includes the difference of 0, we can conclude that the difference observed in the original sample collected is not statistically significant. This study also compared time to water source and HAZ, and found similar results. A relevant future study would be to check if this data shows a correlation between distance to source and children's water consumption, which is one of the primary motivations for this comparison.

Iraq: Female Household Heads & Agriculture & Child Health Outcomes



Iraq Description

Iraq is a oil-rich, lower middle-income country in the Middle East, with a population of 38-million.¹ Despite the oil and oil-related industries contributing to 60.9% of its GDP, "conflict, weak governance, and excessive dependence on oil" can hinder Iraq's socioeconomic development reflected by its poverty rate and negative child health outcomes.^{2,3}

Sampling Process

The sample is from Iraq's 118 gadahs (districts). Using explicit stratification, 216 households were selected per gadah. Within each gadah, 24 census enumeration areas (EAs) were selected [Primary sampling units], using implicit stratification of urban/rural and geographic codes. Within each EA, 9 households were selected [Secondary sampling units].⁴

Sample Summary Statistics

Men	87257
Women	88785
Households	2514
Female HH Head (%)	10.1%
Stunting rate (%)	31.5%

Significance in Literature

Despite Iraq's significant gender inequality and low contribution of agriculture to its national GDP, literature shows the positive impact of female household heads and agriculture on the economy by increased income in Iraq.² However, I would like to see the impact on a household level, thus, I am looking at the impact of female household heads and agriculture involvement on children's health outcomes (measured in height-for-age z-scores) in Iraq.

Graphs & Tables

Figure 1: Gender difference in agriculture

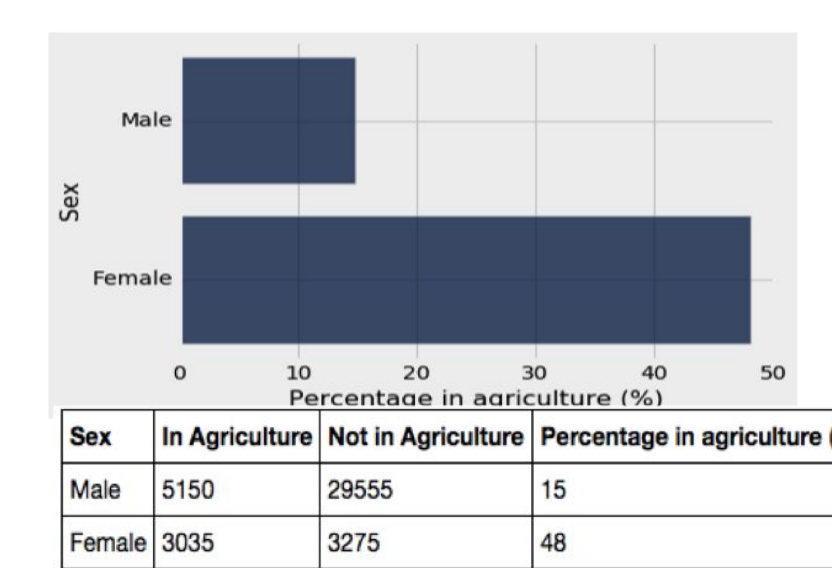


Figure 3: Female household head impact on children's z-score (Single regression)

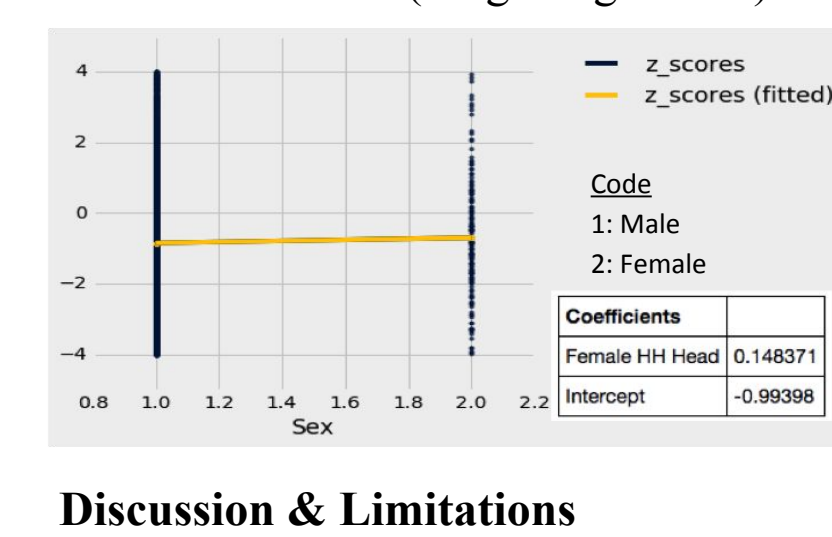


Figure 2: Agriculture involvement impact on children's z-score (single regression)

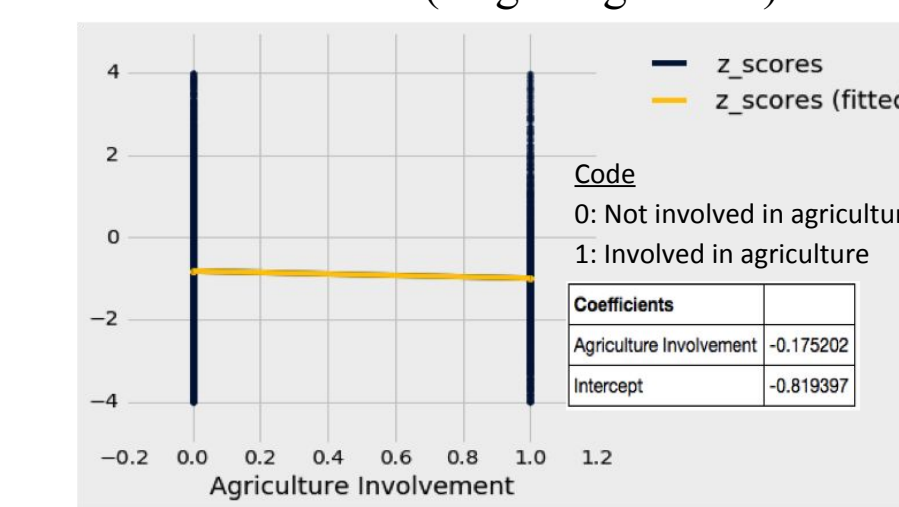


Figure 4: Multiple regression of female household impact on children's z-score

Coefficients		
Female HH Head		0.163
Agriculture Involvement		-0.137
Assets		
Personal Computer		0.094
Car		0.083
Electric vacuum cleaner		0.269
Intercept		-1.101

Discussion & Limitations

While households with female household head seem to have a positive impact on their children's health outcome (z-score), households involved in agriculture had a negative impact even when selected variables were held constant. While female household heads portion was consistent with literature, agricultural involvement was not. This may be due to the lack of other variables that could have been held constant. Additionally, I did not calculate a R² for this project, which could have shown how well the regression lines actually fit the data. The results have implications for Iraq's future especially as the government (the Ministry of Planning) is looking to promote its economy by empowering female labor participation and expanding non-oil-related sectors such as agriculture; however, implications of these plans on child health outcomes and households must be considered.²

Malawi: Family Structure & Child Development

Malawi Description:

Malawi is one of the smallest countries in Africa. Its name comes from Maravi, an old name of the Nyanja people that inhabit the area. The country is separated from Tanzania and Mozambique by Lake Malawi. The country has just about 118,000 km² (45,560 sq mi) with an estimated population of 16,777,547 (July 2013 est.). Malawi's capital is Lilongwe, which is also Malawi's largest city; the second largest is Blantyre. Because of its special location, Malawi is also called as "The Warm Heart of Africa".



Survey Sampling Process:

The sample conduct by enumeration areas (EAs). 204 EAs out of 768 EAs was selected with the intention to track and resurvey these households in 2013 in accordance with the IHS3 fieldwork timeline. The whole survey includes a total of 3,246 households in these EAs twice to reduce recall associated with different aspects of agricultural data collection.

Sample Summary Statistics

Total individual	19953
Total men	
Total women	
Total household	1836
Nuclear family(%)	66.2%
Average children of nuclear family	2.3

Significance in Literature:

According to the former studies about the Social Structure of Malawian tribes, a traditional malawian tribe will generally have more than two generations in one family. However, with the development of modern world, there are more nuclear families in Malawian society now. Therefore, it is significant to see whether such smaller type of family can benefit the development of children in Malawi.

Figure 1: The household composition based on gender and age

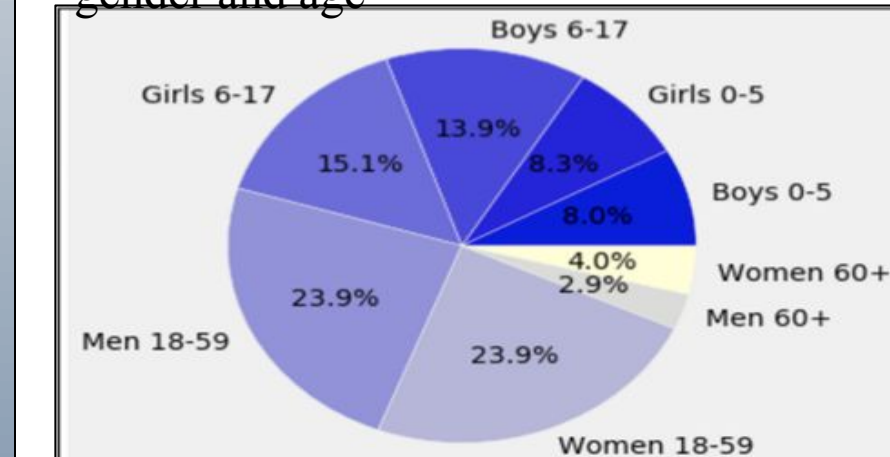


Figure 3: z scores of children(<1y) in nuclear family by months

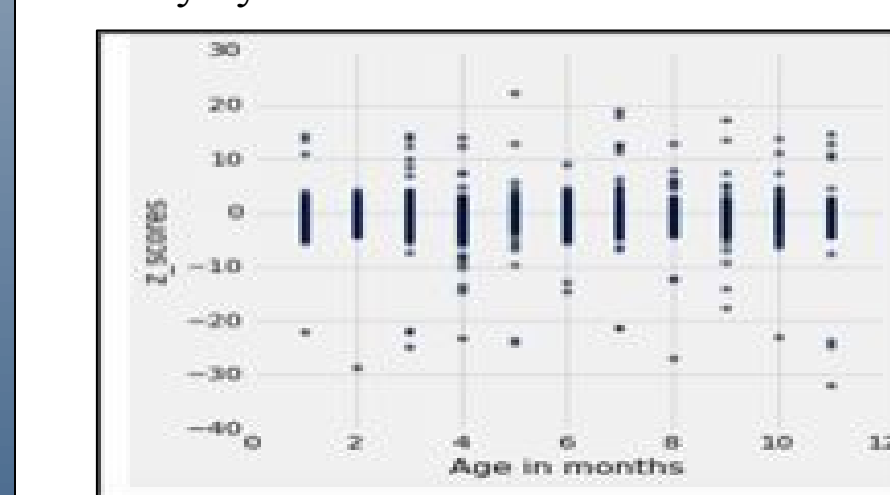


Figure 2: HAZ of 3-year-olds in nuclear families with 3-year-olds not in nuclear families

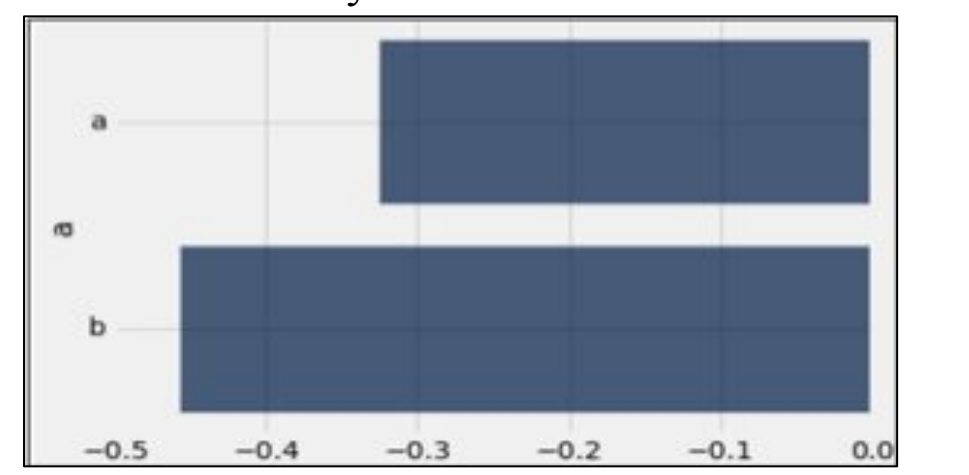
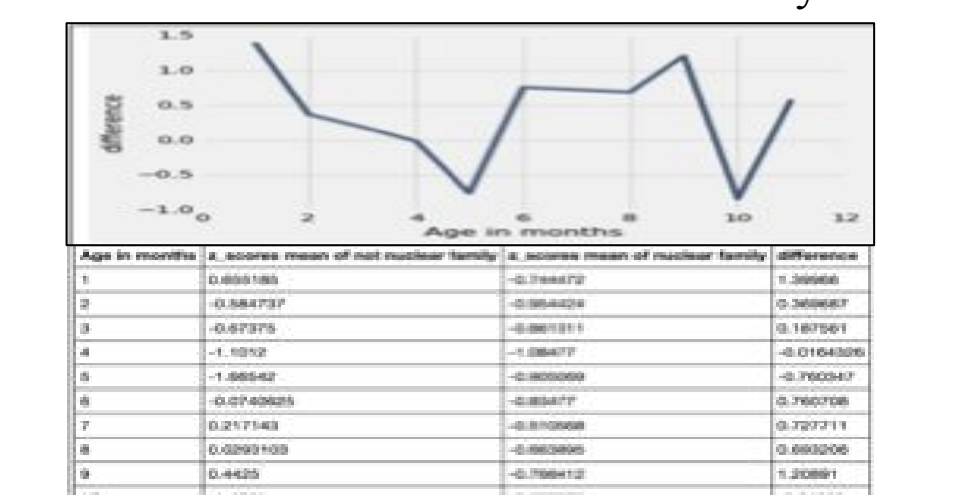


Figure 4: Comparison between children(<1y) of those in nuclear and not in nuclear family



Discussion & Limitations

From the graphs above we can indicate the basic relationship of family structure and children development. The first graph shows how different kinds of people compose the family in Malawi. In the second bar chart, we can begin to focus on the topic of nuclear: we can make comparison between nuclear family and not nuclear family. The third scatter plot indicates how the z scores change when the children in Malawi growing up by months and we can compare month by month in the last graph by computing the differences of mean z scores from these two types of family children. It can be told that nuclear family have healthier children in terms of height. However, just the comparison between mean is not enough to show the most evaluation of it.