

# Childcare while their mom is working\*

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02 April 2022

## Abstract

Four sentences

## 1 Introduction

## 2 Data

### 2.1 Data Source

This paper uses the Childcare While Working Data (Ghana Statistical Service and Macro International Inc. 1999) obtained from the 1998 Ghana Demographic and Health Survey (GDHS). The dataset was collected by downloading the final report of the 1998 GDHS published in the Demographic and Health Surveys (DHS) programme. The package ‘pdftools’ (Ooms 2022) is used to download and read the content into R by parsing the pdf. The package ‘stringi’ (Gagolewski 2021) and ‘tidyverse’ (Wickham et al. 2019) are then used to gather the data.

### 2.2 Methodology

The 1998 Ghana Demographic and Health Survey was a national-level survey carried out in Ghana. This was a part of the worldwide Demographic and Health Surveys (DHS) programme and was conducted by the Ghana Statistical Service collaborated with the Macro International Inc. It was designed to collect data on fertility, family planning, and maternal and child health.

The survey frame was created using the list of Enumeration Areas (EAs) with population and household information from the 1984 Population Census. The 1998 GDHS used a two-stage stratified sampling. At the first stage of sampling, 400 EAs were selected using systematic sampling with probability proportional to size where the selected EAs comprised 138 in the urban areas and 262 in the rural areas. A complete household listing operation was then carried out in all the selected EAs to provide a sampling frame for the second stage selection of households. At the second stage of sampling, a systematic sample of 20 households per EA was selected in the Northern, Upper West and Upper East Regions, and 15 households per EA was selected in the other regions.

The target sample size for the 1998 GDHS was 6,000 consisted of 4,500 women of age 15-49 and men of age 15-59. A total of 4,843 women age 15-49 and 1,546 men age 15-59 completed the survey.

### 2.3 Key features

Some key features include background and a percent distribution of currently employed women by whether they have a child under six years of age at home according to selected background characteristics, Ghana 1998. If the respondent answered to have one or more child under six, then they were further asked to indicate the

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\*Code and data are available at: [https://github.com/Pascal-304/dhs\\_analysis](https://github.com/Pascal-304/dhs_analysis).

Table 1: A subset of key features

Background Characteristic	Child under six		Child's caretaker	Number of employed women	Category
	Yes	No	Respondent		
Greater__Accra	39.2	60.8	39.7	564	Region
Volta	57.1	42.9	46.1	384	Region
No_education	62.3	37.7	51.0	1158	Mother's_education
Primary	57.1	42.9	50.4	683	Mother's_education
Middle	50.8	49.2	44.1	1392	Mother's_education
Secondary+	36.6	63.4	39.1	332	Mother's_education
For_family_member	54.5	45.5	56.8	355	Work_status
For_someone_else	36.5	63.5	38.5	491	Work_status
Self-employed	57.7	42.3	47.5	2718	Work_status
Agricultural	64.3	35.7	52.3	1160	Occupation
Total	54.4	45.6	47.6	3564	Total

<sup>a</sup> Decimals are in percentage (%).

caretaker of the child such as the respondent themselves, their partner, or whether they hired a person for it, etc.

The dataset is processed and analyzed using ‘R’ (R Core Team 2021) mainly with the ‘tidyverse’ (Wickham et al. 2019) and ‘dplyr’ (Wickham et al. 2021) packages. The ‘janitor’ (Firke 2021) is used to clean data, and the graphs are created in ‘ggplot2’ (Wickham 2016) and ‘ggforce’ (Pedersen 2021) packages. The map is created using in ‘rnatrualearth’ (South 2017) and ‘sf’ (Pebesma 2018) packages. The package ‘stringr’ (Wickham 2019) is used to manipulate the character string. The packages ‘bookdown’ (Xie 2016) and ‘knitr’ (Xie 2014) are used in generating the R Markdown report. Table 1 created using ‘kableExtra’ (Zhu 2021) shows a subset of key features that will be discussed in this paper.

## 2.4 General Overview

We can tell from Table 1 that there are 3,564 working mothers, and over a half of them have a child under six years. Figure 1 illustrates that 47.6% of these mothers look after their own children while they are at work, 22.1% have their relatives other than their husband/partner to take care of the child, 14% send the child to school or other institutional care. On top of that, less than 3 percent of women have husbands/partners to look after the child while they are at work.

It should be noted that 1.9% has not worked since the last birth, and this indicates the percentage of the respondents who were not working at the time of the survey but had been employed at some time during the last 12 months.

## 3 Results

### 3.1 Region

Figure 2 shows a map of Ghana and its administrative regions. Ghana has 10 administrative regions, namely, Upper West, Upper East, Northern, Brong Ahato, Western, Ashanti, Central, Eastern, Volta and Greater Accra. # Add details on largest provinces + population wise

Figure 3 shows the number of employed mothers in urban and rural areas. There are 1127 women who were selected in Urban areas while 2338 mothers were selected in rural areas. There are less women living in urban who is currently working, and this is not surprising as a larger population live in rural areas.

Figure @??fig:region) shows the number of employed mothers in the different administrative regions. There

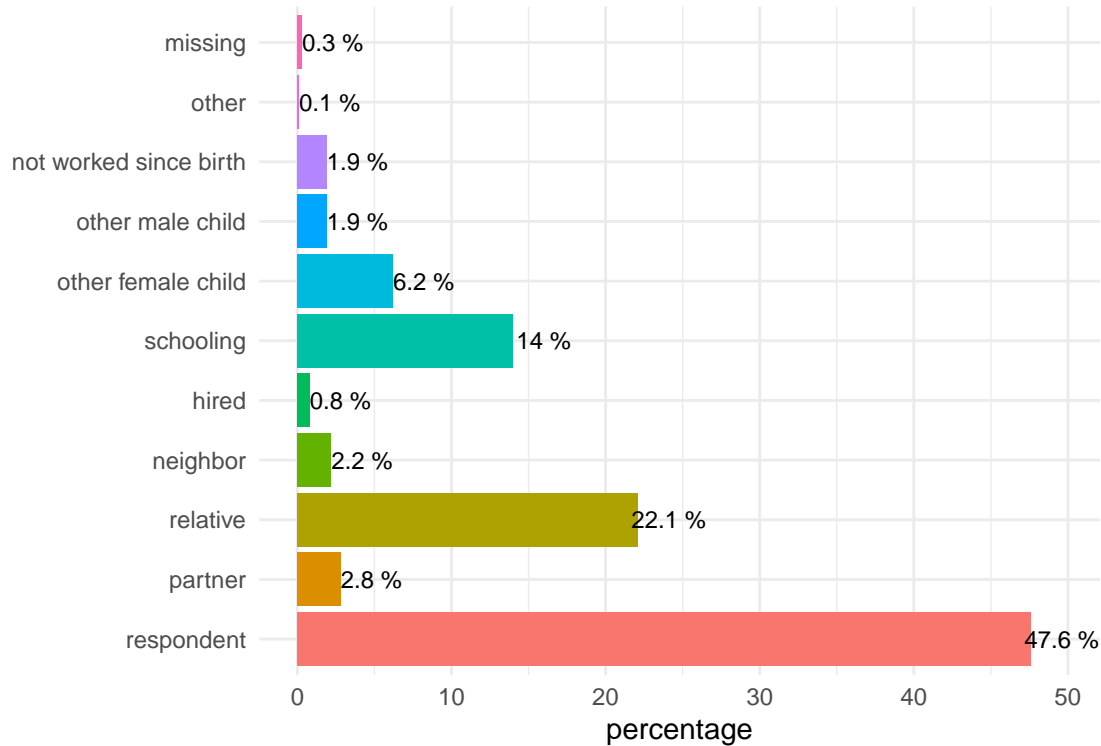


Figure 1: Distribution of the caretaker of the child when the mother is working

were more working mothers in Greater Accra and Ashanti while Upper West had the least number of working mothers. The reason might be because of the number of people living in the different administrative regions are different, therefore, the population sample differed from one region to another.

Figure 5 shows the child status of families in Urban and Rural areas. In rural areas, there is a larger percentage of working mothers having one or more child under six years old. The converse is true in Urban areas. Working mothers tend to have no child under six years old.

Figure @??fig:areachildcare) shows the Ghanese families' caretaking preferences in both urban and rural areas. The preferred caretaking method in both urban and rural areas is the working mothers looking after their children by themselves. The next preferred method for in both areas would be to let the children be looked after by relatives. Other notable observations would be that families living in urban areas tend to put their child in school and in rural areas, families let the older female child to care for the under six years old child much more than in urban areas.

### 3.2 Also comparison among the different administrative regions

Figure 7 shows the caretaking preference of Ghanese families in the different administrative regions. Working mothers tend to look after their child themselves the most in all regions. In Greater Accra, families choose to put their child in school the most compared to other administrative regions. Another observation is that the proportions of families opting to put their child in school in Northern, Upper East and Upper West are the lowest, namely 1.3%, 2.7% and 2.0% respectively. The other popular caretaking options after by the mother herself are by a relative or by another older female child.

Figure 8 shows the child status of Ghanese families in the different administrative regions. By child status, we mean the whether the families have children under six years old. Ghanese families tend to have one or more child under six years old more than no child under six with the exception of Greater Accra. The proportion of families with one or more child under six is slightly more pronounced in Northern, Upper West, Brong

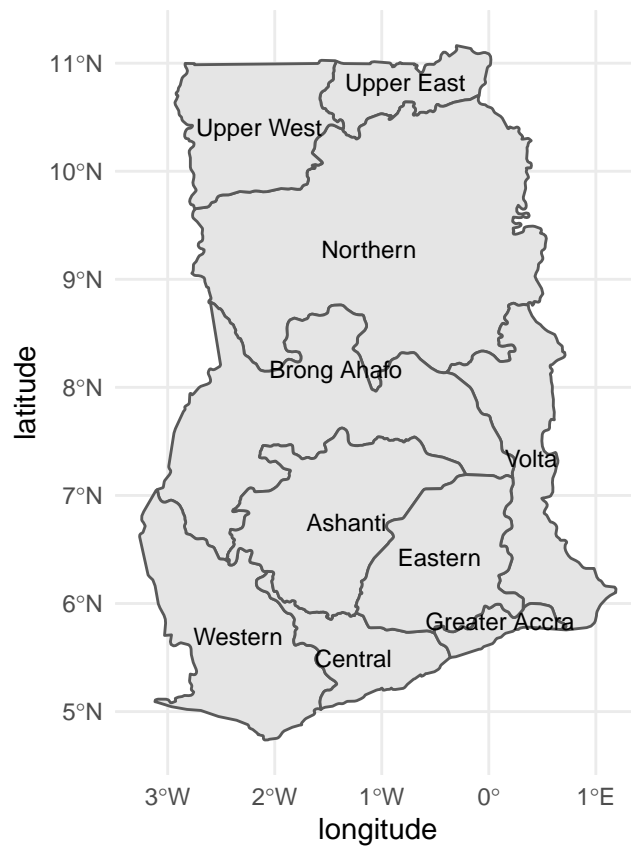


Figure 2: Ghana administrative regions

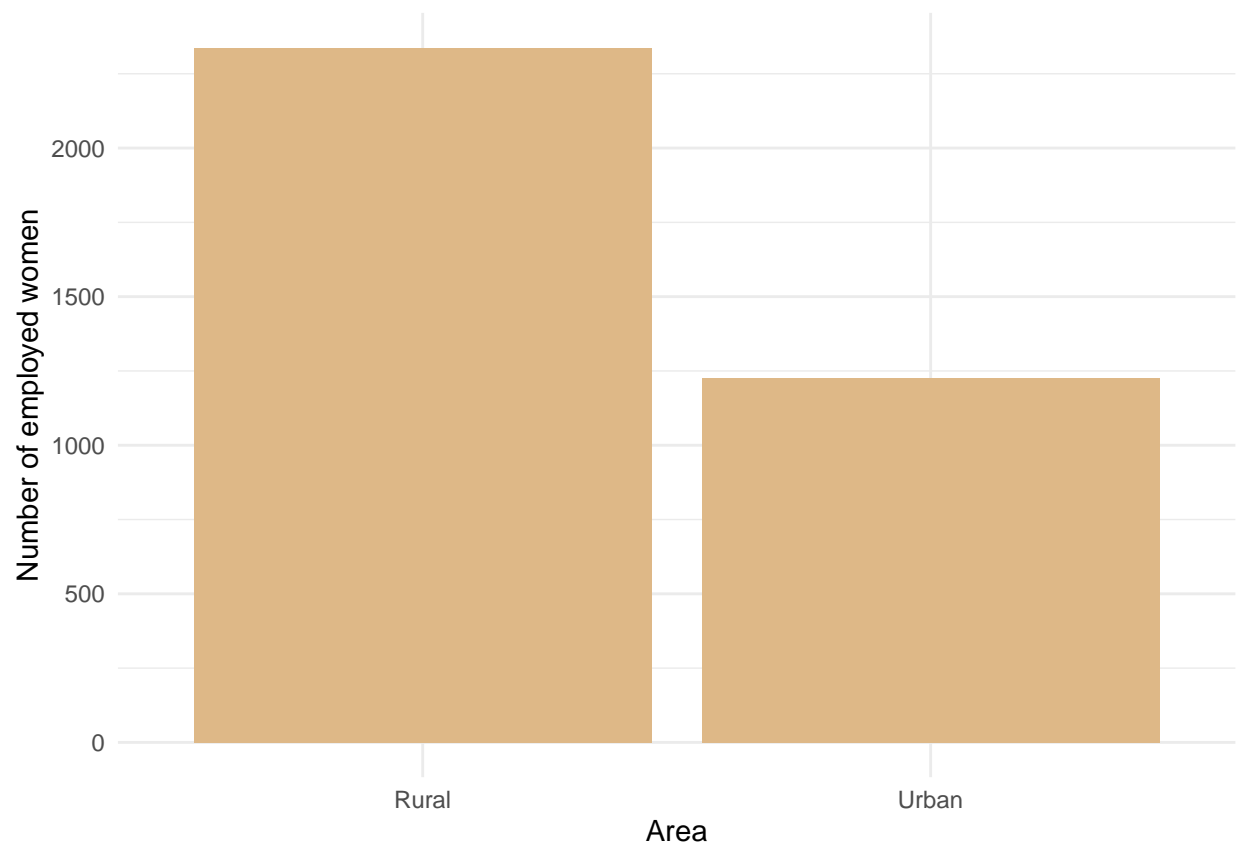


Figure 3: Comparison of the number of working mothers between urban and rural areas

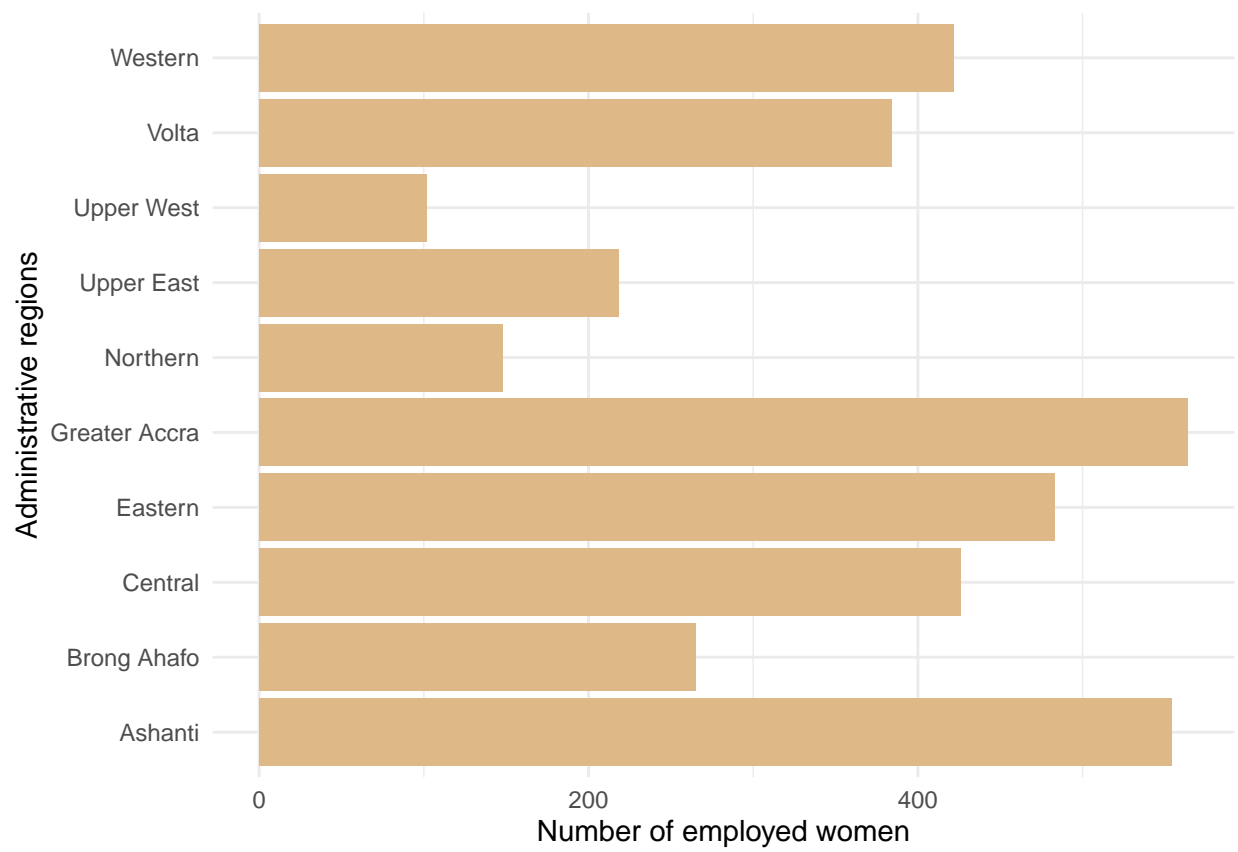


Figure 4: Comparison of the number of working mothers selected in the different administrative regions

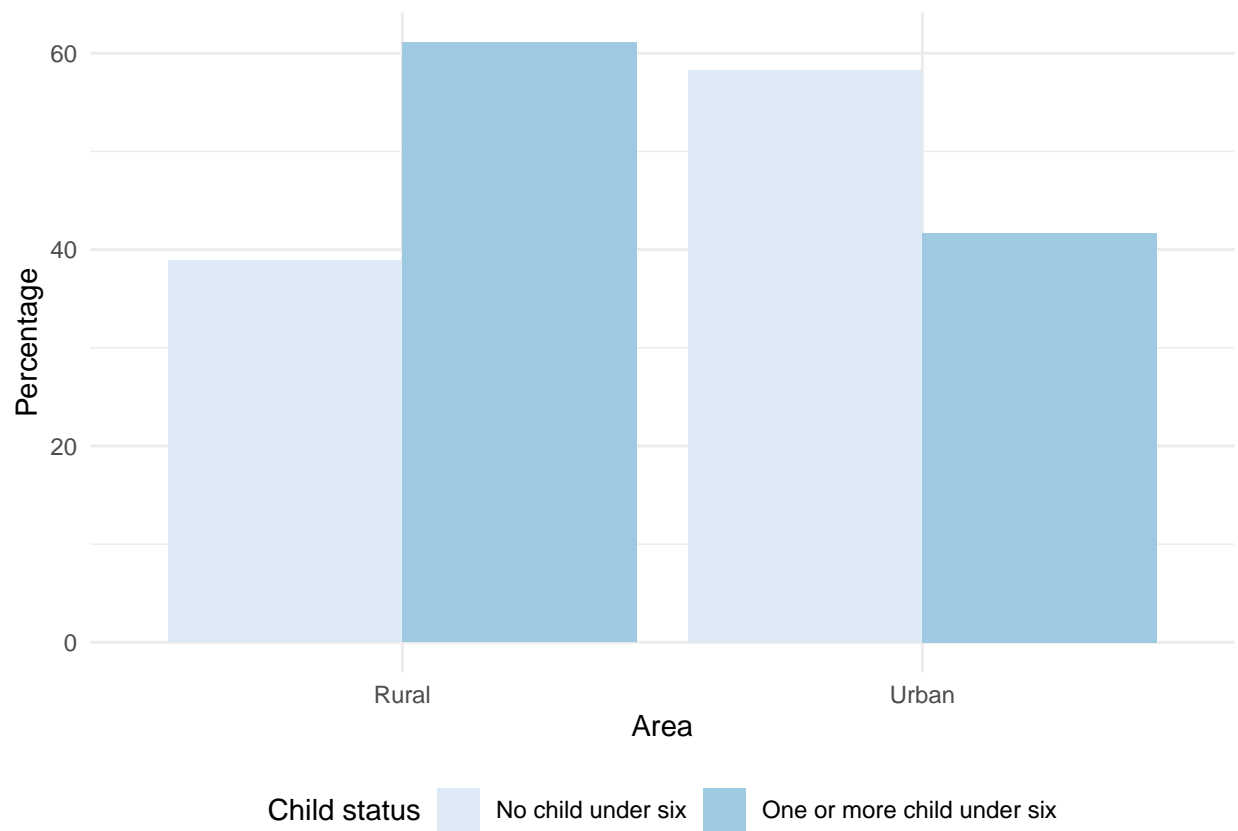


Figure 5: Comparing the percentage of mothers having no child under six to one or more in both Urban and Rural areas

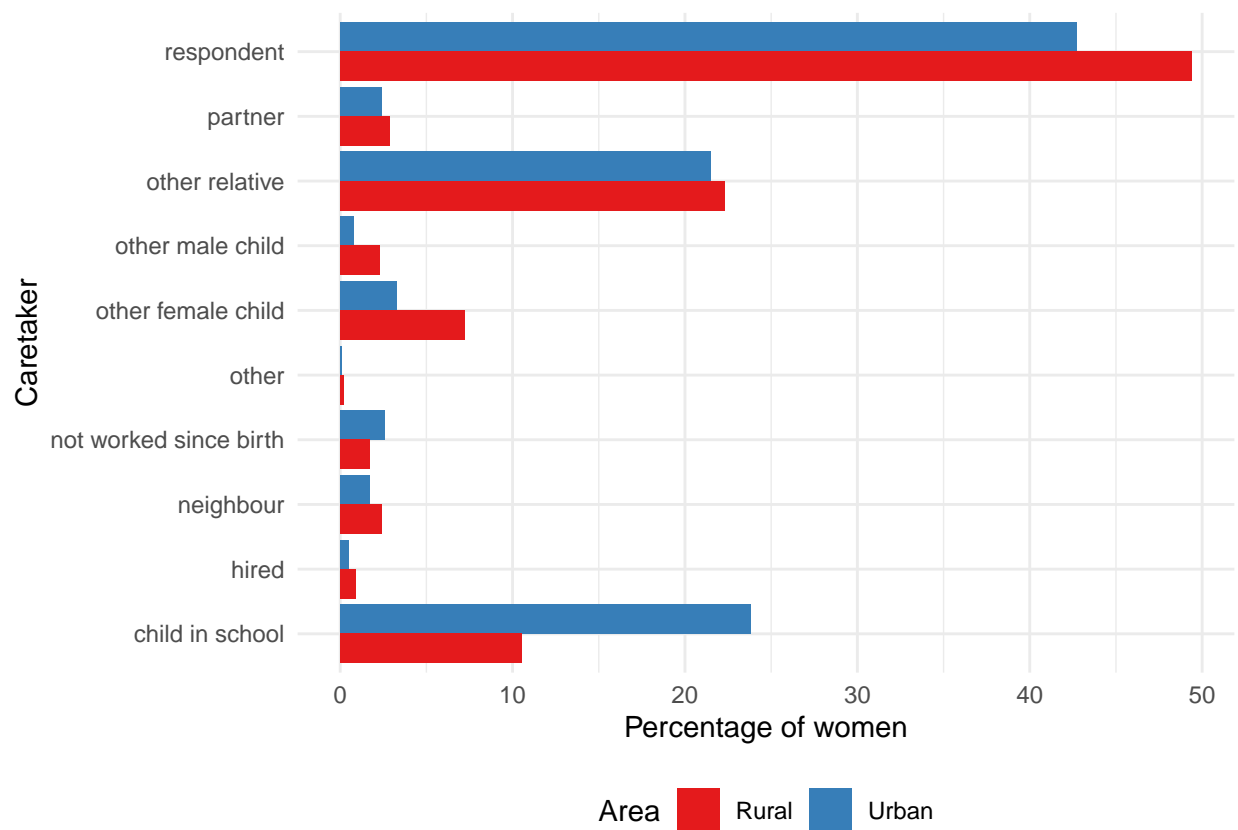


Figure 6: Comparing child caretaker preferences in Urban and Rural areas





Figure 7: Caretaking behaviour in the different administrative regions

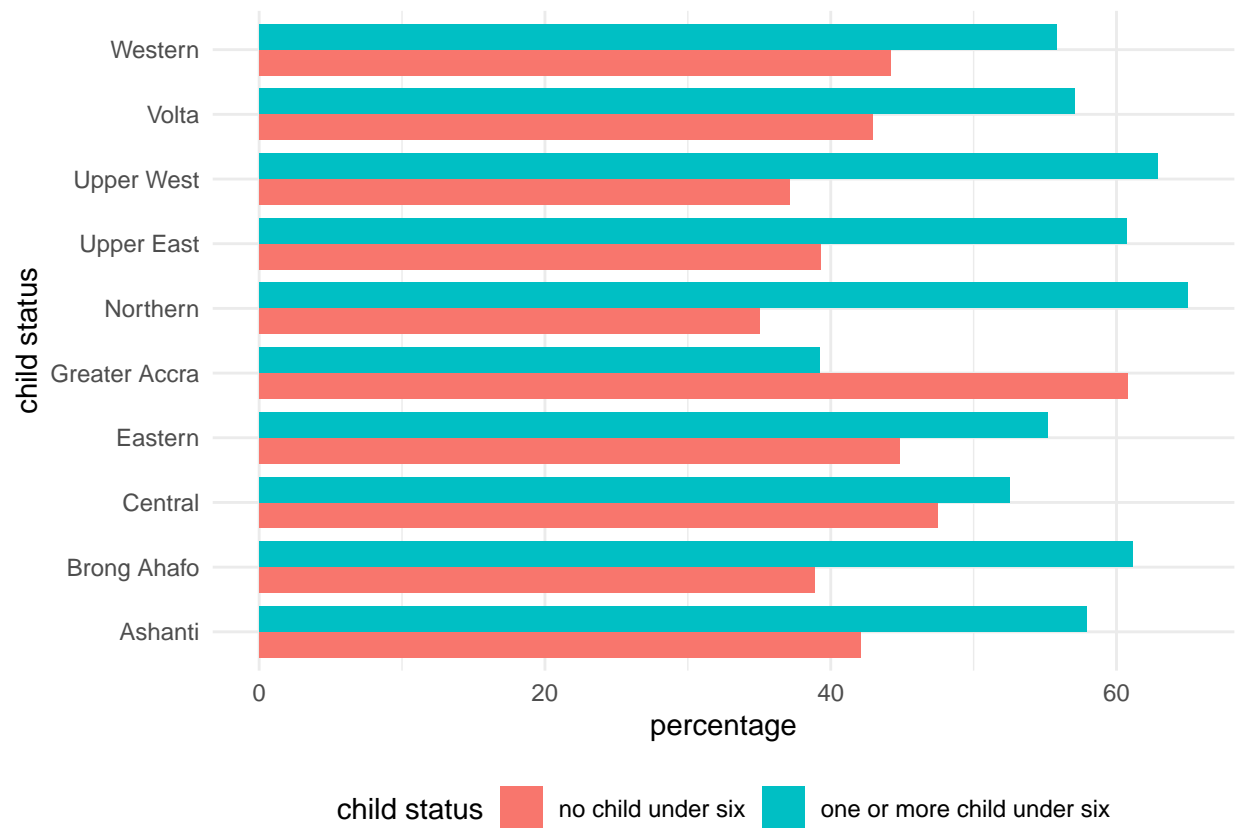


Figure 8: Comparing the child status in different administrative regions

Ahafo and Upper East regions.

### 3.3 Mother's education

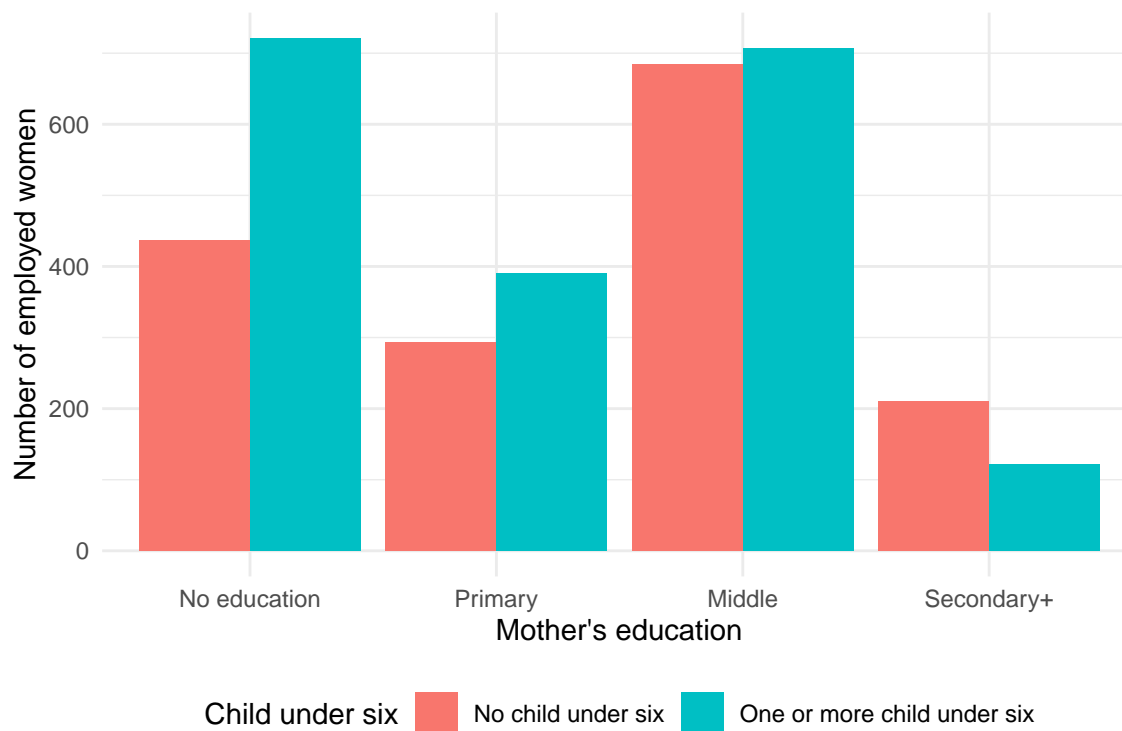


Figure 9: Mother's Education level

Figure 9 shows that there are significantly less employed women who studied at secondary school or higher. Also, it can be observed that the working mothers who did not continue their education until the secondary school are more likely to have a child under six, whereas there are more employed women who studied beyond the secondary school and have no child under six. In addition, when we take a look at the number of employed women who did not get any education, we can see that there are a lot more women with a child under six than without, and the difference between them is notably big. However, as the level of working mother's education gets higher, the gap between having a child under six and no child under six decreases, and it gets reversed when the women completed the secondary school.

Figure 10 demonstrates that no matter what their education level is, it is mostly the employed women who take care of their children while working. When the level of education is lower, then it is more likely for the respondent to look after their own children under six years. Over 50% of the women with no education take care of their own children whereas less than 40% of the women with secondary or higher levels of education do. As the level of the education gets higher, then the percentage of schooling their children gets higher as well. Moreover, it is worthwhile to mention that the women who completed high school are more likely to stop working after having a birth compare to the women whose education level is lower than secondary school.

### 3.4 Work status

Figure 11 shows that most of the employed women are self-employed. If the women work for themselves or for their family, then it is more likely to have one or more than one child under six, whereas when they work for someone else, there are more women who do not have a child under six. It should be noted that no child under six does not mean that they have no child.

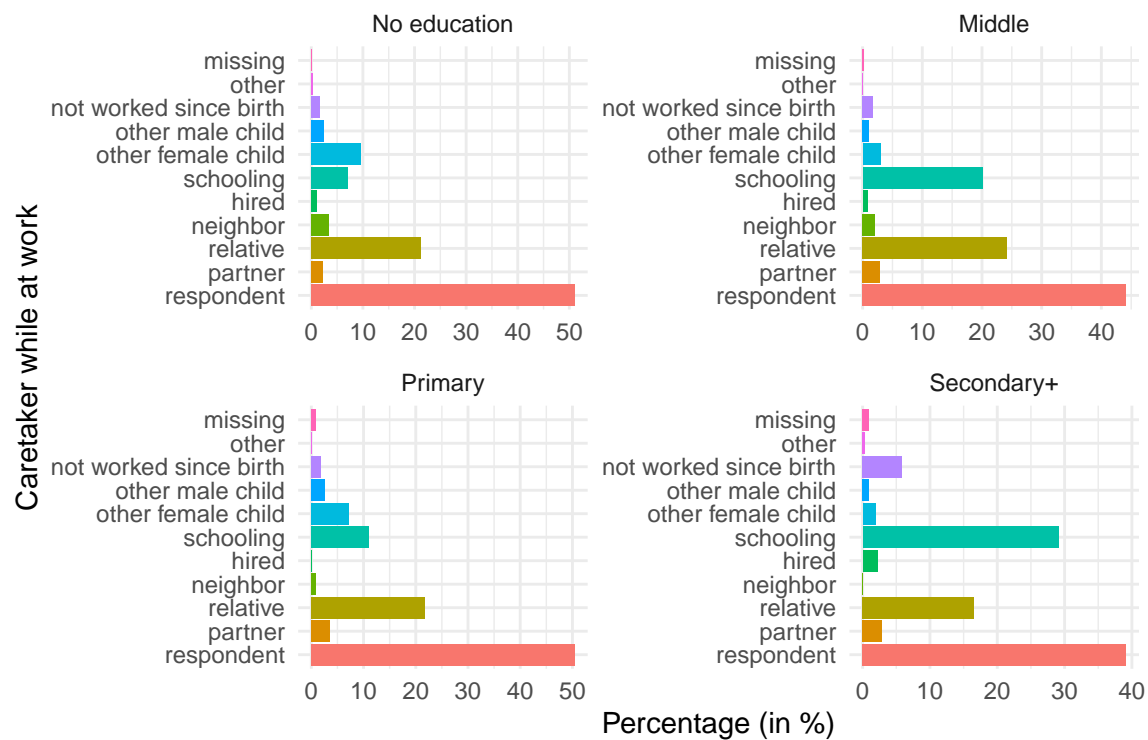


Figure 10: Distribution of child's caretaker by mother's education level

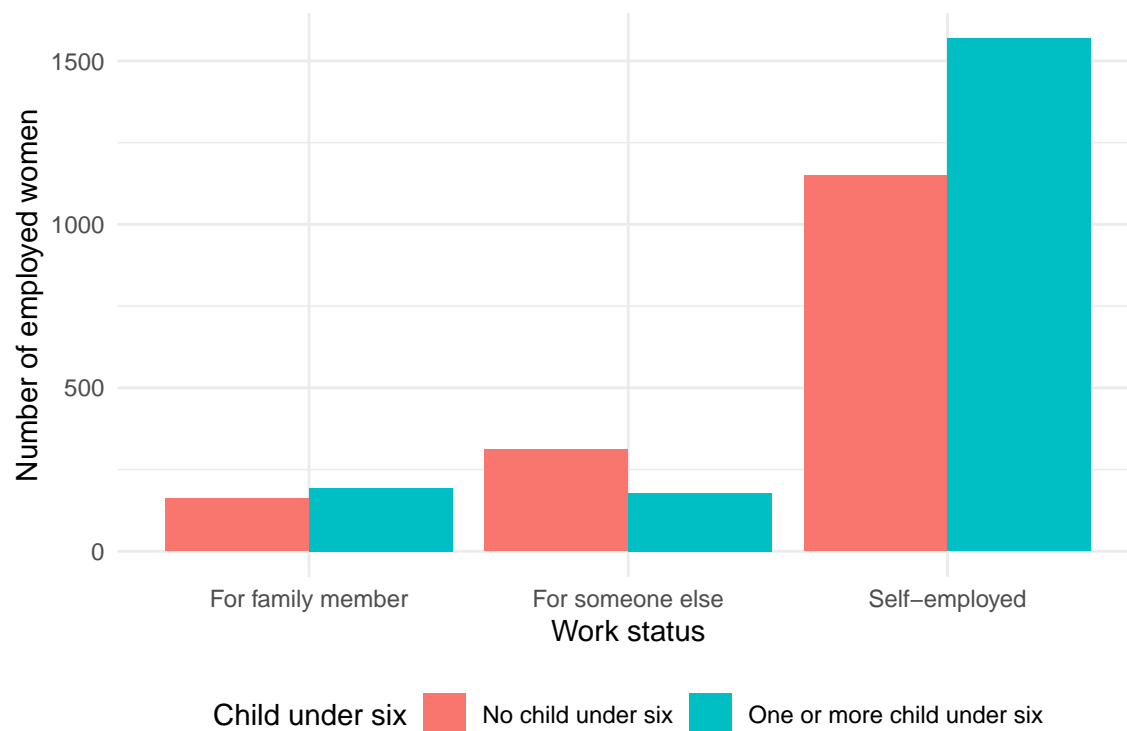


Figure 11: Work status

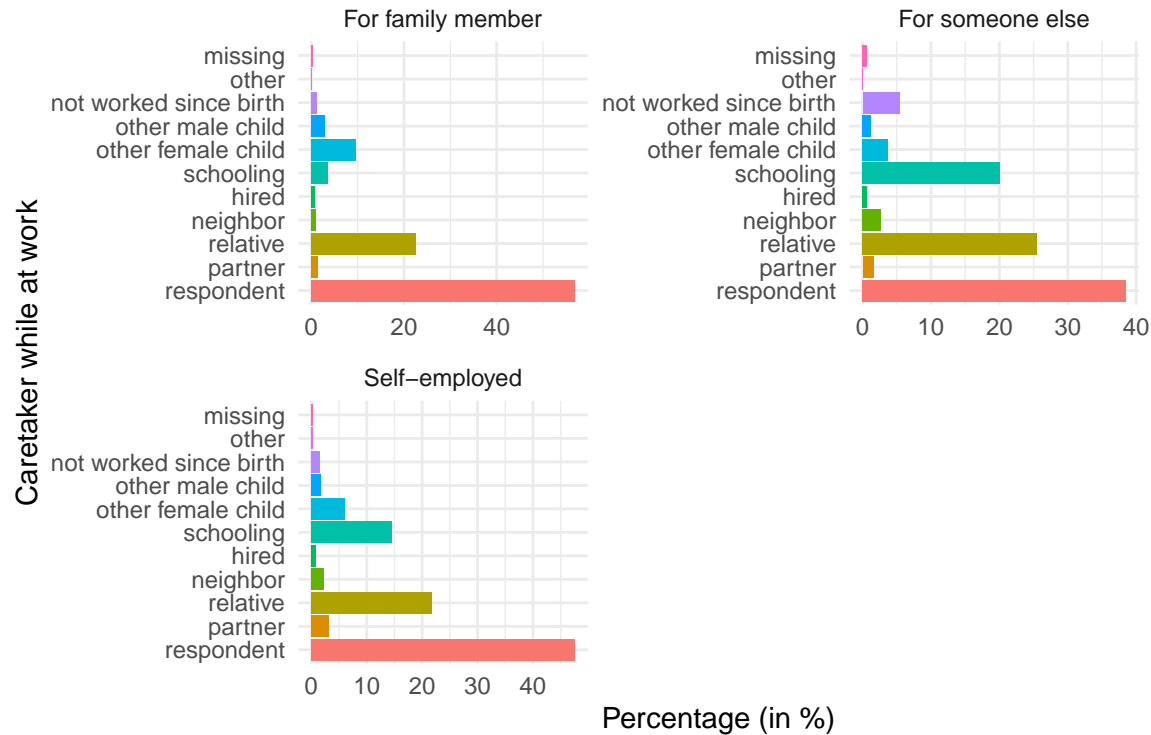


Figure 12: Distribution of child's caretaker by work status

It can be observed from Figure 12 that most of the employed women take care of their children by themselves regardless of whom they work for, and then it is their relatives who take care of their children while they are at work. We can tell that if they are self-employed or work for the family, then it is more likely to have a family member taking care of their children under six, whereas the percentage of schooling their child under six is relatively higher when they work for someone else.

### 3.5 Occupation

Figure 13 shows that there are more women working in non-agricultural occupations. When we compare the mothers working in the agricultural sector, the number of women with a child under six is twice as many as the number of the ones without. On the contrary, the number of women with no child under six is slightly higher than that of the ones with a child in non-agricultural occupations.

Figure 14 illustrates that the percentage of the child's caretaker is highest in the respondent followed by the relative and schooling regardless of what type of jobs they have. This means that it is mostly the case that the employed women taking care of their children under six while they are working. Meanwhile, women who work in the agricultural sector are more likely to care for a child themselves than women in non-agricultural occupations. In particular, more than a half of the employed women working in the agricultural industry are the caretaker of the child under six whereas around 45% of the women working in non-agricultural sector take care of a child themselves while working. Furthermore, we can see that it is more likely for the female siblings to take care of the kids under six than the male siblings.

### 3.6 Employment status

Figure 15 illustrates that majority of the employed women work throughout the entire year. Specifically, majority of them work full week. There are few women who work occasionally. On top of that, regardless of what their employment status is, more working mothers tend to have one or more child under six.

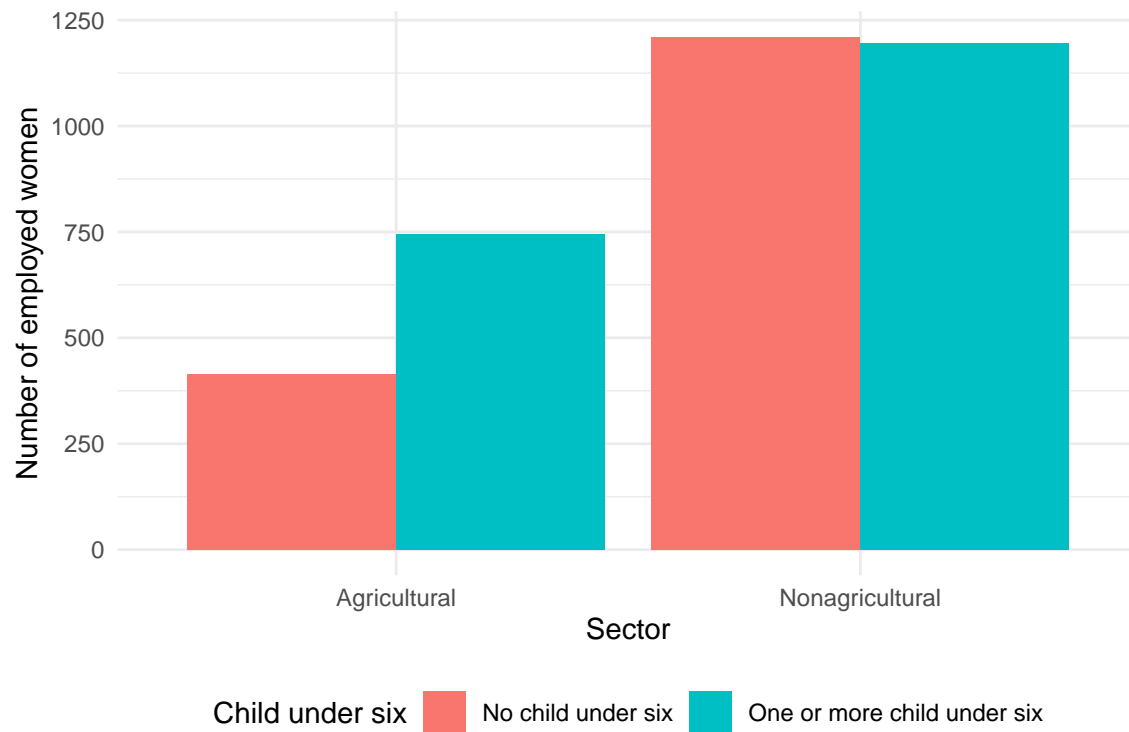


Figure 13: Occupation

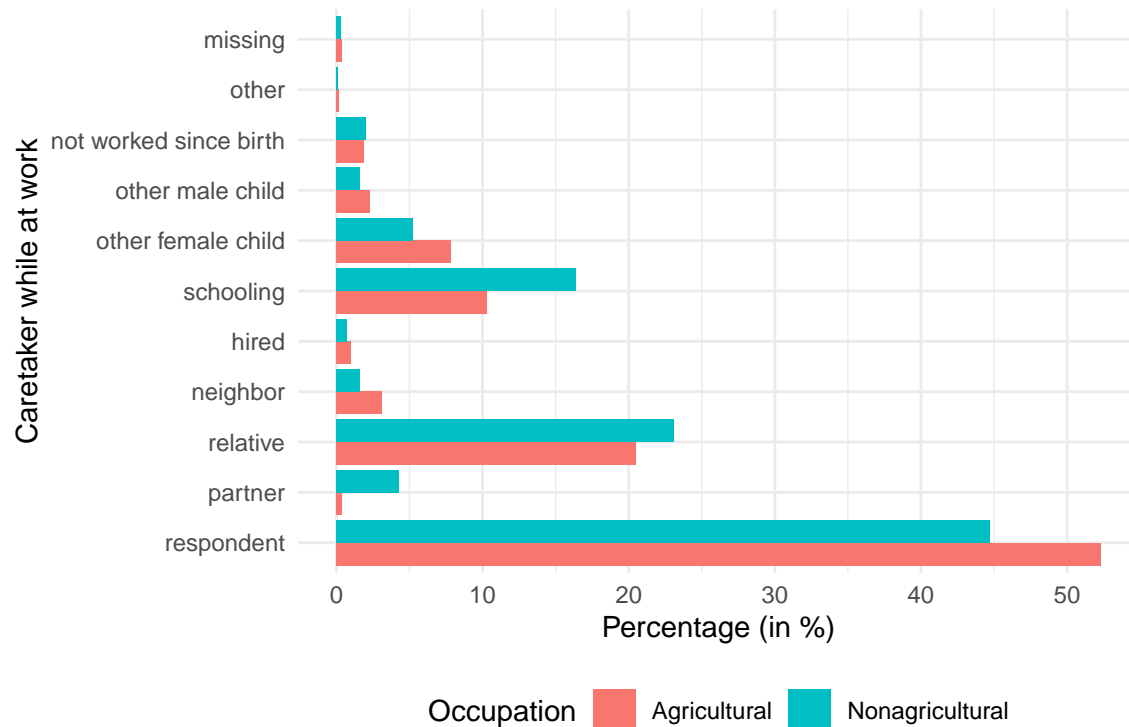


Figure 14: Distribution of child's caretaker by Occupation

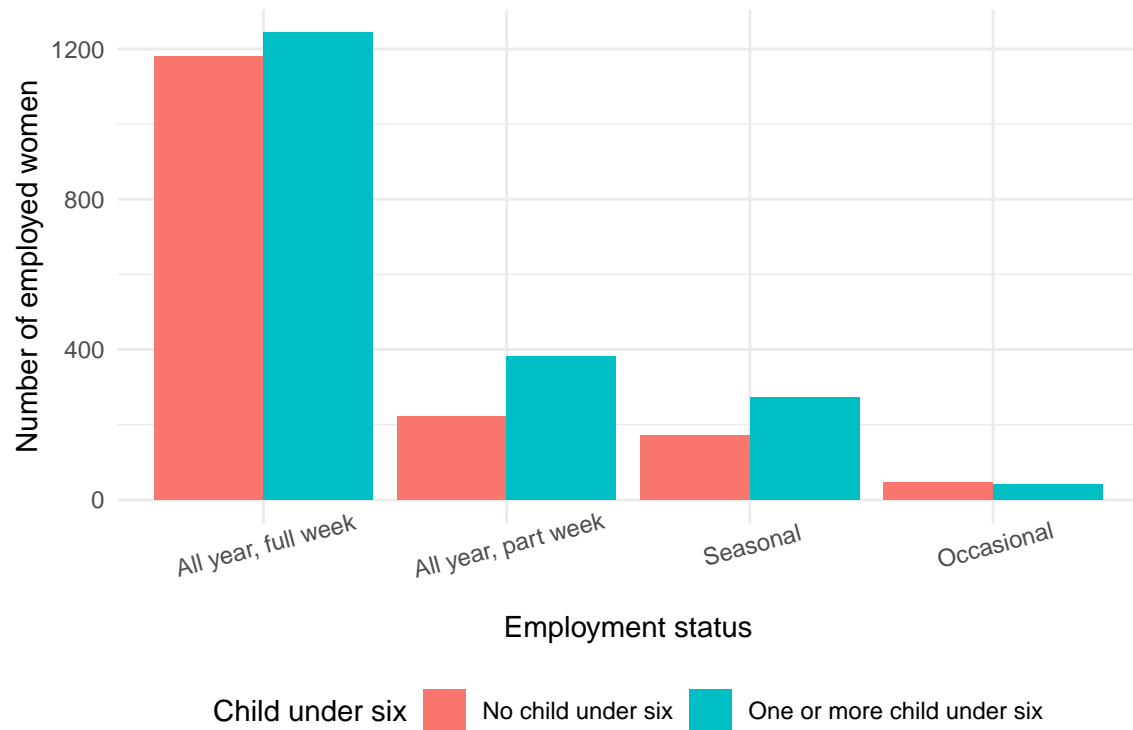


Figure 15: Employment status

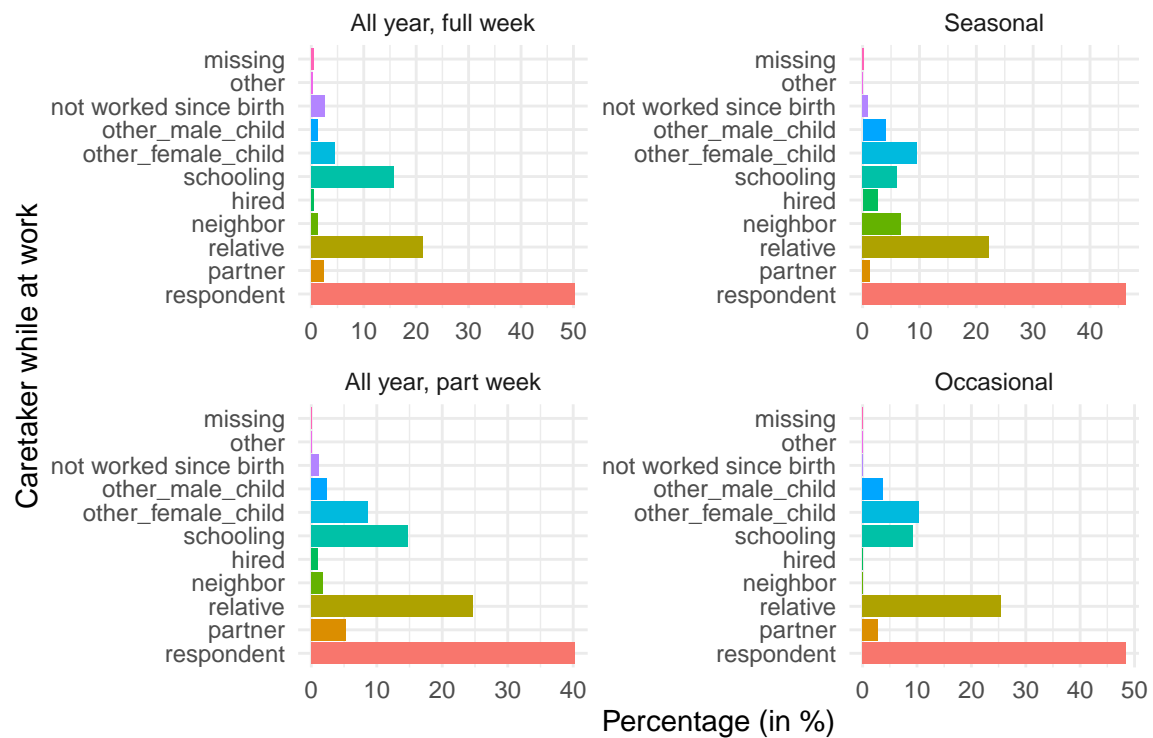


Figure 16: Distribution of child's caretaker by work status

We can see from Figure 16 that the percentage of the respondent being the primary caretaker of the child under six is remarkably higher than the others in all four employment status. It exceeds 40% in all four cases, and in particular, mothers working full time are more likely to look after their own children than the others. Next, it is the relatives who mainly take care of the child under six. It should be noted that there are more women sending their kids under six to school when they work all year compare to the ones who do not work throughout the entire year.

## 4 Discussions

### 4.1 Employed Women

We can tell from Table 1 that 3,564 out of 4,843 women of age 15-49 who completed the survey are employed. In other word, around three in four women were employed during the 12 months before the survey. Figure 3 shows that the number of employed women is greater in rural area. It is worth mentioning that even though rural areas typically have low population density, rural women are somewhat more likely than urban women to be currently working. Next, Figure 4 illustrates that women residing in the Upper West Region are least likely to be employed. Together with Figure 2, we can tell that the women are more likely to be employed when they live in the southern part of Ghana. The northern part of Ghana including Upper West, Upper East, and Northern Region are the bottom 3 regions in Figure 4 which demonstrates the distribution of the number of employed women whereas the southern part of Ghana including Greater Accra, Ashanti, and Eastern Region are the top 3.

Additionally, it is surprising to see from Figure 9 that the number of employed women whose education level is secondary school or higher is remarkably lower than that of the other education levels. Meanwhile, Figure 13 shows that women are approximately twice as likely to be employed in the non-agricultural sector than in the agricultural sector. Lastly, when women are working, then Figure 11 tells that they are most likely to be self-employed and Figure 15 shows that they are most likely to work full-time.

### 4.2 Presence of Child Under Six

Table 1 shows that more than a half of the employed women has a child under six years. Figure 5 demonstrates that working women in rural area are more likely to have at least one child under six years whereas working women in urban area tend to have no child under six years. Figure 9 shows that as the level of working mother's education gets higher, it is more likely to not have any child under six.

Figure 11 illustrates that when they work for themselves or for their family, then there are more women with a child under six whereas when they work for someone else, then there are more women without. Figure 3.5 shows that when women are working in the agricultural sector, they are more likely to have a child under six whereas when they work in the non-agricultural sector, it is equally likely to have a child under six and without. Lastly, Figure 15 tells that it is more likely to have a child under six years regardless of their employment status. In other words, no matter whether they work full-time or part-time, there are more women who have at least one child under six years.

### 4.3 Child's Caretaker

Every figure that demonstrates the distribution of the child's caretaker shows that it is most likely to be the mother primarily taking care of their child under six while they are at work. In other words, no matter where they live, what their education level is, and what type of a job they have, majority of the employed women is the look after their child. Therefore, we can deduce that in Ghana it was common that the mother is primarily responsible for the care and raising of a child back in 1998.

Besides the mother being the primary caregiver of a child under six, it can be observed from Figure 10, Figure 12, Figure 14, Figure 16 that the relatives other than husband/partner are likely to look after children under six. Also, there are some family where the older siblings take care of their siblings under six. Thus, we can tell that if there is a child under six in the family, then it was usual for the family member to take care of them in Ghana, 1998.



In addition, we can observe that it was uncommon to hire a person to take care of the child under six. Instead of hiring a person, there are more cases reported that they sent the kids to school or to institutional care. Figure 6 demonstrates that the percentage of the employed women sending their kids to school is higher in urban areas than in rural areas. Figure 10 shows that the number of working mothers sending their kids to school increases as their mother's education level gets higher. Figure 12 illustrates that it is more likely to have their kids in school when they work for someone else than when they work for the family member or when they are self-employed. Figure 14 shows that the percentage of the employed women sending their kids to school is higher in non-agricultural sectors than in agricultural sectors. Lastly, we can see from Figure 16 that there are more women sending their kids to school when they work all year compare to the ones who work seasonally and occasionally.

Lastly, we can tell that it is rarely the case that the mother stops working after having a birth. However, it is worth noting that the percentage of the employed women stop working after the birth is higher in urban areas than in rural areas from Figure 6. In addition, Figure 10 shows that the women who completed high school have more tendency to stop working after having a birth than the ones with a lower education level. Furthermore, Figure 16 shows that the percentage of the employed women stop working after the birth is highest when they work all year, full week.

#### 4.4 Limitation and weaknesses

4,843 women of age 15-49 completed the survey, and 3,564 of them responded that they are employed. Then, they were further asked whether they have a child under six. However, it is not mentioned whether their marital status was asked. If the question was asked to every women who participated the survey, then the respondents who answered to have no child under six might be single. This dataset is created to identify woman's overall status, and the percentage of the employed mothers not having a child is one of the important indicators. However, as it is unclear which group that not having a child under six refers to, it is hard to tell what factor this survey focuses on.

Additionally, it would have been better if they were first asked for their marital status and the presence of dependent children. They could have then asked the age of youngest child in the household or whether they have a child under six in the household. As married life has been reported to have a gendered effect on women and men's labour market outcomes (Gammarano, n.d.), the distribution of the marital status among the employed women would be useful to tell the woman's overall status. In this context, if the respondent answered that they stopped working since the last birth, they could have further asked the reason for stopping working and about the job that they used to have before having a birth.

Lastly, only the employed women who have a child under six were further asked to indicate who takes care of their children while they are at work. The dataset included the percentage of the missing values, and we purposely excluded in plotting the graphs as they do not tell anything about the data itself and there were only few missing values. However, when we add up the percentage of all possible items including the missing values, there are several background characteristics where the numbers did not add up to a 100. As only the percentage is provided in the report, there might be a round-off error. Particularly, since the numbers were rounded to one-decimal place, there is a high possibility that there was a rounding error. To make the dataset more precise, they could have rounded to two-decimal places.

On top of that, the survey asked for the employment situation during the 12-month reference period preceding the survey. However, the respondents were allowed to answer using their previous experiences. In particular, this applies to the respondents who had a job before having a birth but stopped working since the birth. Since we do not know the age of the youngest child in their household, they might have answered the questionnaire based on their employment situation prior to the 12-month reference period. Therefore, the time period does not match among the questions.

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