

Childcare while their mom is working*

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Abstract

Working mothers are often faced with the conflict of responsibility towards their children and the role they play at work. The Ghana Demographic and Health Survey (GDHS) forms part of a global initiative to collect data on family, fertility, and child health. In this paper, we used the 1998 GDHS and focused on the child care and working mothers aspect. Demographics and other aspects such as education tend to predict the child care preference. We found that families living in Greater Accra are more likely to send their child to school and the majority of working mothers look after their child by themselves. The analysis of the child care and working mothers data provides an insight on current trends and has significant implications for public policy and program decisions.

1 Introduction

Child care matter to the development of a child. Previously, women were thought to fit the traditional role of a mother, being at home and looking after her children. This thought is being challenged with a growing presence of women in the workforce, contributing to economic activity. Women are often faced with the conflicting role they have at home and at work. However, sometimes, mothers have to work out of necessity to contribute to the financial situation of their families. Families have to find ways to raise their children. The quality of child care given tend to have positive effects on the development of the child (McCartney 2015). Having an idea of the current child care practices is important since it gives crucial information on the weaknesses of current policies and would give an insight on how to improve the situation around child care.

In this paper, we examined child care decisions of working mothers across regions, the mothers' highest education level attained, their occupation, work and employment status in Ghana. We conducted a descriptive analysis of child status and childcare preferences. We first looked at the number of working mothers from the sample population, then examined child care practices based on employment status, education level among other factors. The differences in child care practices were noticeable in different regions. We found that most working mothers tend to look after their young child by themselves and those living in Greater Accra have a higher tendency to put their child in child care centres compared to other regions. Another observation was the highest level of education attained may have an influence on the number of children they have. The proportion of working mothers with at least secondary education with no child under six years old is lower than those with at least one or more child under six.

The rest of the paper is divided into 4 sections. Section 2 explains the data source, the survey methodology and some of its key features, strengths and weaknesses. Section 3 relays the findings through graphs. Section 4 (discussions) discusses in more detail what was found and some limitations of what we did and Section 5 contains a datasheet for the dataset we used.

*Code and data are available at: https://github.com/Pascal-304/dhs_analysis.

Table 1: A subset of key features

Background	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

^a Decimals are in percentage (%).

2 Data

2.1 Data Source

This paper uses the Childcare While Working Data (**ghana1998?**) obtained from the Ghana Demographic and Health Survey 1998. The dataset was collected by downloading the final report of the 1988 Ghana census published in the Demographic and Health Surveys (DHS) programme (Do we need to cite dhs program as well?). The package ‘pdfutils’ (Ooms 2022) is used to download and read the content into R by parsing the pdf.

2.2 Methodology

The 1998 Ghana Demographic and Health Survey (GDHS) is 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 is 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 are comprised of 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 comprising 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 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 package ‘stringi’ (Gagolewski 2021) is used to clean and prepare the dataset. The package ‘janitor’ (Firke 2021) is used to clean data, and the graphs are created in ‘ggplot2’ (Wickham 2016) and ‘ggforce’ (Pedersen 2021). 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

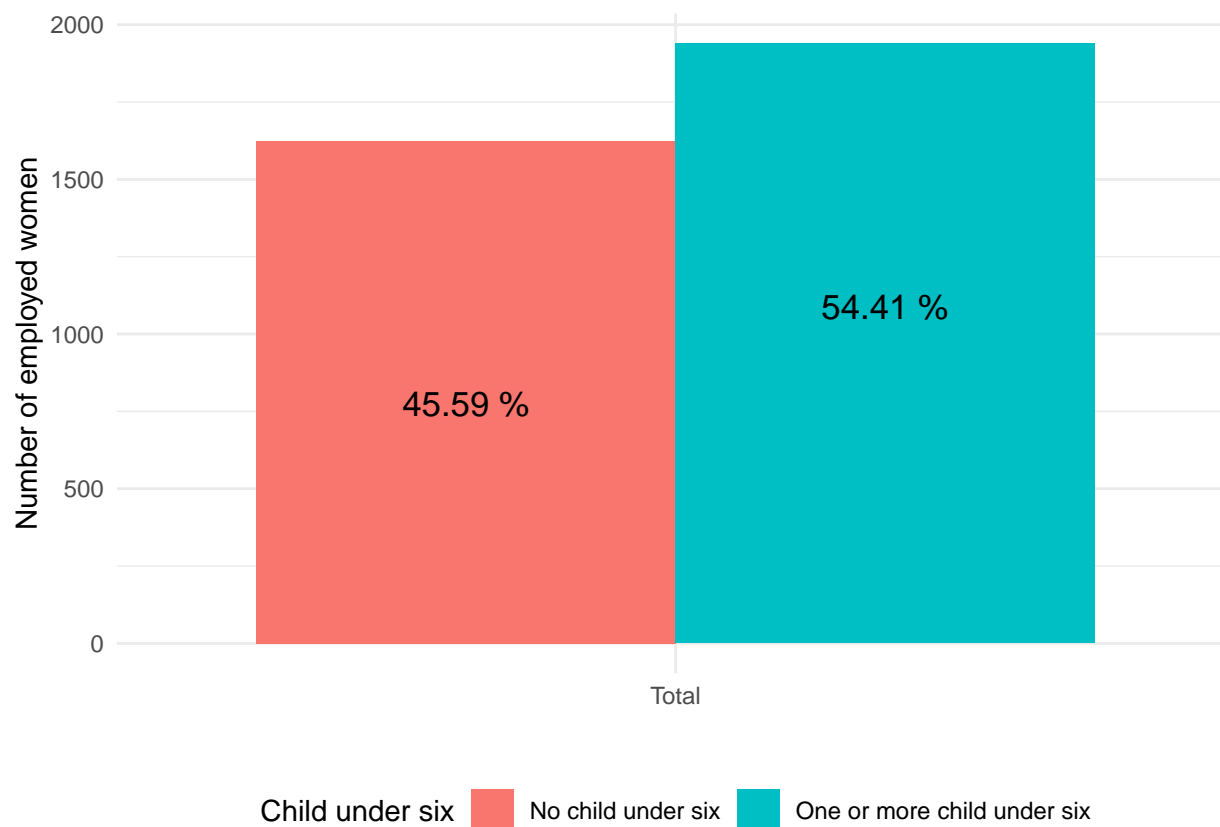


Figure 1: Distribution of working mothers who have a child under six years

We can tell from Table 1 that there are 3,564 working mothers, and Figure 1 shows that over a half of them have a child under six years. Figure 2 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 look after 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 represents the respondents who were not working at the time of the survey but had been employed at some time during the last 12 months.

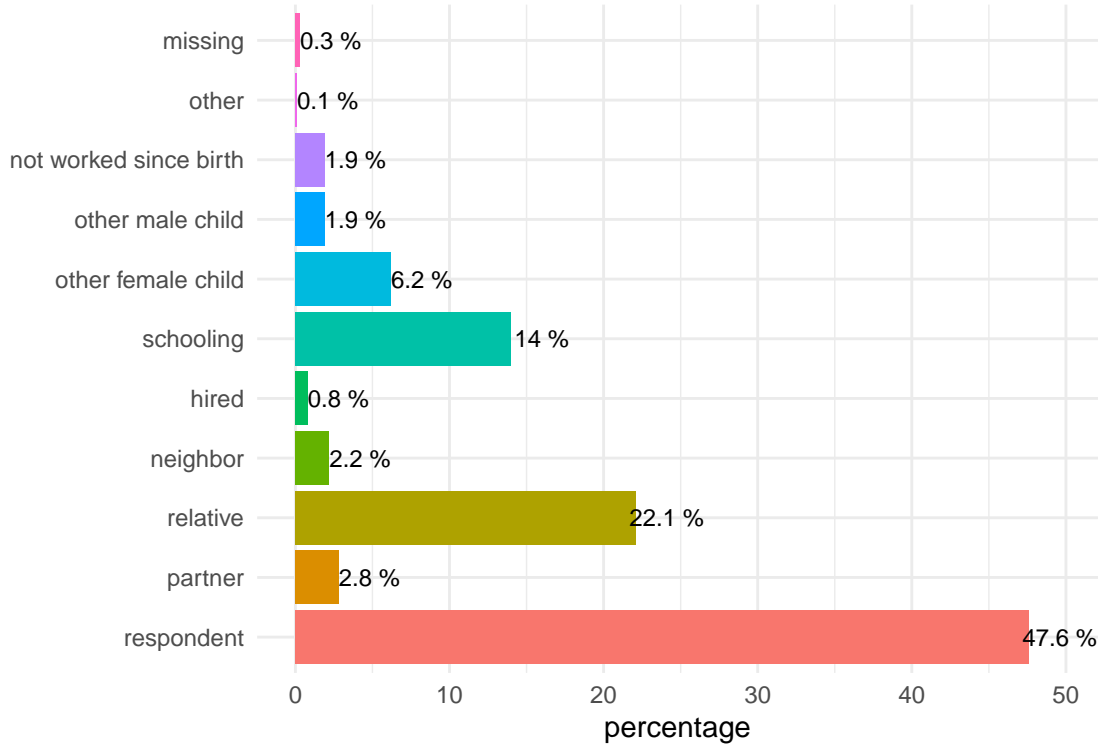


Figure 2: Distribution of the caretaker of the child when the mother is working

3 Results

3.1 Region

Figure 3 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. In 1998, about 57.6% of the Ghanese population were living in rural areas (Sasu 2022).

Figure 4 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 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 6 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.

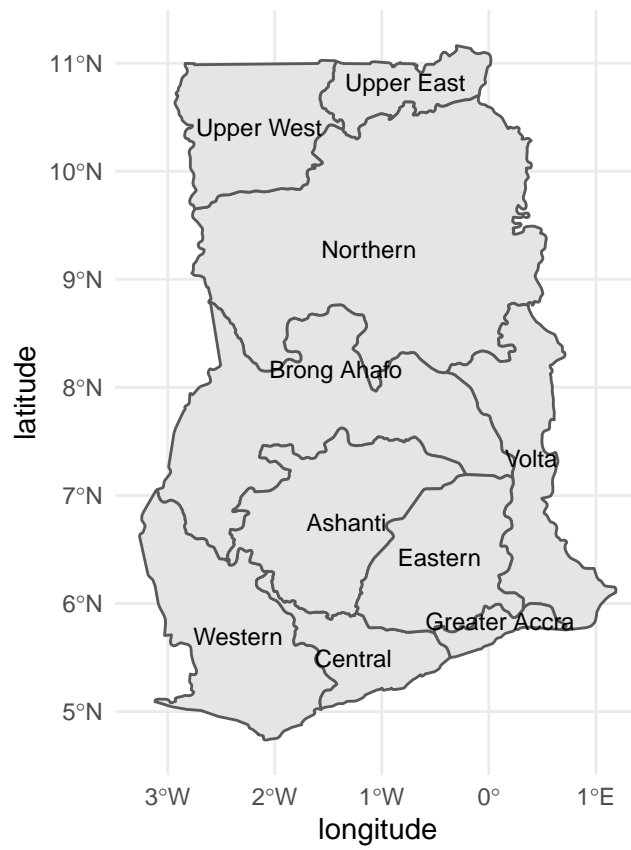


Figure 3: Ghana administrative regions

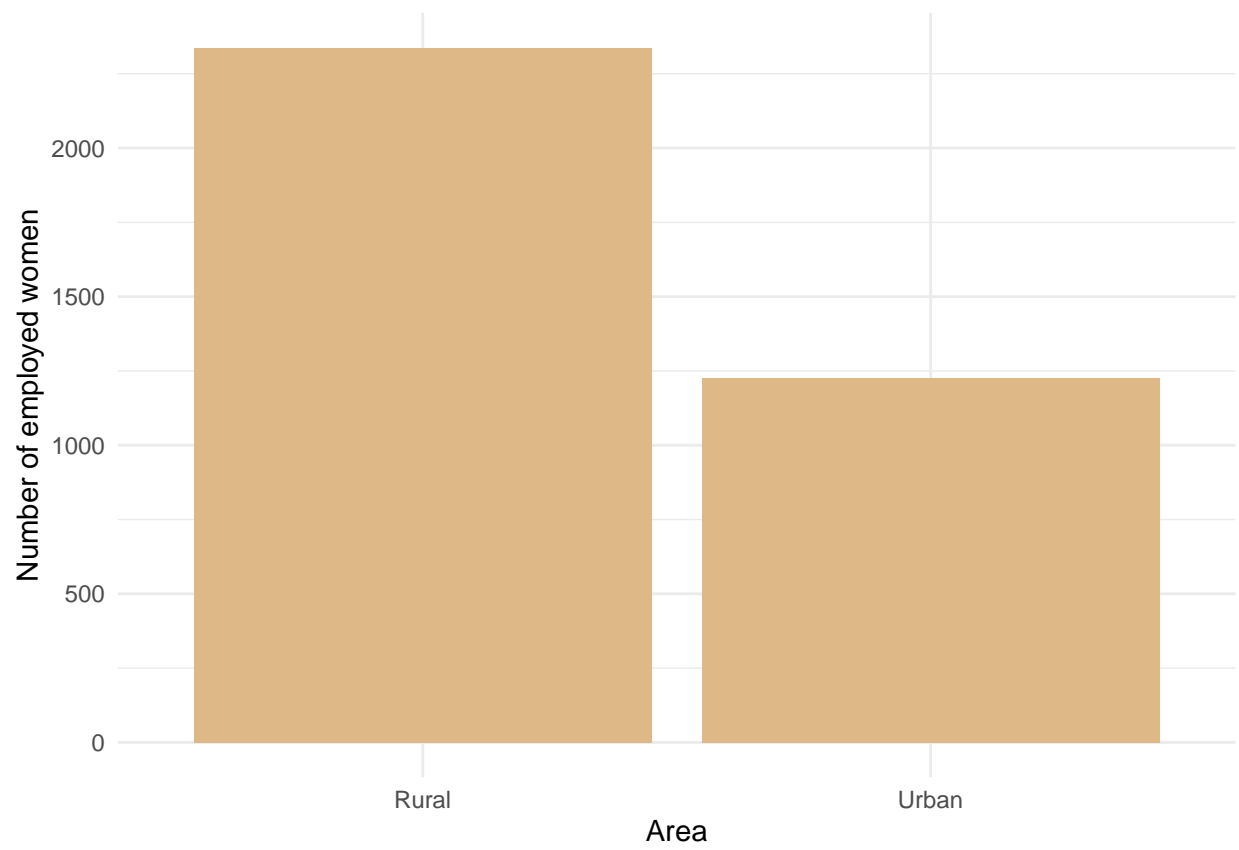


Figure 4: Comparison of the number of working mothers between urban and rural areas

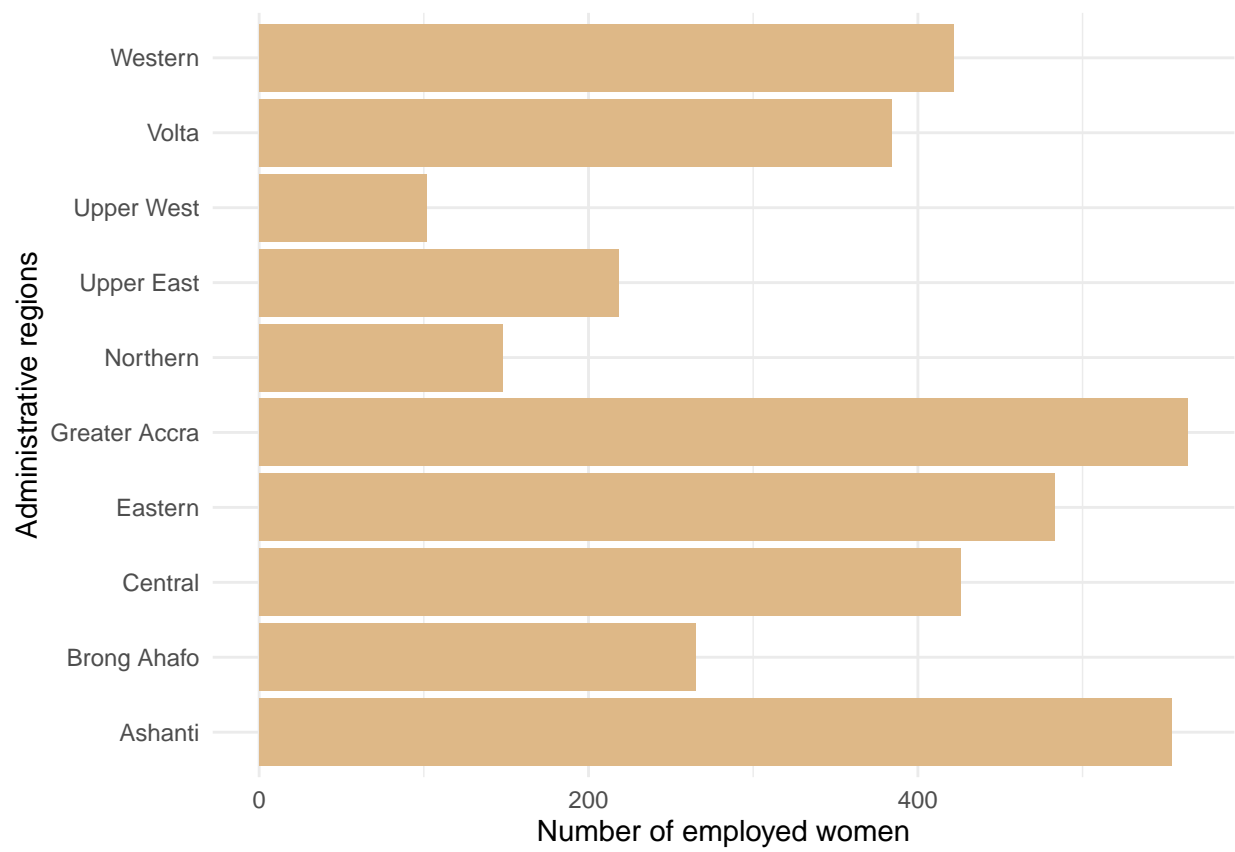


Figure 5: Comparison of the number of working mothers selected in the different administrative regions

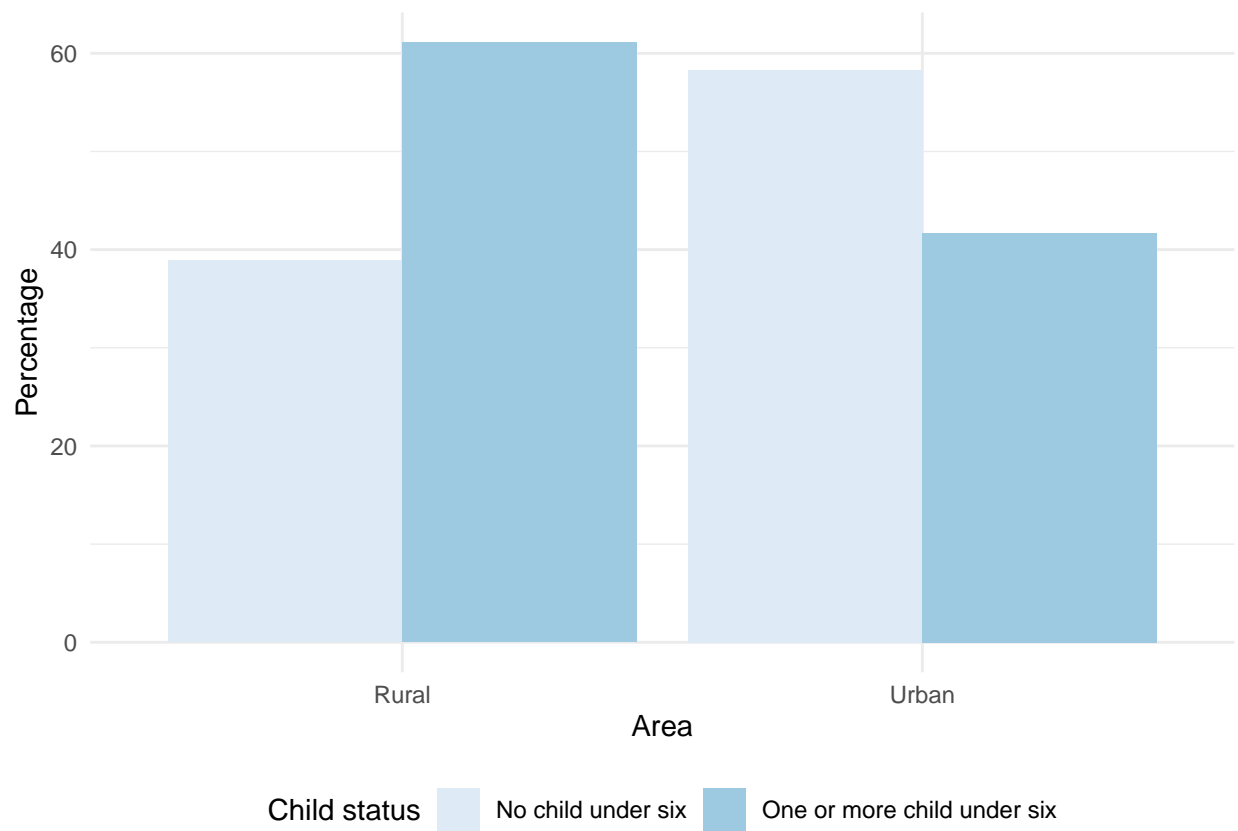


Figure 6: Comparing the percentage of mothers having no child under six to one or more in both Urban and Rural areas

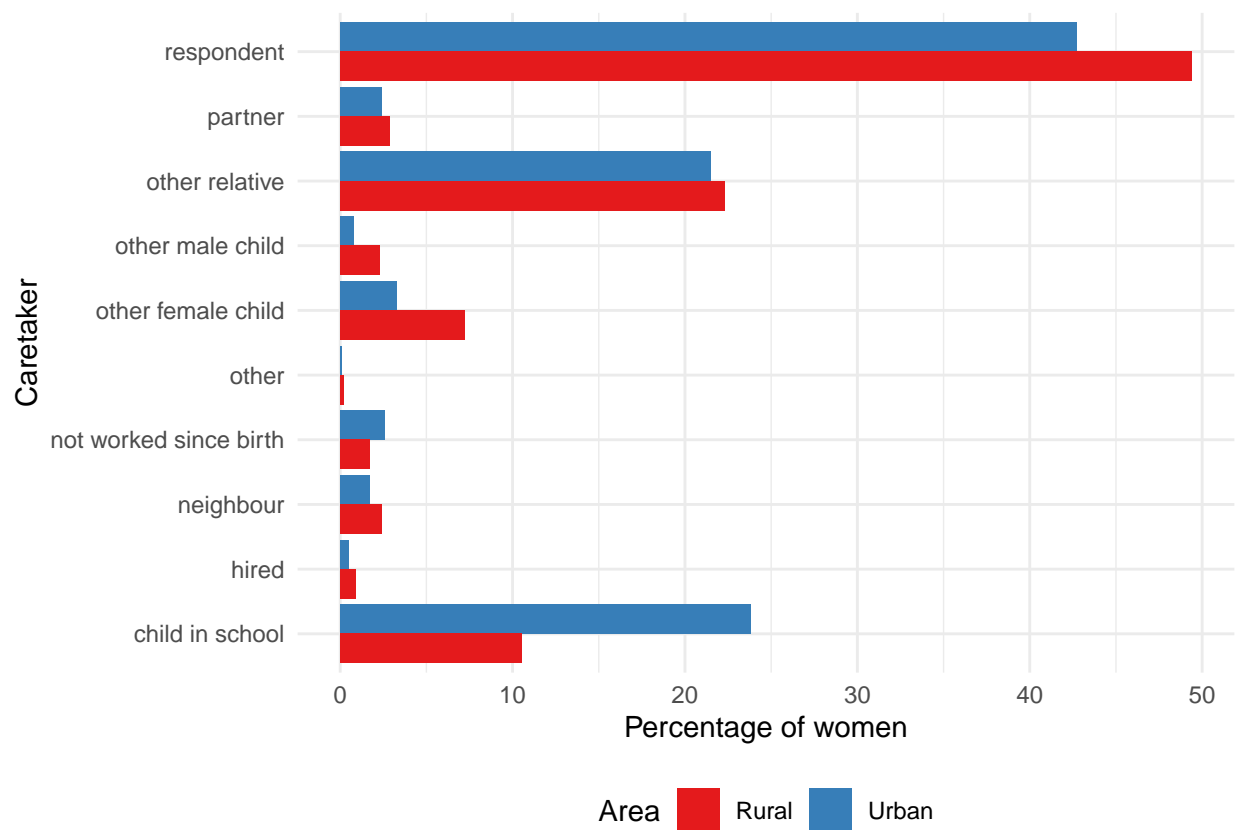


Figure 7: Comparing child caretaker preferences in Urban and Rural areas

3.2 Also comparison among the different administrative regions

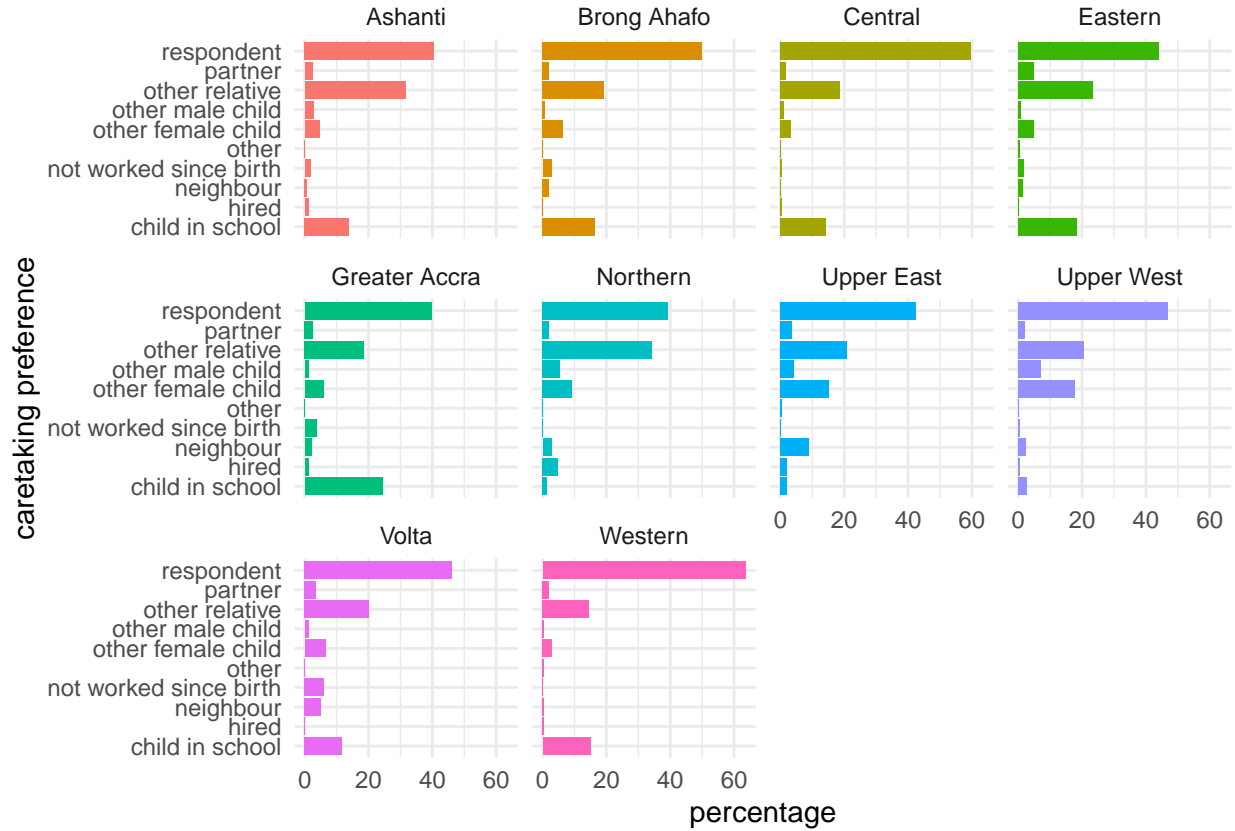


Figure 8: Caretaking behaviour in the different administrative regions

Figure 8 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 9 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 Ahafo and Upper East regions.

3.3 Mother's education

Figure 10 shows that there are significantly less employed women who studied at secondary school and beyond it. Also, it can be observed that the employed women 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

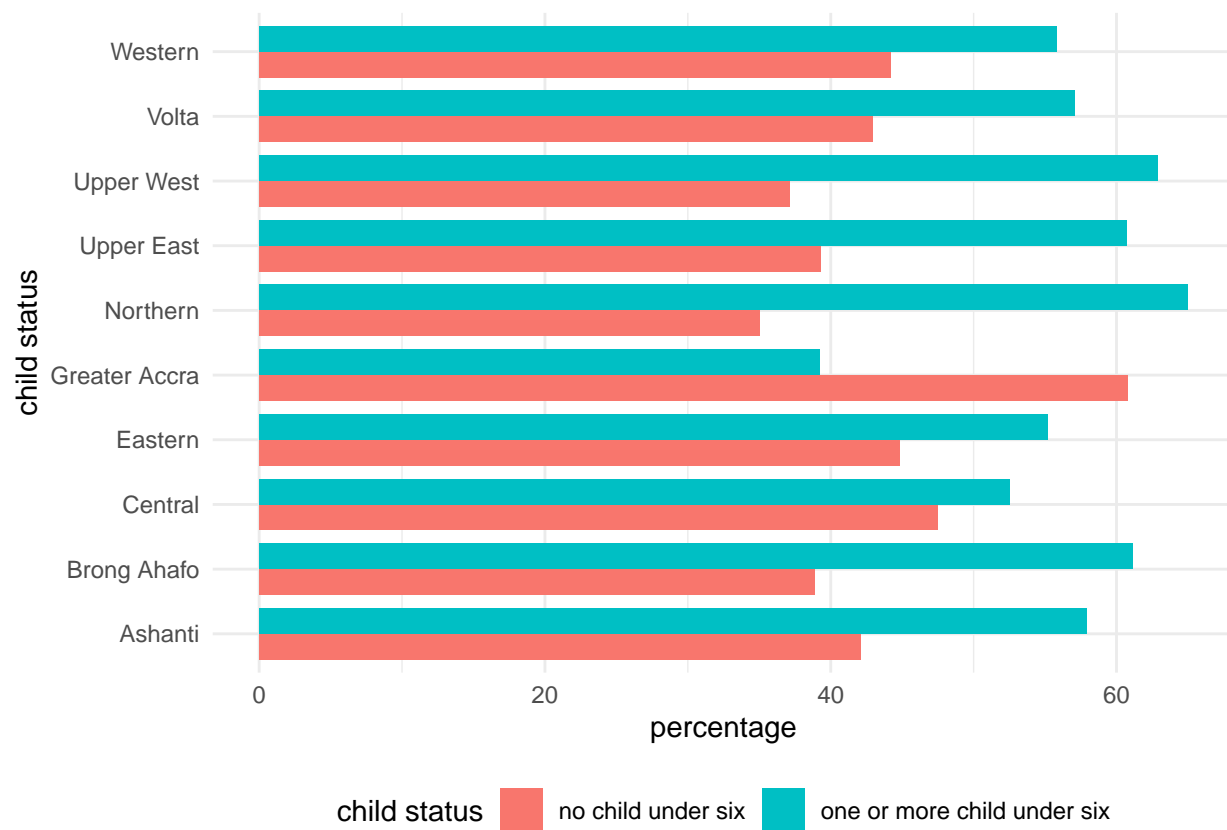


Figure 9: Comparing the child status in different administrative regions

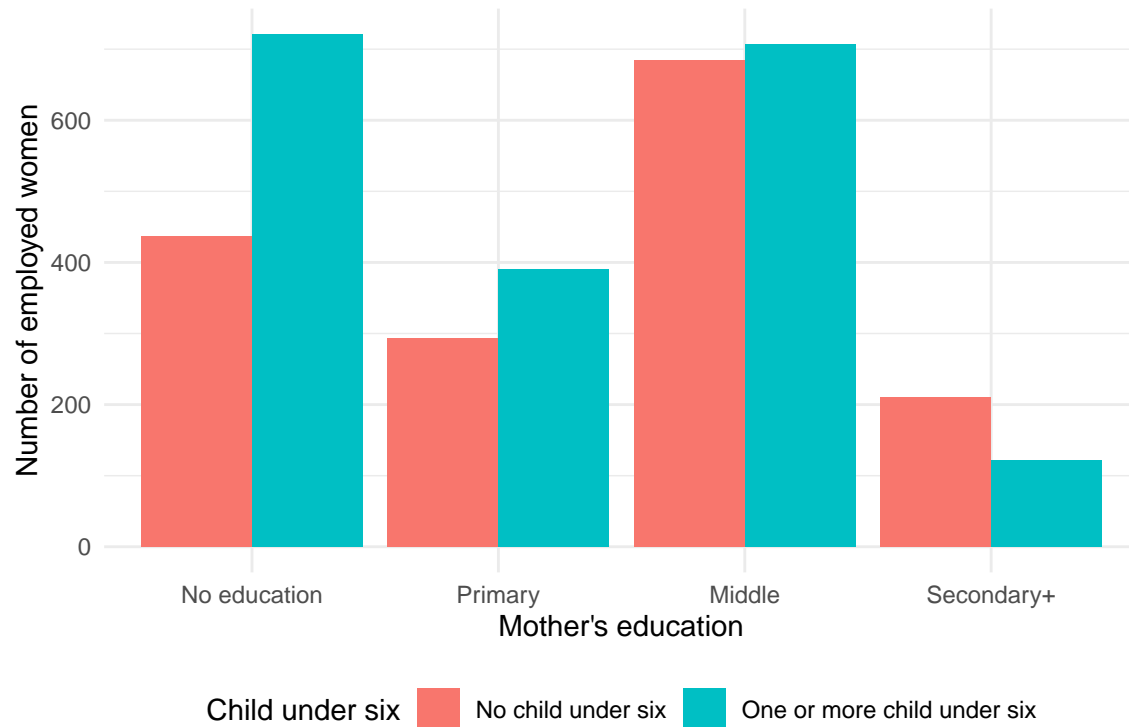


Figure 10: Mother's Education level

with a child under six than without, and the difference between them is notably big. However, as the level of 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 11 demonstrates that no matter what their education level is, it is mostly the employed women who take care of their children. On the other hand, 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 takes care of their own children whereas less than 40% of the women with secondary or higher levels of education. 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 12 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.

It can be observed from Figure 13 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. 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.

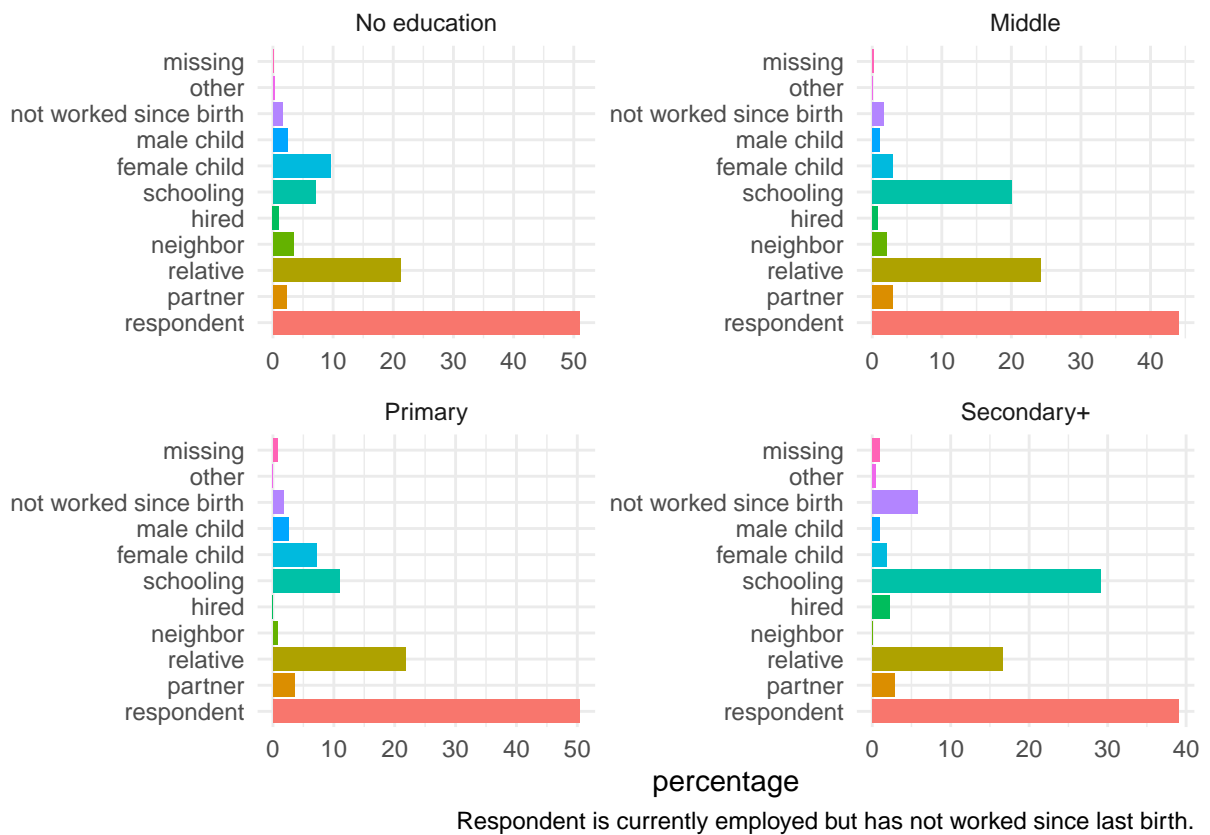


Figure 11: Distribution of child's caretaker by mother's education level

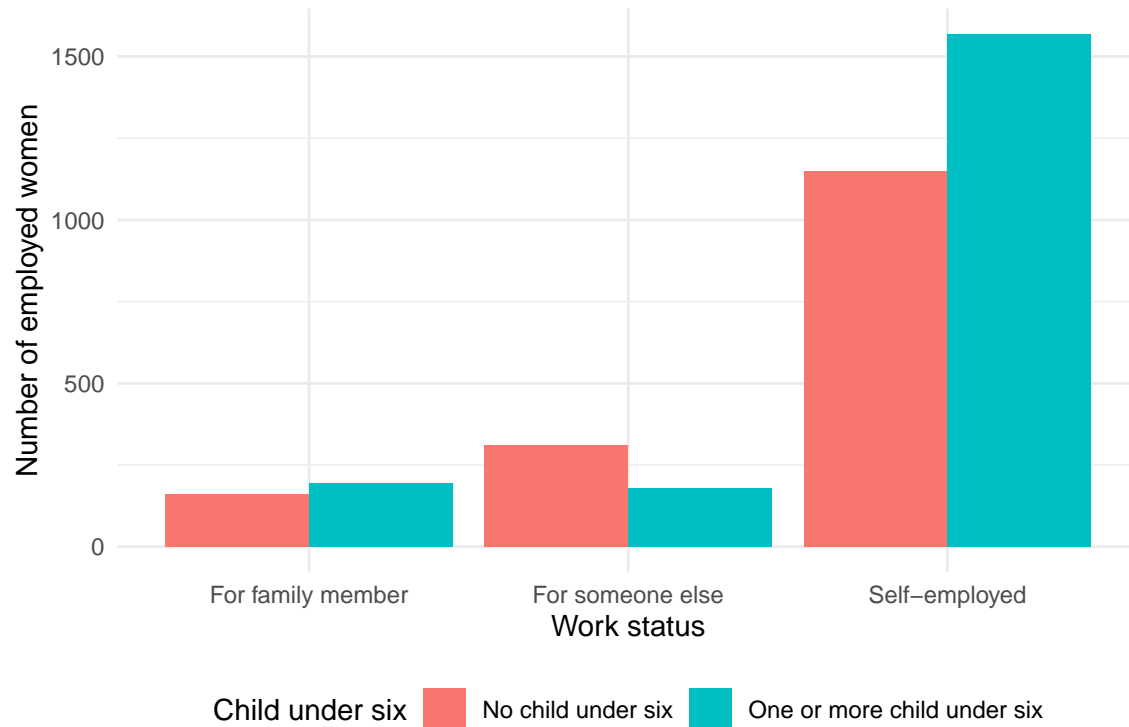


Figure 12: Work status

3.5 Occupation

Figure 14 shows that there are more women working in the non-agricultural industry. When they work in the agricultural industry, the number of women who have a child under six is twice as many as the number of the ones who have no child under six. On the contrary, the number of women with no child under six is slightly higher than that of the ones with a child in the non-agricultural industry.

Figure 15 illustrates that the percentage of the child's caretaker is highest in the respondent followed by the relative and schooling. This means that it is mostly the case that the employed women taking care of their children under six. 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. Also, we can see that it is more likely for the female sibling to take care of the kids under six than the male sibling.

3.6 Employment status

Figure 16 illustrates that majority of the employed women work for 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, there are more women who have one or more child under six.

We can see from Figure 17 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, full time working mothers are more likely to look after their own children than other mothers are. 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.



Figure 13: Distribution of child's caretaker by work status

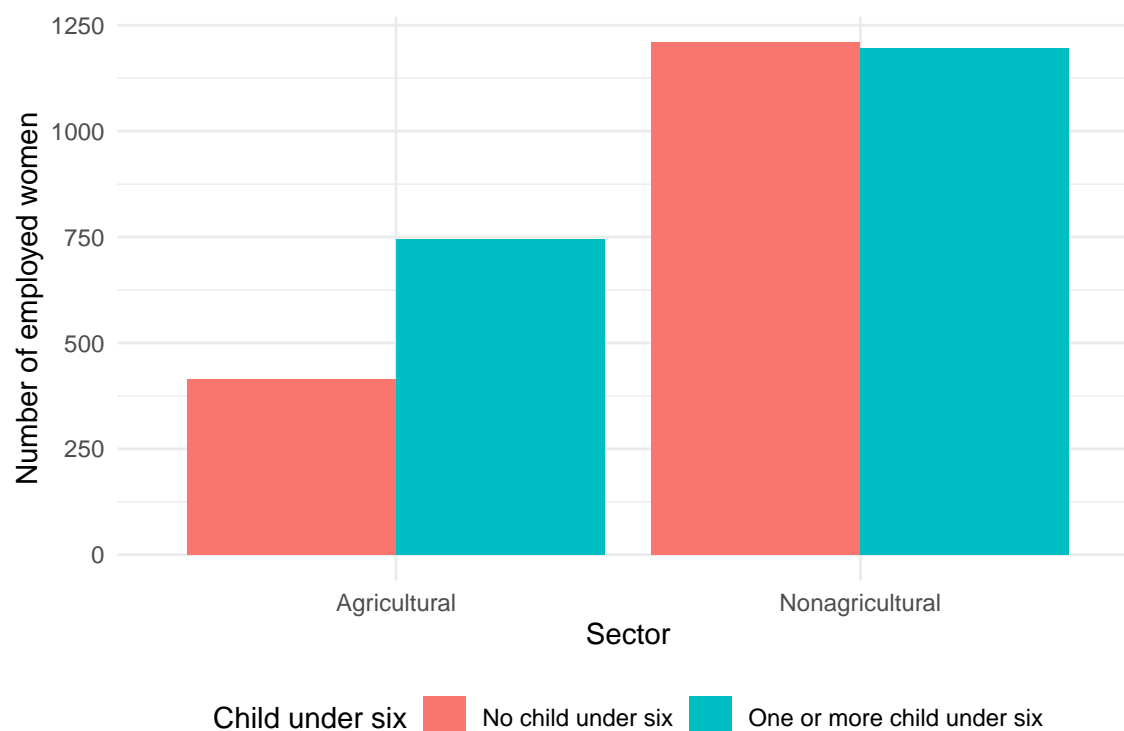


Figure 14: Occupation

4 Discussions

4.1 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. 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 primary caregiver of a child under six. 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 11, Figure 13, Figure 15, Figure 17 that the relatives are likely to be the primary caregiver. Also, there are some family where the older siblings take care of their kids 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 is 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. Figure 7 demonstrates that the percentage of the employed women sending their kids to school is higher in urban areas than in rural areas. Figure 11 shows that there are more women who send their kids to school as their education level gets higher. Figure 13 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 15 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 17 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 stop 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

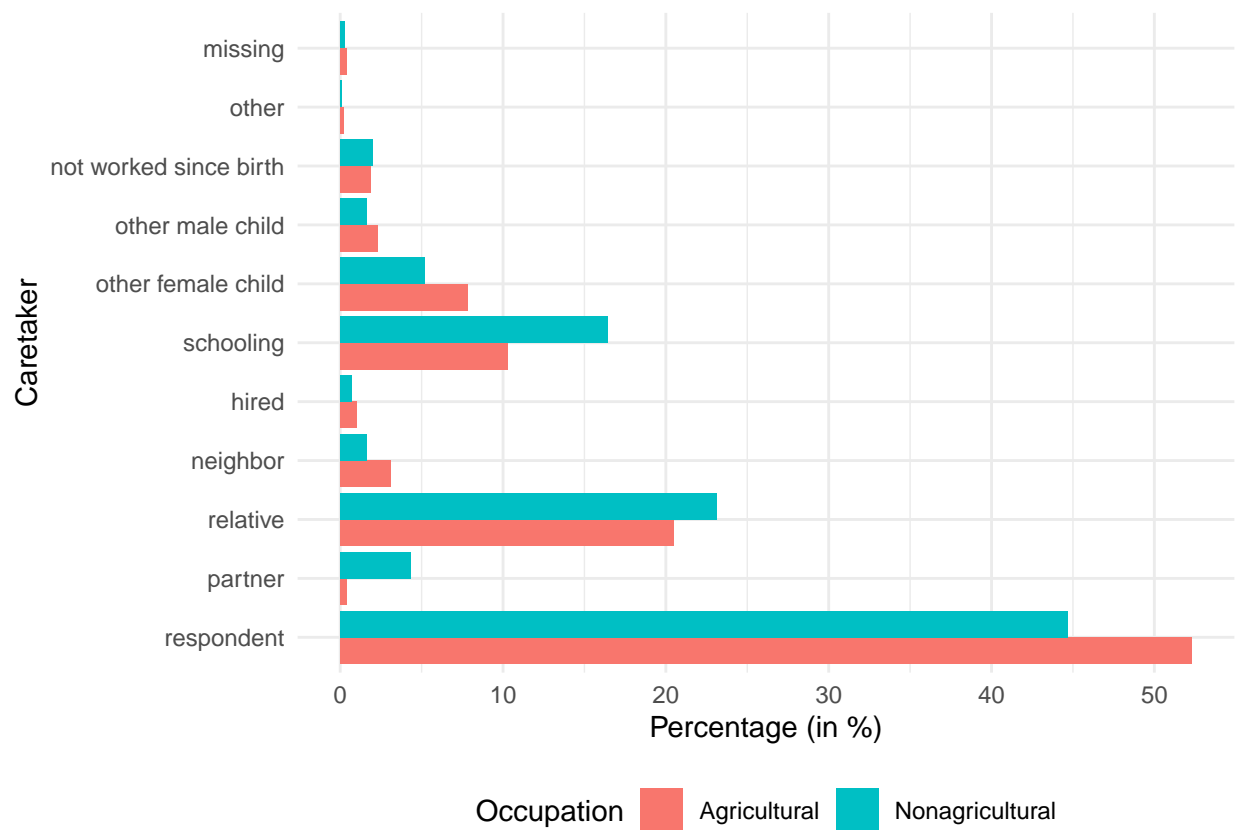


Figure 15: Distribution of child's caretaker by Occupation

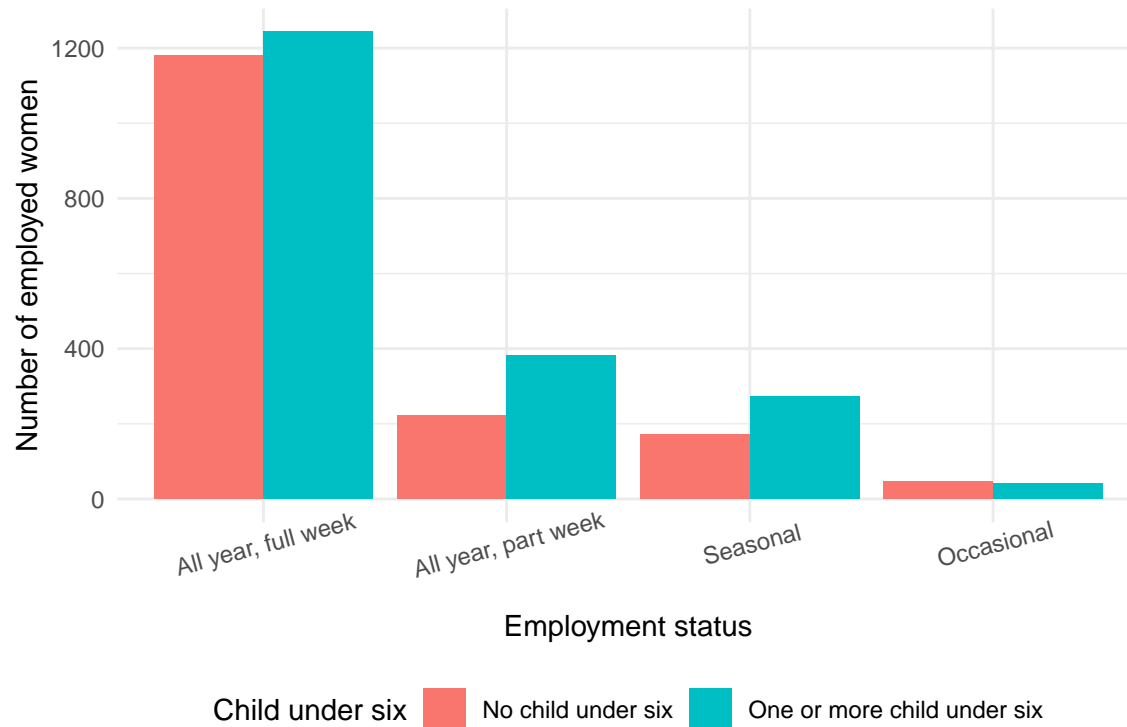


Figure 16: Employment status

areas than in rural areas from Figure 7. In addition, Figure 11 shows that the women who completed high school tend to stop working after having a birth more than the ones with a lower education level. Moreover, the fact that the women who work for someone else are more likely to stop work since the last birth than the ones working for themselves or their family can be observed in Figure 13. Furthermore, Figure 17 shows that the percentage of the employed women stop working after the birth is higher among the women working all year than the ones working few times of the year.

4.2 Limitation and weaknesses

The number does not add up to 100. (round-off error)

‘Mother’s education level’ might not be the accurate terminology to be used as it might be the case that the employed women not having any child.

It does not mention whether

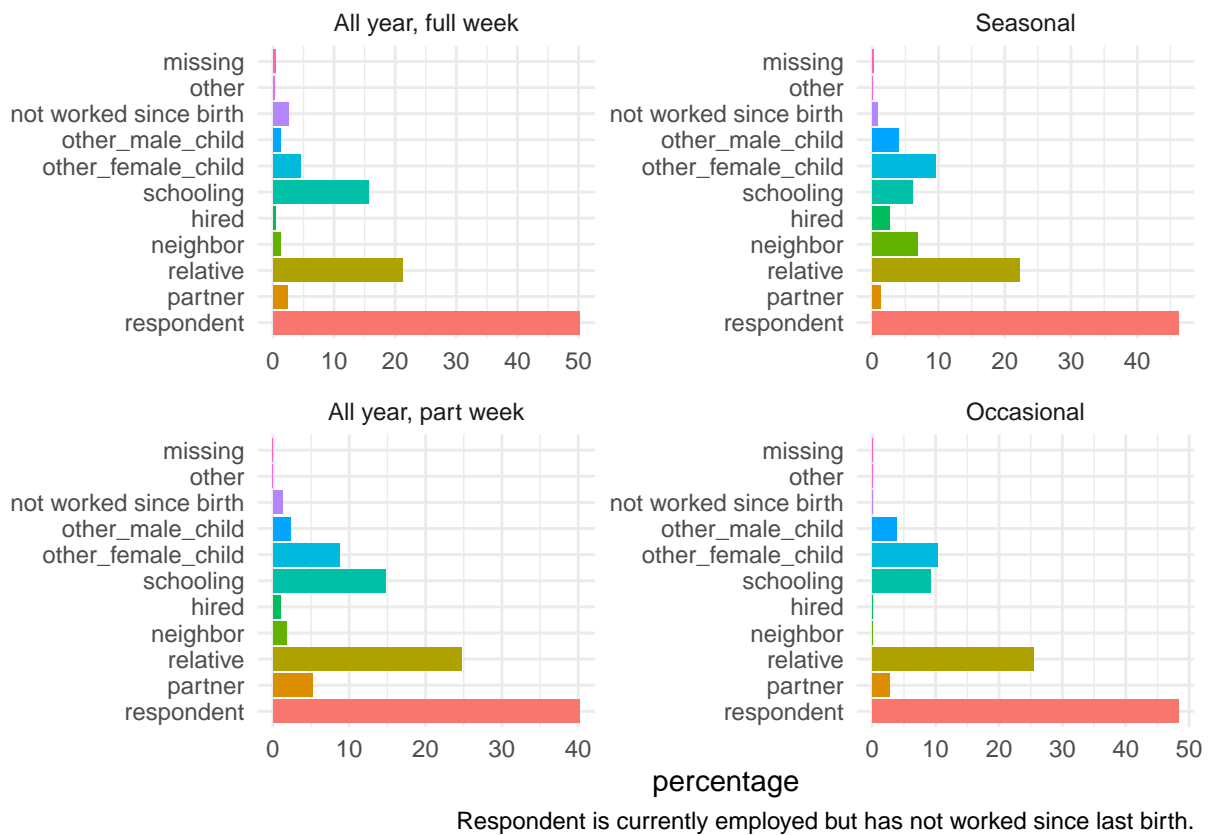


Figure 17: Distribution of child's caretaker by work status

References

- Firke, Sam. 2021. *Janitor: Simple Tools for Examining and Cleaning Dirty Data*. <https://github.com/sfirke/janitor>.
- Gagolewski, Marek. 2021. *Stringi: Fast and Portable Character String Processing in r*. <https://stringi.gagolewski.com/>.
- McCartney, Kathleen. 2015. *What Do We Know about the Effects of Early Child Care?* https://www.purdue.edu/hhs/hdfs/fii/wp-content/uploads/2015/07/s_mifis01c03.pdf.
- Ooms, Jeroen. 2022. *Pdftools: Text Extraction, Rendering and Converting of PDF Documents*.
- Pedersen, Thomas Lin. 2021. *Ggforce: Accelerating 'Ggplot2'*.
- R Core Team. 2021. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. <https://www.R-project.org/>.
- Sasu, Doris Dokua. 2022. *Rural and Urban Population of Ghana from 1990 to 2020*. Statista. <https://www.statista.com/statistics/1170371/distribution-of-rural-and-urban-population-in-ghana/>.
- Wickham, Hadley. 2016. *Ggplot2: Elegant Graphics for Data Analysis*. Springer-Verlag New York. <https://ggplot2.tidyverse.org>.
- . 2019. *Stringr: Simple, Consistent Wrappers for Common String Operations*.
- Wickham, Hadley, Mara Averick, Jennifer Bryan, Winston Chang, Lucy D'Agostino McGowan, Romain François, Garrett Golemund, et al. 2019. “Welcome to the tidyverse.” *Journal of Open Source Software* 4 (43): 1686. <https://doi.org/10.21105/joss.01686>.
- Wickham, Hadley, Romain François, Lionel Henry, and Kirill Müller. 2021. *Dplyr: A Grammar of Data Manipulation*.
- Xie, Yihui. 2014. “Knitr: A Comprehensive Tool for Reproducible Research in R.” In *Implementing Reproducible Computational Research*, edited by Victoria Stodden, Friedrich Leisch, and Roger D. Peng. Chapman; Hall/CRC. <http://www.crcpress.com/product/isbn/9781466561595>.
- . 2016. *Bookdown: Authoring Books and Technical Documents with R Markdown*. Boca Raton, Florida: Chapman; Hall/CRC. <https://bookdown.org/yihui/bookdown>.
- Zhu, Hao. 2021. *kableExtra: Construct Complex Table with 'Kable' and Pipe Syntax*.