**AN ANALYSIS OF THE FERTILITY DISTRIBUTION OF MPs OF THE**

**2016 GOVERNMENT OF GHANA**

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**Analysis of the fertility distribution with regard to the current Members of Parliament of the 2016 Government of Ghana**

**Introduction**

In Ghana, there are 3 arms of government: the Judicial, Executive and the Legislative arm. The legislative arm of government is generally made up of members of parliament that are voted for within various constituencies. This research paper has sought to gather the data of all the Members of Parliament that currently serve under the 2016 government and analyze the relationships that the data we have gathered relates to fertility of the MPs. The records that we have are the MPs name, their respective party, constituency, and region of service, party, gender, marital status, number of children, year of birth, occupation, religion and denomination and the number of votes they acquired. The aim of this paper is to explore the relationships that these records have with the number of children that the MPs have, if there are any at all. Also, we want to find out if the data be able to tell us more about the voting behavior of Ghanaians.

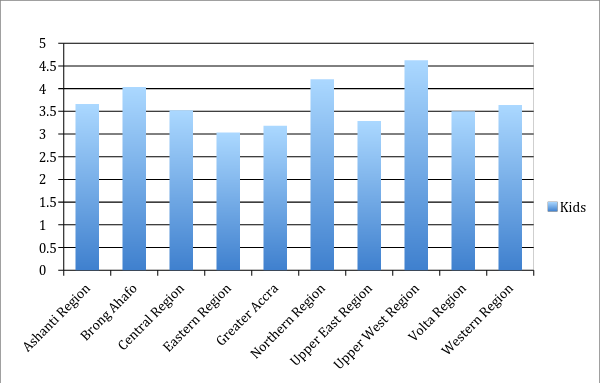
**Methodology**

To achieve the objective of data analysis, we used R and Excel. R was used for pre-analysis to gain a general insight into the data set that we had. Numerous data was plotted and visualized to give a general sense of which data combinations we could put together to give us some understandable result, whether positive or negative. We also attempted to mesh the results that we acquired with stereotypical social perceptions to shed more light on our discoveries.

**Results**

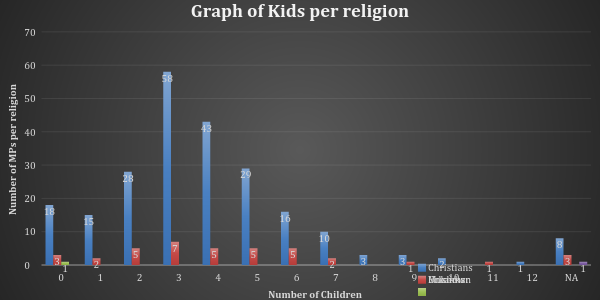
The above methodology that we implemented gave us a lot of results. Below are some of the results and graphs that we obtained. Additionally, we gave some interpretations of the graph and tabular results to give more foresight into the charts.

**Average Kids Per Region**



The above graph shows a bar plot of the average kids per region in Ghana. Given that Ghana is a multi-religion country. It is imperative that we check if a particular region MP tends to have more children than another, and if any, attempt to analyze. However, from the above graph, we can see that MPs in all the regions tend to have a general average. Although obviously there is some statistical bias involved here, we generally cannot conclude that regional differences affect the number of children that MPs have, nor does it affect the electorate decision-making process. Although the highest average region, the Upper West Region, has a higher rise, which is largely because of polygamy. This is because the MPs in the Upper West Region are typically from Wa. Typically, the Upper west Region has more Christians and has a good number of Traditionalists. However, the regional capital, Wa, is Muslim dominated. This explains the higher average number of children for the Upper West. The same applies to the next higher average, the Northern region. Polygamy is a factor here as well, since the Northern Regional MPs have a Muslim background where polygamy is a permitted practice and may not necessarily affect the electorate in these regions since they understand the practice.

**Number of MPs per Religion and Number of Children**



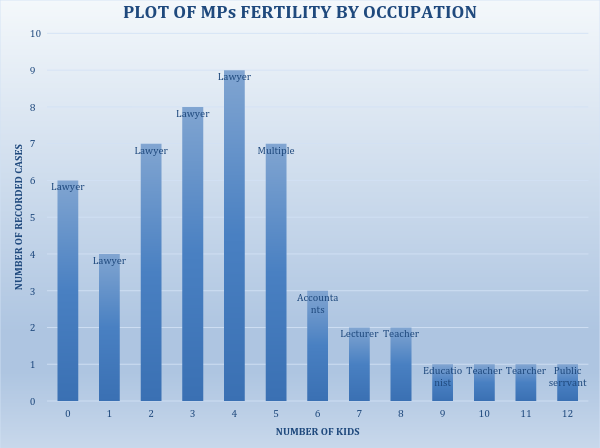
The group wanted to know if the religious background of the MPs had any effect on the number of children they were more likely to give birth to. From the data we collected the predominant religions were the Christians and Muslims. There was one record of an Eckankar and one person whose religious background was unknown.

Before the graph was plotted, a pivot table as used to help with the grouping of religions. From this, we had the following observations: Christian, Islam, Muslim, Eckankar and unknown (for those who have not declared or do not have a religious affiliation). Altogether there were 241 children across the distribution. There were also 22 MPs with no kids and 12 undeclared or non- applicable. All Islam and Muslim data were put together under Muslims. The data gathered showed a higher number of Christians in relations to the other religions. This means that there are more Christian MPs than there are for other religious affiliations

From the graph plotted, we realized that both Christians and Muslims are more likely to give birth to three kids. The highest instance of children of each MP is eleven kids and twelve kids for Muslim and Christian respectively. The likelihood for either religion to have kids above 7 reduces as we check a higher count of kids (Seven kids and above).

In conclusion, both religious affiliations are less likely to have a bigger family. The reason why they choose to have smaller family sizes may be associated to their religious affiliation, it may also be related to other factors. However, from what we have gathered on religious affiliation, it maybe that both religions like smaller families.

**Number of recorded occupations against the number of kids.**



The columns of interest (occupation and kids) could have been extracted straight using R but they had to be pulled out and edited first to ensure consistency. For instance, Accountant is the same as Accounting and so some occupation names like Accounting, Accountant, Teaching, Teacher had to be changed to Accountant and Teacher etc. for conformity. N/A was also replaced with 0 for MPs who had N/A for their number of kids. More also, MPs who indicated they do multiple jobs had their occupation replaced with "Multiple Occupations". For example, one MP whose occupation is indicated as Accounting/Economics/Journalist will be replaced with "Multiple Occupations".

A contingency table was created using R to better understand the distribution of Kids among MPs by occupation. To understand the data more, a pivot table was created in excel that showed various occupations of the MPs and the number of recorded cases for MPs with 0, 1, 2, 3, 4, 5…12 number of kids. Occupation that recorded the highest case in the categories 0, 1, 2, 3, 4, 5…12. were noted. A bar plot showing the number of kids on the x-axis and the number of recorded cases on the y-axis was then created using this.

As many as 6 MPs who are lawyers had no kid and the maximum number of kids for an MP who is a lawyer is 4. An MP who is a Public Servant recorded having as many as 12 kids. One could say that MPs with Multiple Occupations are quite fertile because from the bar plot, as many as 7 of them have 5 kids. A logical conclusion cannot be drawn here because one would have expected that an MP who does multiple jobs would be very busy hence having less time for his or her spouse. Nonetheless, one could also postulate that since the MP has multiple jobs, he or she has the means and the capacity to marry many spouses and hence produce more kids. Generally, from the bar plot, MPs who are lawyers tend to have fewer number of kids. On the other hand, the same cannot be said for the other occupations of the MPs that recorded having the highest number of kids. This is because only 1 MP having such occupation (e.g. Teacher, Educationist and Public) recorded having such high number of kids, which is quite unrepresentative.

**Fertility with Respect to Age**

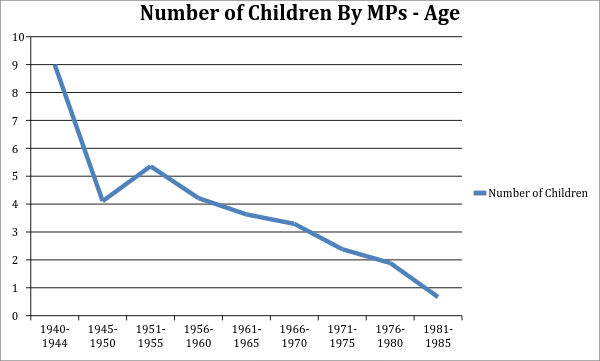
To analyse if there is a trend in the number of kids the MPs had in different years, I created a pivot table of MP names, years, and number of kids of each of the MPs. I grouped the years into an internal of 10 years starting from 1940 to 1983 and hence I had 9 different groups. The table below shows the year interval, the number of MPs in that year and the total number of kids in that interval.

|  |  |  |
| --- | --- | --- |
| **Interval** | **Number of MPs** | **Total Number of kids** |
| 1940-1944 | 2 | 9 |
| 1945-1949 | 16 | 66 |
| 1950-1954 | 30 | 141 |
| 1955-1959 | 58 | 260 |
| 1960-1964 | 50 | 170 |
| 1965-1969 | 50 | 157 |
| 1970-1974 | 42 | 103 |
| 1973-1979 | 20 | 38 |
| 1980-1984 | 7 | 9 |

According to table above, the number of kids increased as the number of years increased up to 1965 when the number of kids started to decrease. However, it seemed like the number of children the MPs had at a certain interval was dependent to the number of MPs on that year range. From the table, as the number of MPs increase, the number of kids subsequently increase. Therefore, we can conclude that the total number of kids in any year interval depends on the number of MPs in that range.

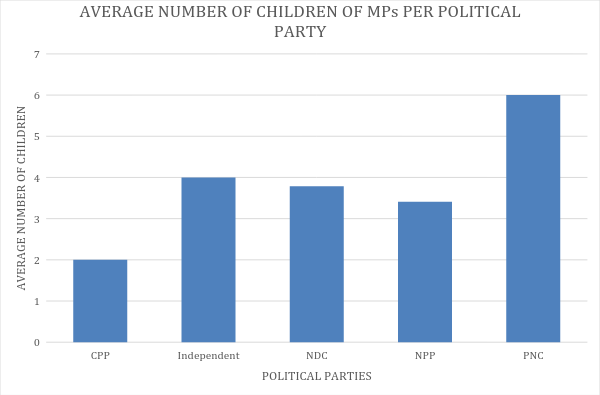
The same trend was depicted in pivot table of Constituencies, number of kids and years. The number of kids in each year also depended on the number of constituencies represented that year. The higher number of constituencies were represented, the higher the number of total kids in that respective year.

**Number of Children Against the Year of Birth of the MP**



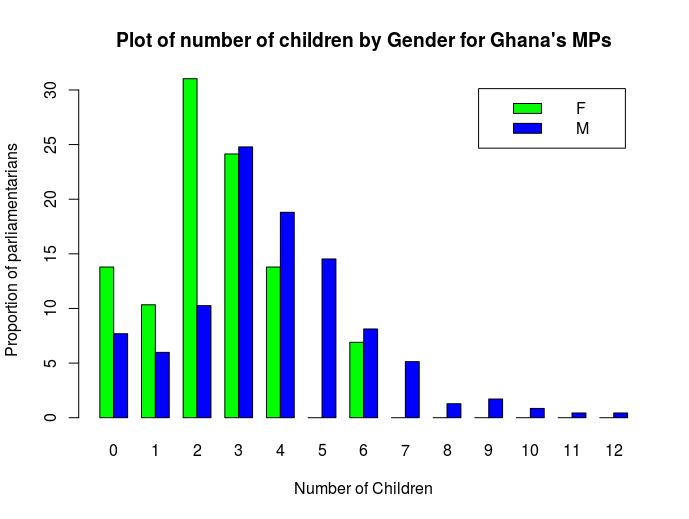
The above graph displays average count of the number of children against the ages of different MPs. The ages were grouped in brackets of from 1940 down to 1985. This translates into the oldest MP being 76, while the youngest MP is actually 33 years old. From the graph above, we can see a clear trend that the age of the MP clearly has some relation to how many children they choose to have. A number of possible conclusions can be made about this. One would be that perhaps MPs after learning the tools of the trade are more comfortable with building much bigger families, while younger MPs are too busy and know they need to have small families to accelerate their productivity. Alternatively, an outlook could follow a general worldwide trend where people tend to have smaller and smaller families than in the past. In terms of voter rating; the MP age and fertility levels have no correlation in particular. This means people do not factor in the MPs age and whether or not he or she has children to take care of in making a voting decision.

**Average Number of Children of the MPs per each Political Party**



The above bar plot shows the average number of children per political party. From the graph above, we can see that MPs of the CPP have the least average number of children, while the PNC MPs have the highest average number of children, with and average of 6. NDC, NPP and independent MPs generally have an average of 3 to 4 children. The information above gives us a sense that the PNC may be a party that doesn’t mind entrusting party branding to people despite the number of children they may have. The CPP, Independent MPs, NDC and the NPP all have a lower average number of children. Considering the more dominant political parties are the NDC and NPP, we can say that the average of 3-4 children allows the MPs to have enough time for campaigning while maintaining a responsible enough image to be elected and placed in positions of power.

**Number of Children per each MPs - Gender**



This report is based on a crowd-sourced data containing among other categories the number of kids and the sex of Ghana’s 275 MPs. Of the 275 MPs, 31 were female and 244 Male.

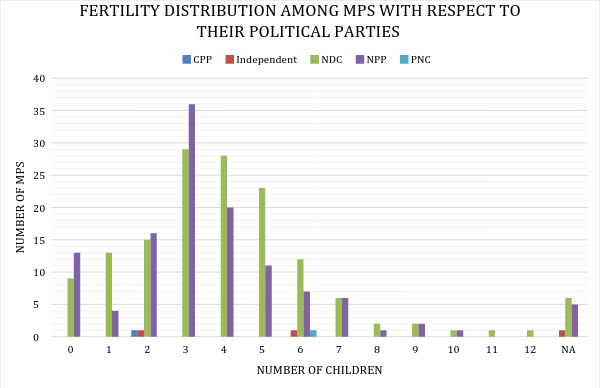
The processing of the raw data involved a cross-tabulation of the gender of MPs and then their corresponding number of children. However, since the representation in parliament is not proportional over gender, the cross-tabulated data was further processed into proportional counts, instead of the absolute counts. For example, the proportional number of kids for a given female will be her actual number of children divided by the total number of women in parliament. The same applies for men too.

To achieve better visualization, the proportional kid counts were converted to percentages and the results plotted a side-by-side bar-plot. See fig 1.

Generally, female parliamentarians tend to have lower of children than their male counterparts. Female completely dominate male for number of children less than 3. 31% of the females have 2 kids, 10 % have 1 kid and 14% are yet to give birth. Compared with males, only 10% of the men have 2 kids, 6% have one child and 8% have no child. Other the other hand, male parliamentarians stand out clearly for giving birth to higher number of kids than their female counterparts. No female has seven or more children and only 7% of the females have 6 six children. This stands in stack contrast to the men where some 4 men with 10 or more children, with one man parading 12 children, the highest in the entire parliament.  Also, 3 kids or above, the male parliamentarians are more proportionally represented than the female parliamentarians as can be seen in the fig1.

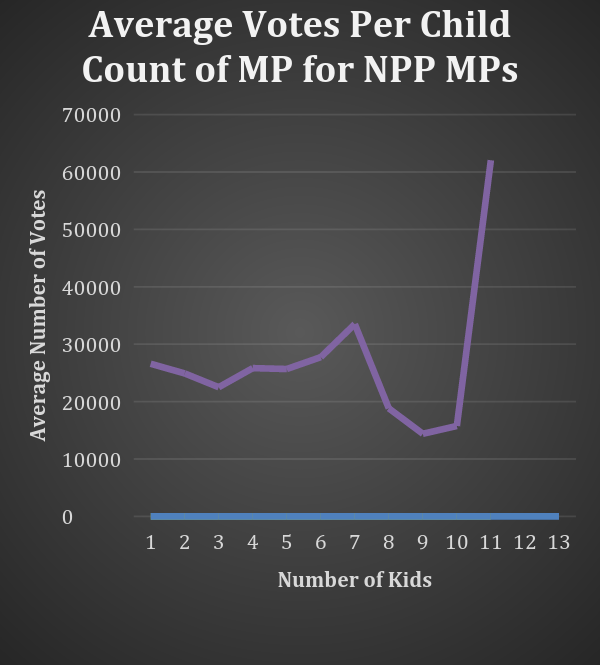
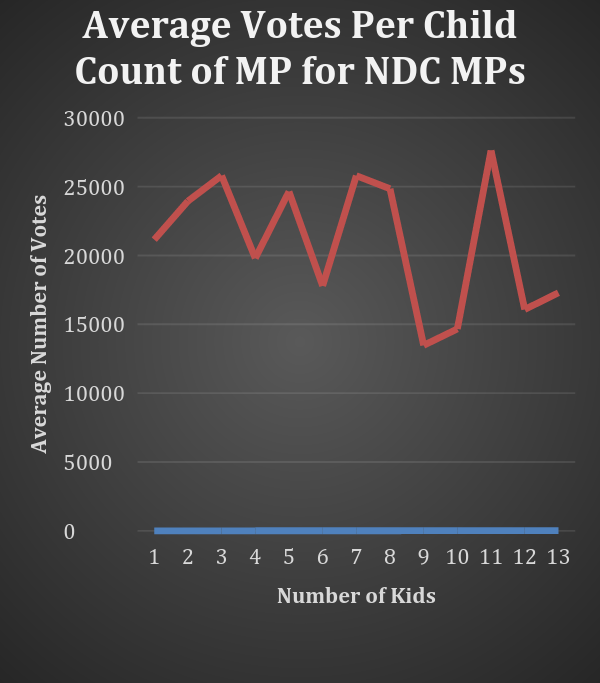
The observed phenomenon is too largely surprising though. Females who want to work in public offices or in exacting jobs the making laws will probably give birth to a few number of children, so they can be relieved off their maternal duties. Also, until recently, Ghana’s parliament was largely male. It is our prediction that on average females in Ghana’s parliament are younger than the men, hence the disparities in the number of children. Finally, polygamy is practiced widely in Ghana. The reverse is not true for polyandry. Thus, as it is common for men to have more than one wives, it is rare for women to have more than one husband. Given this premises, it is very likely that those with many partners (men) will give birth to more kids than the women.

**Distribution among MPs with respect to their political affiliations**



The above graph shows a cluttered bar plot displaying the number of children for a given number of MPs with a differentiation by region. In the above graph, we can see that Most MPs have between 0 and 7 children. The graph also shows that for the dominant political parties, the NPP and the NDC, most MPs have 3 children as compared to the other counts of children. Although this is more clear with NPP whereas NDC has similar number of MPs with 3 to 5 children. The number of children starts to taper off the higher the number of children. This may be demonstrating that adults with a higher number of children tend to stay away from the political scene and not take on the job of becoming members of parliament.

**Voting Variations for the NPP and NDC Parties Against the Number of Children**



The above graph is a description of the number of votes for the NPP and NDC MPs against the number of children they have. The group wanted to test whether Ghanaians voted for an MP based on the number of children they had. From the graph however, we did not observe any clear pattern to insinuate anything as such. For the NPP candidates, its observed that the person with the highest number of children had the most votes but this maybe a coincidence because this is not observed throughout the graph leading us to think otherwise. The NDC candidates have an unusual pattern to their graph and this also goes against the possibility of people voting based on the number of children that and MP has. Probable, people vote based on who is able to appeal to them and has nothing to do with their fertility.

**Conclusion**

The implemented graphs and table gives us numerous clarifications on the fertility distribution with regard to Members of Parliament of the 2016 government. From above, we see that generally speaking there is no correlation between the fertility data and conclusions we can make toward electorate decision making. The clearest conclusion that we can make from the above analysis is that older MPs have much higher children on average than the younger MPs. This is a trend that seems to hold true with the current trend in the world. This perhaps, is as well an economic factor as children have to be taken care of with finances to back.