Group_01_Project2_demo

Group_01

Introduction

Data come from the FIES (Family Income and Expenditure Survey) recorded in the Philippines. The survey, which is undertaken every three years, is aimed at providing data on family income and expenditure. The data obtained from this survey are from different regions across the Philippines.

In particular, this report further explores how does total household income, total foods expenditure, household head's sex, household head's age, type of household, house floor area, house age, number of bedrooms and electricity infect the number of family members.

Exploratory Data Analysis

Table 1 shows summary data for all the variables from the FIES (Family Income and Expenditure Survey) data. First, the total number of family members ranges from 1 to 15, with the middle 50% of number of family members falling between 3 and 6 also an average number of family members of 4.67. Secondly, the total household income is range from 11988 to 6042860. The middle 50% of total household income is between 118565 and 328335, with 269540.48 on average. Thirdly, we may look at the total food expenditure, which is the range of 6781 to 327724, with the middle 50% lies between 51922 and 98493. Then, the household head's age is range from 17 to 99, with the middle 50% falling between 41 and 63. Next, the house floor area is range from 5 to 900. The middle 50% of house floor area is between 32 and 102 with an average area of 90.92. Next, the house age is range from 0 to 100, with the middle 50% falling between 12 and 31. Then, the number of bedrooms is range from 0 to 9 and the average number of bedrooms is 2.26, which indicate that the households have an average of 2.26 bedrooms in their house. Finally, we may look at the electricity, the average score of electricity is 0.93, which means 93% household have electricity in their house.

Figure 1 shows the distribution of the total number of family members. This distribution plot shows that the number of family members fits poisson distribution.

Table 1: Summary statistics of numerical variables

Variable	Missing	Complete	Mean	SD	Min.	1st Q.	Median	3rd Q.	Max.
Total.Number.of.Family.members	0	1	4.67	2.33	1	3	4	6	15
Total.Household.Income	0	1	269540.48	274564.17	11988	118565	188580	328335	6042860
Total.Food.Expenditure	0	1	80352.78	41194.36	6781	51922	73578	98493	327724
Household.Head.Age	0	1	52.23	14.52	17	41	52	63	99
House.Floor.Area	0	1	90.92	99.20	5	32	54	102	900
House.Age	0	1	22.98	15.32	0	12	20	31	100
Number.of.bedrooms	0	1	2.26	1.44	0	1	2	3	9
Electricity	0	1	0.93	0.26	0	1	1	1	1

Table 2: Correlation of all variables.

	Total.Number.of.Family.members	Total.Household.Income	Total.Food.Expenditure	Household.Head.Age	House.Floor.Area	House.Age	Number.of.bedrooms	Electricity
Total.Number.of.Family.members	1.000	0.192	0.469	-0.065	-0.014	-0.070	0.072	0.092
Total.Household.Income	0.192	1.000	0.611	0.063	0.234	0.025	0.441	0.149
Total.Food.Expenditure	0.469	0.611	1.000	-0.052	0.124	0.007	0.356	0.199
Household.Head.Age	-0.065	0.063	-0.052	1.000	0.091	0.218	0.154	-0.013
House.Floor.Area	-0.014	0.234	0.124	0.091	1.000	0.074	0.374	0.107
House.Age	-0.070	0.025	0.007	0.218	0.074	1.000	0.123	0.085
Number.of.bedrooms	0.072	0.441	0.356	0.154	0.374	0.123	1.000	0.214
Electricity	0.092	0.149	0.199	-0.013	0.107	0.085	0.214	1.000

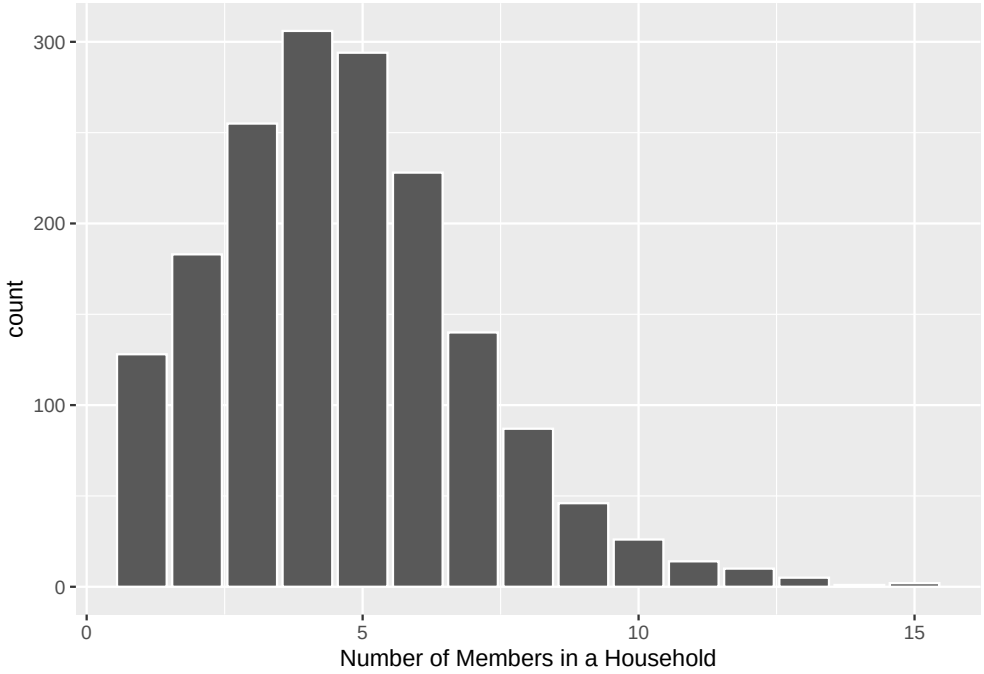

Figure 1: Histogram of total number of family members

The correlation coefficient between all variables shows in Table 2. The correlation coefficient between total food expenditure and total number of family members is 0.469, and the correlation coefficient between total household income and total number of family members is 0.192. By the way, the correlation coefficient between household Head's age, house floor area, house age and total number of family members are negative, which shows the rise of those three variables will lead to the decrease of the total number of family members.

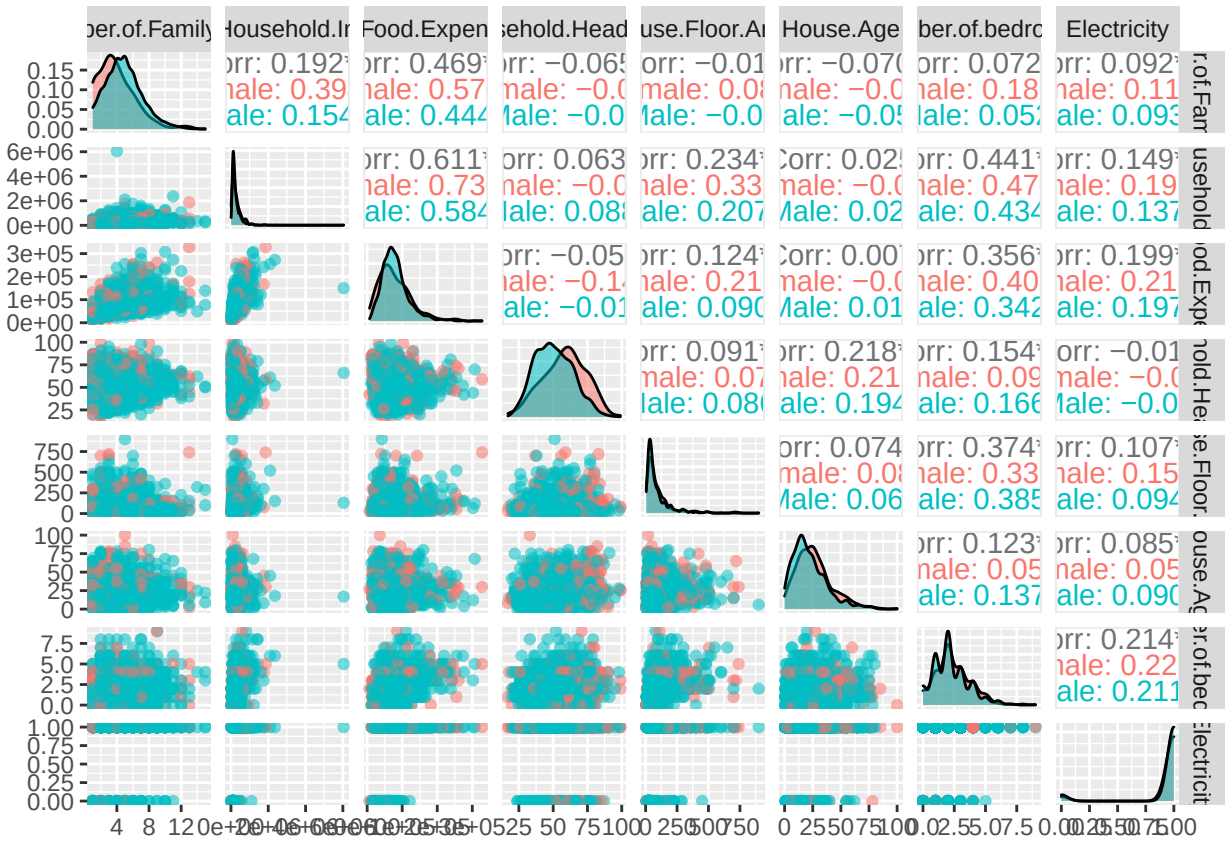

Figure 2: Paired plots of the variables

Formal Data Analysis

Model	AIC	BIC
Full Model	7251.18	7294.81
Significant Factors Model	7249.91	7277.17