MBA 547 Case Report, Final Project

Topic: Working From Home

Due Date: November 29, 2024

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Working From Home

Executive Summary

This report uses the data "Working From Home" explores the impact of the employee satisfaction on remote work. It uses variables such as: demographics, job performance, and working conditions. The analysis part shows the remote work policies slightly reduces the employees' quit rates, as the policies offer flexibility, than with companies not having these policies. However, it also shows that the satisfaction level is also influenced by other factors such as: age, gender, and workload, pointing to a complex relationship between remote work and employee well-being.

Furthermore, the report also suggests that older employees adapt better to remote work policies compared to the younger generation. Age demonstrates a nonlinear relationship with satisfaction, where older employees are more likely to find remote work manageable. Gender differences also emerge, with male employees adapting better to remote work than their female counterparts. The workload, measured by the number of phone calls made, significantly influences quitting probabilities. Employees with very low or very high call volumes show a higher likelihood of quitting compared to those with moderate workloads. In contrast, marital status appears to have a minimal impact on employee satisfaction or quitting behavior.

Despite some positive outcomes, younger and female employees face more challenges compared to other variables. Isolation, lack of support, or difficulties in maintaining work-life balance has an impact on providing challenges for younger and female employees. Hence, such issues highlight the need for more approaches to support these groups in adapting to remote work environments.

Introduction

This report includes the data set "Working from Home", and I have decided to explore the question "how company policies allowing remote work impact employee satisfaction compared to those without such policies. It includes employee demographics, job performance, and working conditions during an experiment." Furthermore, the key variables used in this are remote work status, gender, age, marital status, and the number of phone calls made. The objective of this report was to provide insights into the effectiveness and impact of remote work policies on employee well-being.

What are you exploring?

In this report, I have decided to use the data "Working from Home" and have decided to explore how the company policies allowing remote work impact employee satisfaction compared to companies without such policies. Furthermore, the objective of this report is to find out whether employees have a higher satisfaction level if they work from home than those who do not.

Data and Analysis

Table 1.1

treatment	Mean_Age	Proportion_Male	Proportion_Married
0	24.34746	0.466102	0.322033898
1	24.43511	0.465649	0.221374046

The table above shows the descriptive statistics for different variables (Age, Gender (Male), and Marital Status (Married) across the different groups and the values represent the mean age and proportions of male and married employees in each group.

Moreover, 0 represents employees not assigned to the treatment condition, e.g., remote work policy and 1, assigned to the treatment condition. Additionally, both groups are similar in age (24.35 vs. 24.44 years) and gender composition (46.6% male in both), however, there is a difference in marital status, with 32.2% and 22.1%.

Table 1.2

Mean_PhoneCalls	SD_PhoneCalls
6.54124498	7.483060406

This table shows the phone calls made by employees, with an average of 6.54 phone calls, and standard deviation of 7.48. This may reflect differences in workload, roles, or engagement levels, potentially influenced by whether employees work from home or in the office.

Table 1.3

	1st Qua	Median :31936a	Mean :29620a	3rd Qu	Max
Min. : 3906	19470	31936	29620	39748	45442
Min. :0.0000	0	1	0.5261	1	1
Mode :logical	FALSE:115	TRUE :134			
Min. :1.000	1	1	1.984	3	5
Min. :0.000	0	0	0.249	0	1
Min. :18.00	22	24	24.39	26	35

Min. : 0.000	4	8	8.103	10	55
Min. :0.0000 .1	0	0	0.1727	0	1
Min. :0.0000 .2	0	0	0.4659	1	1
Min. :0.0000 .3	0	0	0.2691	1	1
Min. :- 1.25960	-0.39212	-0.0377	-0.03399	0.36569	1.53892
Min. :-3.0309	-0.7582	-0.1853	-0.2023	0.2748	2.1154
Min. : 0.00	0	6	17.92	26	180
Min. : 2.00	9	23	27.14	44	96
Min. :1156	1450	1550	1551	1617	2567
Min. : 123.2	620.7	909.3	1060.1	1294	3965.9
Min. :1388	2403	2786	2975	3485	6221
Min. : 0.0000	0	0	0.6145	0	13
Min. :0.0000 .4	0	0	0.2249	0	1
Min. :0.0000 .5	1	1	0.9799	1	1
Min. :0.0000 .6	0	0	0.4659	1	1
Min. :0.0000 .7	0	0	0.1566	0	1
Min. :0.0000 .8	0	0	0.3534	1	1
Min. :0.0000 .9	0	0	0.0241	0	1
Min. :0.000 .1	1	1	0.996	1	1
Min. : 0.00	0	10.25	10.41	20.77	28.4

Min. : 0.000 .1	0	1.485	6.541	14.11	24.094

The dataset shows us the data of employee demographics and performance metrics, with notable variability in income, age, and productivity indicators. These variations can help us to understand how remote work policies impact satisfaction and performance, as they may correlate with differences in working conditions.

Furthermore, the numbers describe the range and average values for key employee details. Variables like income, age, productivity, and performance help identify patterns and differences between employees and it can explain which is important for understanding how remote work policies impact satisfaction and performance.

Income:

Higher income levels could correlate with higher satisfaction, but the wide range (from 3,906 to 45,442) suggests differences in employee experiences. Those with lower incomes might feel less satisfied compared to higher earners.

Age:

Most employees are young (around 24 years old), which may mean they value flexibility and remote work. Satisfaction might differ based on whether remote work aligns with their needs.

Phone Calls:

Employees make anywhere from 0 to 55 calls, with an average of 8. Higher call volumes might indicate higher workloads, which could reduce satisfaction, while moderate levels may be optimal.

Performance Scores:

The wide range of scores (from negative to positive) suggests varied satisfaction levels. Employees with higher performance scores may feel more accomplished and satisfied, while those with lower scores might feel stressed or unsupported.

Tasks Completed:

The range of 0 to 180 tasks indicates significant variability in productivity. Employees with excessive workloads (many tasks) might feel overburdened, impacting their satisfaction negatively.

Marital Status and Other Binary Variables:

Married employees or those with specific responsibilities may value remote work differently, potentially influencing their satisfaction. For example, the imbalance in marital status between treatment and control groups could affect how satisfied each group feels with remote work policies.

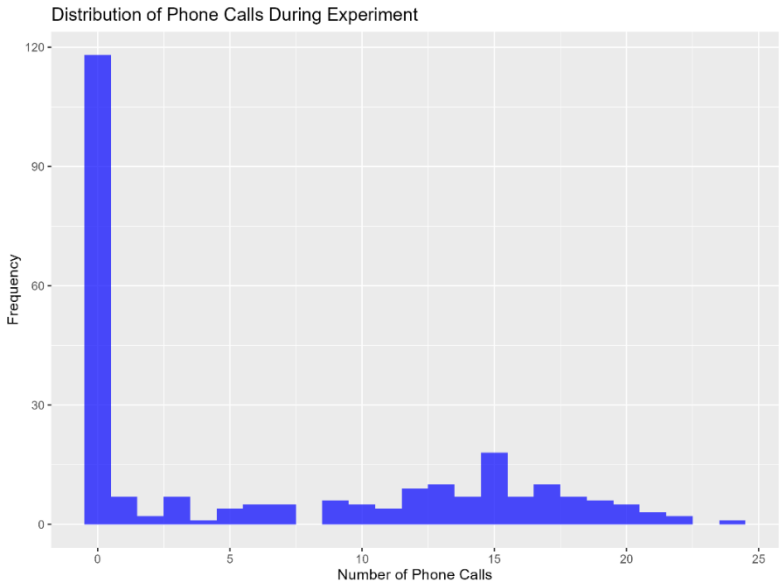

Figure 1.1

Figure 1.1 shows the histogram of phone calls made during the experiment, to see remote work and employee satisfaction and x-axis represents the number of phone calls, while the y-axis shows the frequency of participants making that number of calls.

Furthermore, the distribution is heavily skewed, many participants making very few or no phone calls. As we can see in the figure above, high frequency at the lower end (0 calls). The number of the frequency steadily decreases, with a few participants making more than 15 calls.

Hence, this can suggest that most employees were minimally active in making calls, while only a small group had significantly higher activity levels.

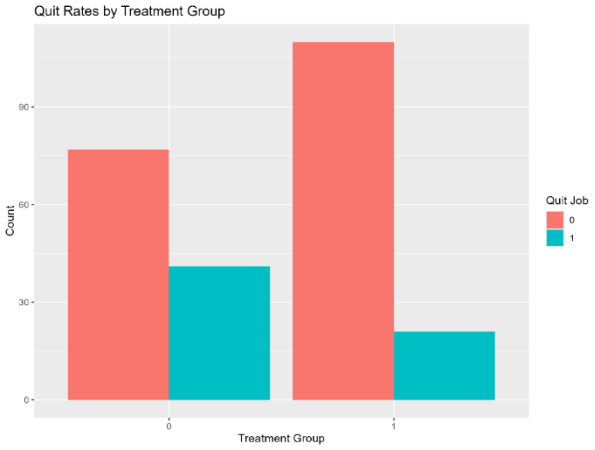

Figure 1.2

This bar chart shows the quit rates across different groups, with 0 = employees not assigned to working from home policies, and 1= those with. Moreover, the colors indicate whether participants quit their job (1 = quit, 0 = did not quit). Additionally, the chart shows us that remote work policy (1) have reduced quit rates slightly compared to those who do not.

Age vs Quit Job:

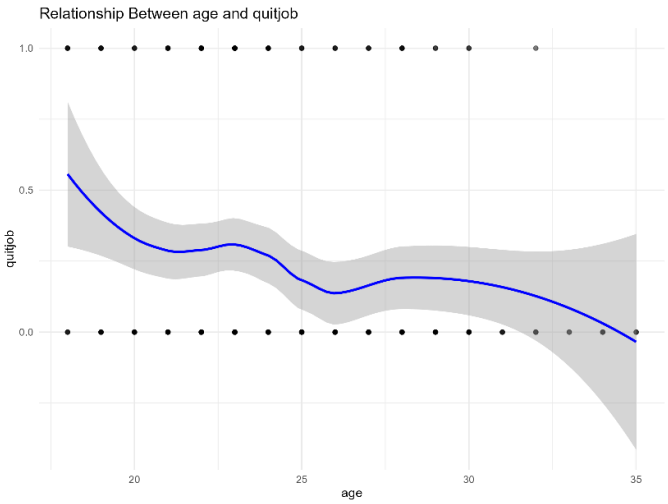

Figure 1.3

The figure shows the probability of quitting decreases with age, as seen in the downward sloping curve.

Hypothesis "The older employees are less likely to quit compared to younger employees because they may have greater job satisfaction, or fewer external opportunities."

Male vs Quit Job:

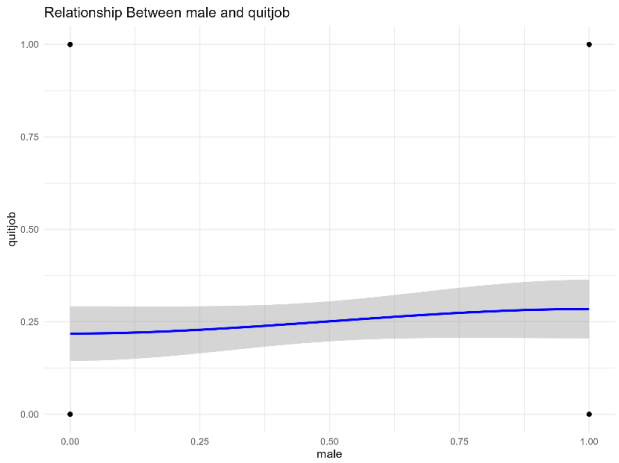

Figure 1.4

Figure 1.4 shows the relation between the male gender and the probability of quitting the job, however it is nearly flat as shown in the figure.

Hypothesis "Gender likely has no significant influence on quitting behavior. This could be because quitting decisions are influenced by factors unrelated to gender, such as job role or work conditions.

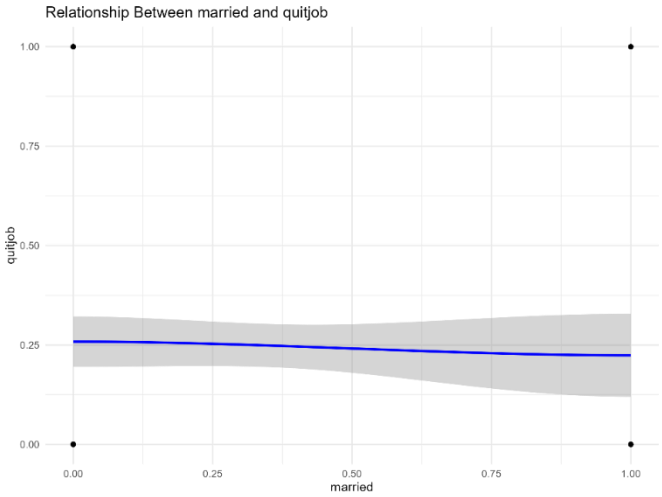

Figure 1.5

Likewise, married people show the relationship between them and quitting is flat (as seen in the graph above), indicating no apparent relationship.

Hypothesis "Being married likely has minimal or no impact on quitting decisions. This suggests marital status does not significantly affect job-related decisions in this context."

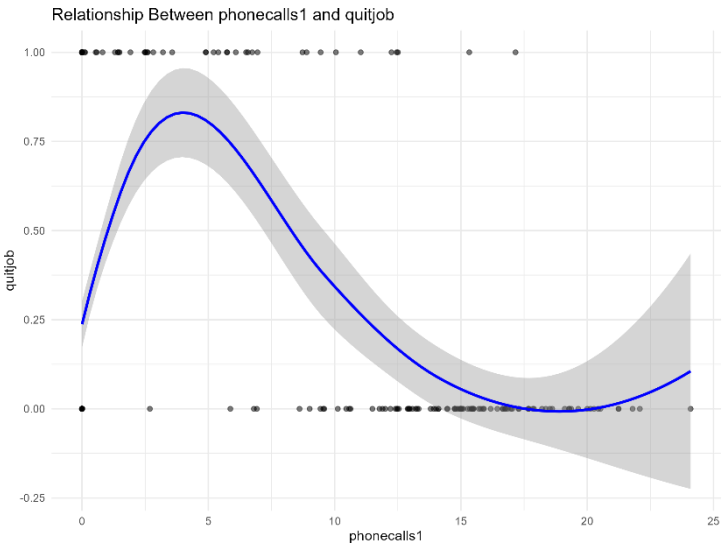

Figure 1.6

Figure 1.6 also shows the graph with a U-shaped figure, which shows the relationship between the number of phone calls made and the probability of quitting. Hence, employees with very few or very high call volumes are more likely to quit, and vice versa.

Hypothesis: "Moderate call volumes may indicate a balanced workload, leading to lower quitting probability. High or low call volumes might signal dissatisfaction or disengagement, increasing quitting likelihood"

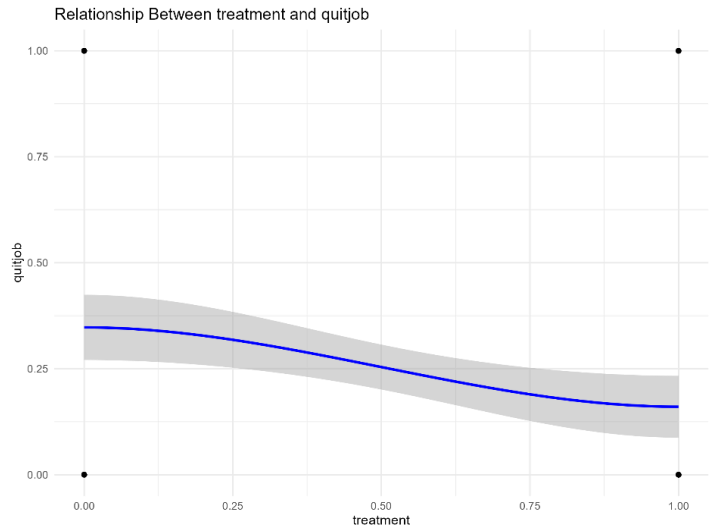

Figure 1.7

This chart shows the relationship between the experiment (employees who is working at home) and the probability of quitting. The graph shows that people working from home are less likely to quit.

Hypothesis "Employees in the treatment group are less likely to quit because of the benefits or support provided through the intervention"

Addressing non-linearities:

We can see that age and phone calls shows evidence of nonlinear relationships, whereas the analysis also provides a clear interpretation of the explanatory variables' potential influence on the dependent variable while addressing non-linearities where they occur.

Table 1.4

Model	AIC	BIC
Basic Logistic Regression	251.3951	272.4998
Interaction Terms (Treatment * Phonecalls)	252.0235	276.6456
Polynomial Terms for Age and Phonecalls	217.8018	245.9415

This table shows and compares 3 models used to explore how employees working remotely impact their satisfaction level. Furthermore, the Basic Logistic Regression model is the simplest, including

basic predictors like treatment, age, gender, marital status, and phone calls, likewise, the Interaction Terms (Treatment * Phonecalls) model adds an interaction between treatment and phone calls but doesn't improve much, as shown by its slightly higher AIC and BIC values. Furthermore, the findings suggest that non linear model provides more accurate insights.

Table 1.5

Variable	Odds_Ratios
(Intercept)	0.107553612
treatment	0.402754551
poly(age, 2)1	0.000132875
poly(age, 2)2	25.95667111
poly(phonecalls1, 2)1	7.30E-19
poly(phonecalls1, 2)2	5.11E-15
male	1.569389139
married	0.921293651

The analysis reveals that company policies allowing remote work have mixed impacts on employee satisfaction. While remote work policies offer flexibility, they can also lower satisfaction for some employees.

The above table shows that company policies allowing employess have different impacts on employee satisfaction; while remote work policies offer flexibility, they can also lower satisfaction for some employees.

(Intercept): This is the baseline odds of satisfaction when all other variables as the odds ratio of 0.1075 shows that, without considering any other factors, the likelihood of employees being satisfied is very low.

treatment: This represents whether the employee was part of the experiment (who worked remotely or not, as shown in the figures (0.4027) it shows that remote work reduced the odds satisfaction by almost 60%. Hence, it suggests that the policies might create various challenges.

poly (age, 2) (first term): This is the linear term for age where the odds ratio of 0.0001329 says that when age increases, satisfaction level decreases. Additionally, the younger generation also have difficulties when facing the challenge of working from home.

poly (age, 2) (second term): Likewise, this is a nonlinear term for age, where the odds ratio (25.9567) indicates that the satisfaction level decreases after a certain age; the older the employees, the better they adapt to remote work.

poly (phone, 2) (first term): This is a linear term for number of phone calls (odds ratio = 7.30E-19). Since the odd ratio is extremely small, it suggests that the number of calls has almost little to no impact on satisfaction.

poly(phone, 2) (second term): This is a quadratic term for phone calls with an odd ratio of 5.11E-15. Similarly, this ratio is also extremely small, it further confirms the same thing that the number of phone calls made does not significantly influence satisfaction.

male: The odds ratio of 1.5694 shows the effect of gender (male) increases the odds of satisfaction by about 57%. As, male employees might face fewer challenges in remote work compared to female employees.

married: The marital status has an odds ratio of 0.9213; this shows that being married can slightly reduce the odds of satisfaction level by about 8%. Additionally, as seen in the data, we can see that being married increases additional pressure/responsibilities.

Table 1.6

Variable	VIF
treatment	1.040277
age	1.494802
male	1.058441
married	1.482733
phonecalls1	1.103203

treatment: This variable shows whether the employee was allowed to work remotely or not. It shows that (1.403) has very low multicollinearity with other variables, suggesting that the variable provides unique information.

age: The age variable has a VIF of 1.4948; it shows that the variable does not strongly correlate with other predictors. Hence, effects on satisfaction can be interpreted without interference.

male: The VIF (1.0584) shows that there is significant multicollinearity between the "male" variable and other predictors. Moreover, it means that the gender variable is independently contributing to the model.

married: The "married" variable, with a VIF of 1.4827 indicates that it does not show any significant multicollinearity.

phone calls: The phone call variable has a VIF of 1.1032, it indicates that the variable is independent of other predictors.

To conclude, the VIF values are all well below, showing that there is no significant multicollinearity in the mode. Moreover, it means that the variables provide contributes unique information and the results of the regression can also be interpreted reliably without concern for inflated standard errors or confounding between predictors.

Conclusion/Recommendations

The analysis and datas revealed that the company policies that have implied the remote work policies have mixed impact on employee satisfaction. The results interpret that younger and female employees find it difficult to adjust compared to older and male employees. However, although

the satisfaction level seems to be low; the possibilities are due to challenges like isolation, lack of support, or increased work-life imbalance.

In my opinion, to improve the satisfaction level, a tailored approach to the younger employees needs to be taken place according to the unique responsibilities that need to be provided. Additionally, companies should also focus on improving on better communication, providing adequate support, and addressing gender-specific challenges. The employees should also be offered training in time management and creating opportunities for social interaction. This may help mitigate feelings of isolation.