

QMBU 472 HW-2 Report

Hypothesis

If an employee's years of experience increases, the salary they earn also increases.

Introduction

To test the effect of years of experience of an employee on their salary, we choose years of experience as the predictive variable and the salary as the target variable. Moreover, employee's gender is chosen to be a causally prior control variable since it affects both the salary and the effect of years of experience on salary.

Methodology

To test the hypothesis, we have chosen a linear regression model. For the gender variable we used a dummy variable as 1 for female and 0 for male. The result of our model is discussed in the next session.

Results

Table 1 shows the result of our linear regression model where b_0 is the intercept, b_1 is years of experience and b_2 is gender. Our model shows that with a %95 confidence interval, the coefficient of years of experience variable is 0.9811, hence we reject the null hypothesis for our assumption and conclude that there is a positive correlation between the years of experience and the salary earned. Moreover, our model also shows that the coefficient of gender variable is -8.01 which took the value 1 for female employees and 0 for male employees. Thus, we conclude that for the same number of years of experience, male employees earn more salary compared to female employees. Resulting regression lines for female and male employees are shown in figure 1.

Estimator	Coefficient	Standard Error	Lower 95%	Upper 95%
b0	35.8238	1.26219	33.3352	38.3124
b1	0.981151	0.0804811	0.82247	1.13983
b2	-8.01189	1.19601	-10.37	-5.65376

Table 1.

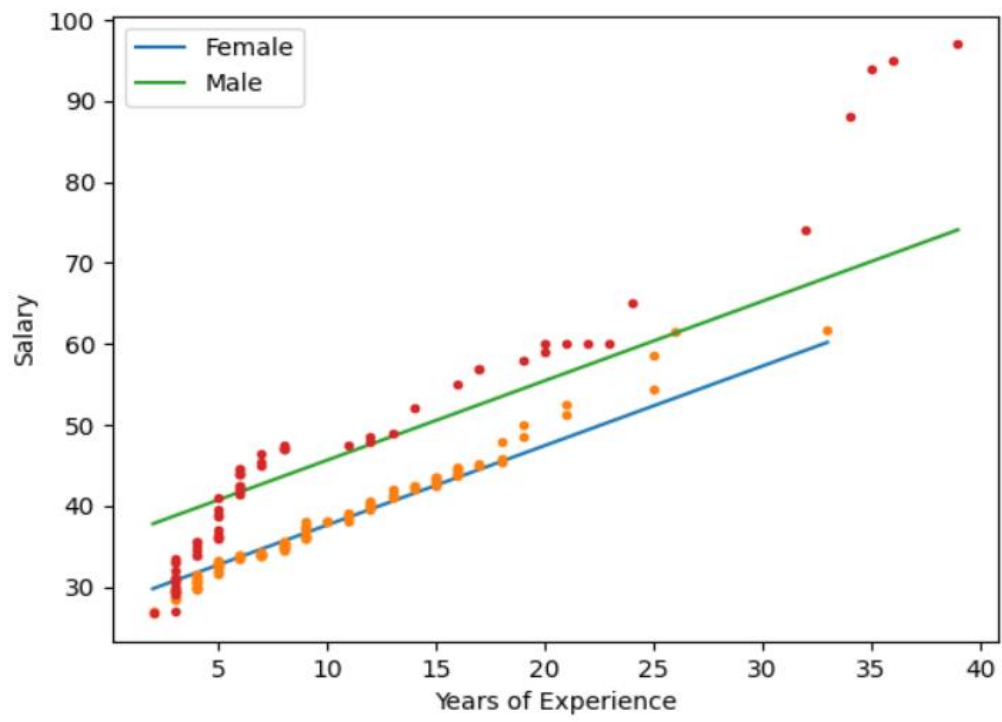


Figure 1.