# Law Firm Absenteeism Report

## Project Summary

A Director at a hypothetical small Zimbabwean law firm is concerned about employee absenteeism among staff. She believes that organisation commitment is probably the most significant contributing factor. She selected a random sample of 31 employee files and noted their level of absenteeism (in days p.a.). She sent a confidential questionnaire to each of the selected employees from which an organisation commitment index was derived. The Director is interested in the possible effect that other factors such as job tenure (time in months at the organisation), and grade (1 = clerk, 2 = consultant, 3 = lawyer) have on the level of employee absenteeism. Multiple linear regression of the data with commitment, job tenure and grade as independent variables is used to help the Director understand factors, if any, that are contributing to employees’ absenteeism. NB: For the variable grade, two dummy variables were used.

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# Report

## Scatter Plot: Understanding The Relationship Between Absence And Commitment

According to the scatter plot above, as the level of absenteeism increases, the level of commitment decreases. This shows that absenteeism and commitment have a strong linear relationship and have a negative linear relationship to one another, as commitment increases, the absenteeism reduces. In addition, the data points come to forming somewhat of a downwards diagonal line along the negative gradient line when plotted, proving that there is a correlation between the two variables. There are no visible outliers.

## Multiple Linear Regression

NB: Number of dummy variables to be used = 3 grade variables – 1 = 2 dummy variables



H0: βi  = 0

H1: βi ≠ 0

**Rejection criteria** is as follows: Reject H0 if |Tcal| > Tα/2 (n-k)

Commitment

* Let i= 1 = Commitment

Tα/2(31– 4 =27, 0.025) = 2.05

Tcal  = -4.837937244

In this case, with commitment, the |Tcal| = -4.837937244 > Tα/2(27, 0.025) = 2.05, therefore we reject H0 and conclude that the coefficient β1 is not significantly different from zero at 5%. The implication is that commitment has no influence on absenteeism.

Tenure

* Let i= 2 = tenure

Tα/2(27) = 2.05

Tcal  = 2.538476072

In this case, with job tenure, the |Tcal| = 2.538476072 > Tα/2(27, 0.025) = 2.05, therefore we reject H0 and conclude that the coefficient β2 is not significantly different from zero at 5%. The implication is that job tenure has no influence on absenteeism.

Clerk Level

* Let i= 3 = Clerk

Tα/2(27) = 2.05

Tcal  = 0.501537884

In this case, with lecturer level, the |Tcal| = 0.501537884 < Tα/2(27, 0.025) = 2.05, therefore we fail to reject H0 and conclude that the coefficient β3 is significantly different from zero at 5%. The implication is that clerk level has significant influence on absenteeism.

Consultant Level

* Let i= 4 = Consultant

Tα/2(27) = 2.05

Tcal  = 1.111737018

In this case, with senior lecturer level, the |Tcal| = 0. 1.111737018 < Tα/2(27, 0.025) = 2.05, therefore we fail to reject H0 and conclude that the coefficient β4 is significantly different from zero at 5%. The implication is that consultant level has significant influence on absenteeism.

## Significance of the Regression Model at 0.05 Level of Significance

Y = Β0 + Β1X1 B2X2 + B3X3

H0: β1 = β2 =β3  = … βk= 0

H1: Not all slope coefficients are simultaneously zero.

For a given level of significance α = 0.05, numerator degrees of freedom k −1 and denominator degrees of freedom n − k, the critical value is given by F (k −1, n − k)α. Therefore, we will use F (4,26) α = 0.05 = 2.7426. Fcal from the ANOVA table is 36.70775776

Since Fcal = 36.70775776 > F (4,26)0.05 = 2.7426, we reject H0 and conclude that not all slope coefficients are simultaneously zero. Hence there is a significant relationship between the variables in the linear regression model of the data set.

## Prediction And Forecasting

*Absence = 1.214Clerk + 1.868Consulatant + 0.04615Tenure -0.3389 Commitment + 31.098*

1. Absence for Clerk

Absence = 1.214(1) + 1.868(0) + 0.04615(10 x12) + -0.3389 (50) + 31.098

Absence = 20.90517271

1. Absence for Consultant

Absence = 1.214(0) + 1.868(1) + 0.04615(10 x12) + -0.3389 (50) + 31.098

Absence = 21.55875238

1. Absence for Lawyer

Absence = 1.214(0) + 1.868(0) + 0.04615(10 x12) + -0.3389 (50) + 31.098

Absence = 19.69122602