

ABSTRACT

Summary:

This study sought to determine the growth of garbage volume at DLSU-D based on the population trend. Using statistics, the research aimed to comply with the objectives and come up with the best results with the least percentage of error.

Objective:

The objectives of this research are as follows:

1. To formulate a regression model for the garbage volume at DLSU-D.
2. To forecast the increase or decrease of garbage volume at DLSU-D for the next academic year with respect to its population.

Scopes and Limitations:

The primary data needed for this study were the garbage volume and population. Data were limited based on the available information from the ERMaC, HRMO and Registrar's Office. ERMaC provided the data for the garbage volume. For population, HRMO and the Registrar's Office were the recognized offices for this information.

In forecasting for the garbage volume, the values used for population were only approximates.

Methodology:

This study used regression analysis in formulating the model. The method of least squares was also used in determining the regression equation. However, two propositions were made from the data of population and garbage volume.

1. The correlation of the monthly population with the monthly garbage volume.

2. The correlation of the population per semester and the average monthly garbage volume per semester.

The data collected were modeled using five regression models – first order polynomial, second order polynomial, exponential model, logarithm model, and power model.

In forecasting, values for the independent variable (population) were simply substituted to x values in the regression equation.

Results and Findings:

Among the five models, only the first order polynomial and logarithm model had significant variables. However, the study only used the first order polynomial, $\hat{y} = ax + b$. The first regression equation was $\hat{y} = 0.2644x + 1357.3521$ while the second regression equation was $\hat{y} = 0.2640x + 1392.0507$.

The population was only 35.83 percent of the factors that affected garbage volume in equation 1. For equation 2, population was 66.75 percent of the factors that affected garbage volume. The result of the t-test for both equations showed that garbage volume and population were significantly correlated.

Conclusion:

Based on the results and findings, the following conclusions were obtained:

1. Proposition 2 showed better fit than proposition 1. This was due to the lower standard error of estimate of proposition 2 from proposition 1.
2. The approximated values of the population showed an increase in garbage volume for the next school year and would reach up to 4,096.15 kg.

Recommendation:

On the basis of the aforementioned findings, the following are recommended:

1. Find other factors or variables that affect garbage volume.
2. Use other forecasting method.

