Analysis of influence of the PPK programs on tenants' business success

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Abstract. PPK is an organization developed to assist Al Azhar Indonesia University tenants building and running their IT based business. To assist their tenants, PPK must give several program that could affect their tenants business. So that, the aim of the study is to analyse whether PPK programs influence their tenants' business success so that PPK evaluate and separate programs which have influence and not. Using the multiple regression and correlation on SPSS software, we conclude that value of F is 1.296 lower than the F_{table} is 4.96 so we accept the null hypothesis which means none of PPK programs affect tenant business success. The correlation result is Sarasehan Program" with signification value of 0,009 and "Tasks can be done easily" with signification value of 0,043 have a value of signification lower than 0,05 so that both sarasehan program and task can be don easily variables have a correlation to the tenant business success.
Keywords: Analysis of Influence, Business Success, Multiple Regression, Correlation

1. Introduction

PPK (Program Pengembangan Kewirausahaan) is an organization developed to assist Al Azhar Indonesia University tenants building and running their IT based business. Established in march 2018, PPK is still growing sustainable. The emergence of PPK could develop and nurture a start up and young entrepreneur to grow and reinforce their business. So far, PPK have recruited approximately 50 tenants. To enrich tenant skill and knowledge, PPK came up with several program that could lead the members to achieve their goals. The major program that PPK provide are bazzar, webinar, sarasehan, whatsapp discussion. Therefore, PPK provide effective program so that the members could developing their business. To find out what program can affect the member business, the PPK could run a regression and correlation test. Regression is a statistical tools used for describe the relationship between variables [1]. There are two kind of regression based on the number of independent variables which is simple linear regression that consist only one independent variable and multiple regression that consist more than one independent variables [1]. In this research, multiple regression used to find out are the program influence the business success because there are more than one independent variable. Multiple regression is statistical term used to find out the relationship between independent and dependent variables [2]. Multiple regression is made to calculate the variation of the independent variables in the dependent variable [3]. To use multiple or simple linear regression there are requirements that must be fulfill one of them is the data must be in interval or ratio scale. Multiple regression model formulated as in the following:

$$y = a + b_1x_1 + b_2x_2 + b_nx_n \qquad (1)$$

Where,
y = dependent variable
a = parameter
b = independent coefficient
x = independent variable

Regression used to generate the model of variables related to the dependent variables. Regression cannot used to know the value of variables relation. To find out more about how strong the relationship is, correlation test used. Correlation is a basic statistics illustrates how strong the relationship among variables [4]. There are so many correlation in statistics, there are simple correlation, partial correlation, multiple correlation. Simple correlation consist of two types which is Pearson Correlation and Spearman Correlation. The difference between Pearson Correlation and Spearman Correlation is in Spearman Correlation we rank the data first before we test the correlation but the Pearson Correlation just run the test based on the data we provide. Pearson correlation formulated as in the following:

$$r_{xy} = \frac{N \sum XY (\sum X)(\sum Y)}{\sqrt{(N \sum X^2 - (\sum X)^2(N \sum Y^2 - (\sum Y)^2}} \qquad (2)$$

The data of this research obtained from questionnaire (Likert Scale) which cannot used to calculate or run the regression test because the data is in ordinal scale. So the solution of this problem is to transform the data from ordinal into interval or ratio. The transformation into interval run by using the formulation below [5].

$$RS = \frac{(M-N)}{B} \qquad (3)$$

Where,
RS = Class Limit
M = Maximum Value
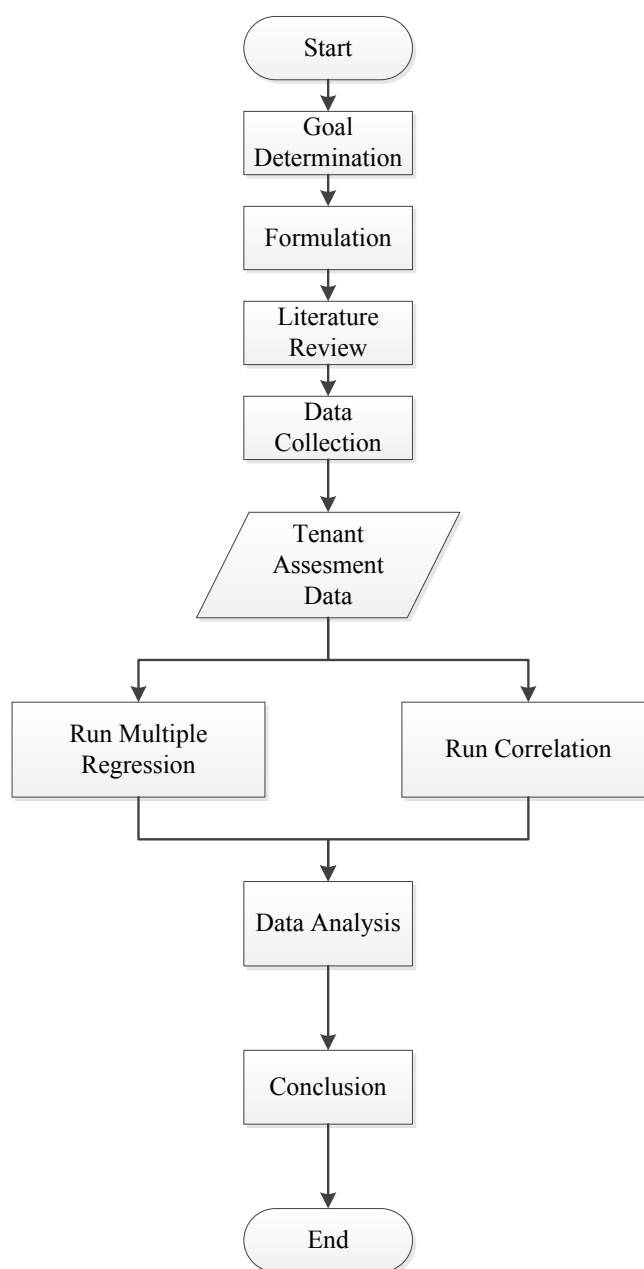N = Minimum Value
B = Number of class

2. Methods

Figure 1. Research Method

This research was conducted by distributing questionnaires to several tenants using purposive sampling method. The questionnaire contains several questions related to the suitability of the program, the task burden and the quality of the program where each chapter has other questions. After gathering the data, the data collected is transformed into Likert-scale (interval) tenant assessment data in order to reduce the response that is indicates a doubtful value. Then the data is tested for validity and reliability to find out whether the results of the questionnaire are valid and reliable. If the value of validity and reliability meet the standard then proceed with multiple linear regression calculations to generate the model of relationship between a dependent and independent varibales. We use multiple regression because this research has more than one independent variables. Next, we want to find out which variable that has correlation and how strong the relation using correlation. Pearson correlation

used to determine how the relationship between factor variables (Independent variables) with business success (Quantitative). All methods run using SPSS statistical software.

3. Result and Discussion

In this First, the transformation from likert scale into interval performed using (Simamora, 2005) equation which result presented in the following table.

Table 1. Interval Scale. Likert scale transformed into interval scale in order to run regression and correlation.

LIMITS	CATEGORIES
$1,00 < x \leq 1,80$	STRONGLY DISAGREE
$1,80 < x \leq 2,60$	DISAGREE
$2,60 < x \leq 3,40$	NEUTRAL
$3,40 < x \leq 4,20$	AGREE
$4,20 < x \leq 5,00$	STRONGLY AGREE

Then, we continue the test into SPSS statistical software. Based on the results of calculations performed with SPSS statistical software, it was found that the results of the questionnaire are valid and reliable. Furthermore, multiple linear regression calculations are performed, with:
the null hypothesis (H_0) indicates that each PPK program does not affect business success.
hypothesis one (H_1) indicates that the PPK program affects the success of the business.
In this research there are ten independent variable stated as X_n. That variables are defined as follows.

Y   = Business Success
X1   = Training
X2   = Bazzar
X3   = Whatsapp Discussion
X4   = Sarasehan Program
X5   = Tasks can be done easily
X6   = Tasks helping the business
X7   = Tasks corresponding to ICT Based Entrepreneurship
X8   = Programs is interconnected
X9   = Programs meet the need
X10   = Well implemented programs

Through SPSS statistical software, we run the multiple regression test. The results are shown in the following figure.

Table 2. Multiple Regression Result (ANOVA). The Multiple regression run in SPSS Statistical Software which the F and signification result used to analyse the hypothesis.

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	6.480	1	.648	1.296	.600
Residual	.500	10	.500		
Total	6.980	11			

From table 2, the result obtained value of F is 1.296 where the F_{table} is 4.96. From that comparison we accept null hypothesis (H_0) indicates that each PPK program does not affect the business success of the tenant. Then, SPSS statistical software also show the coefficient of each variable used to generate regression model is shown in table 3.

Table 3. Regression Coefficients Result. The Coefficients result used to generate the regression model of this research.

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	sig.
(Constant)	3.132	6.530		.480	.715
X1	-.299	.967	-.193	-.309	.809
X2	-.409	.709	-.445	-.577	.667
X3	-.163	.630	-.160	-.259	.839
X4	1.152	.620	1.090	1.857	.314
X5	-.094	.380	-.099	-.247	.846
X6	.724	.513	.721	1.413	.392
X7	-.036	.801	-.036	-.045	.971
X8	.066	1.181	.050	.056	.964
X9	-1.056	1.812	-.600	-.583	.664
X10	.408	.564	.367	.723	.602

Based on the result on table 3, we conclude that the regression model is presented as below.

$$y = 3.13 - 0.29x_1 - 0.40x_2 - 0.16x_3 + 1.15x_4 - 0.09x_5 + 0.72x_6 - 0.03x_7 + 0.06x_8 - 1.05x_9 + 0.40x_{10} \quad (3)$$

Next, we continue on performing correlation test on SPSS Statistical Software to find out how strong the correlation among variables. The result of the test shown

Table 4. Correlation Values of Each Variables. Used to find out which variables have correlation in this research

	Y	X1	X2	X3	X4	X5
Pearson Correlation	1	0,008	0,338	0,455	.718[**]	.591[*]
Sig. (2-tailed)		0,981	0,282	0,137	0,009	0,043
N	12	12	12	12	12	12
Result		No	No	No	Yes	Yes

Table 5. Correlation Values of Each Variables (Cont). Used to find out which variables have correlation in this research.

	X6	X7	X8	X9	X10
Pearson Correlation	0,523	0,388	0,127	0,190	0,363
Sig. (2-tailed)	0,081	0,213	0,695	0,554	0,246
N	12	12	12	12	12
Result	No	No	No	No	No

From table 4 and 5, the value of signification of each variable must lower than 0,05 so that means the variable (X) has correlation to the business success (Y). Then, we conclude that "Sarasehan Program" with signification value of 0,009 and "Tasks can be done easily" with signification value of 0,043 have a correlation to the tenant business success in PPK.

4. Conclusion

Based on multiple regression (ANOVA) result, we conclude that value of F is 1.296 lower than the F_{table} is 4.96 so we accept the null hypothesis which means none of PPK programs affect tenant business success so that the recommendation to PPK are to find out and improve the programs that the PPK provide in order to carry out the important role as the business supporting and developing actor for their PPK members. Then, from the correlation result, we can conclude "Sarasehan Program" with signification value of 0,009 and "Tasks can be done easily" with signification value of 0,043 have a value of signification lower than 0,05 so that both sarasehan program and task can be don easily variables have a correlation to the tenant business success in PPK are the programs that must be maintained and strengthened.

5. References

[1] Bangdiwala S 2018 *Regression: Simple Linier* **25** 232
[2] Rubinfeld D L 2011 *Reference Manual on Scientific Evidence: Third Edition* (USA: The National Academies Press) p 290
[3] Uyanık G K and Güler N 2013 *A study on multiple linier analysis* **106** 235
[4] Goodwind L D and Leech N L 2006 *Understanding Correlation: Factors That Affect the Size of* **74** 251
[5] Simamora B 2005 *Analisis Multivariat Pemasaran* (Jakarta: Gramedia Pustaka Utama)