

CHAPTER 3 – RESEARCH METHODS

3.1 Scope of Study

This research focus on Human Capital Organization, who has responsibility for Corporate Function (coordinate 67 affiliated company within group) and Operational Function (support for marketing, sales until product support of heavy equipment business).

3.2 Time Frame of Research

This research conducted around 16 weeks as stated in detail activities in Table 4. Time Frame of Study and Research.

Table 4. Time Frame of Study and Research

No	Activity	Work Sequences (Week)																			
		Sept				Oct				Nov				Des				Jan			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	Problem Identification	■	■	■	■																
2	Define Goal (Research Question)	■	■	■	■																
3	Literature Review					■	■	■	■												
4	Define Organization Eff & WFH									■	■	■	■								
5	Define Research Method													■	■	■	■				
6	Define Variables & Develop Questionair																	■	■	■	■
7	Define Data Source & Target																				
8	Survey & Data Collection																				
9	Data Validation & Reliability Test																				
10	Data Analysis & Hypothesis Test																				
11	Result & Conclusion																				
12	Submit Thesis																				

3.3 Research Flow Process

This research has flow process as describe at Figure 10. Research Flow Process, that explain the detail processes, start from background in introduction, problem statement, research objective, literature review, research method, result, conclusion and recommendation.

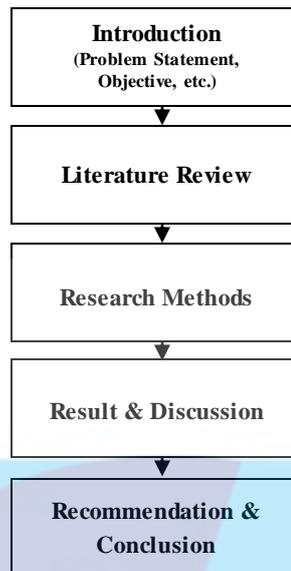
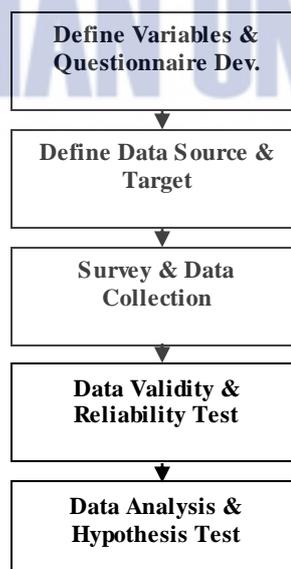


Figure 10. Research Flow Process

3.4 Research Method Framework

To analyze the correlation between Work from Home and Organizational Effectiveness in term of dimension and indicator, there is flow activities to describe the detail processes, start from defining the variable, data collection, validity and reliability test until analysis, as seen at Figure 11. Research Method Framework.



Regarding the objective of this research to analyze the impact of Work from Home to Organizational Effectiveness, the research method is using Descriptive and Correlation that in detail describe in figure 12 Descriptive and Correlation Research Method.

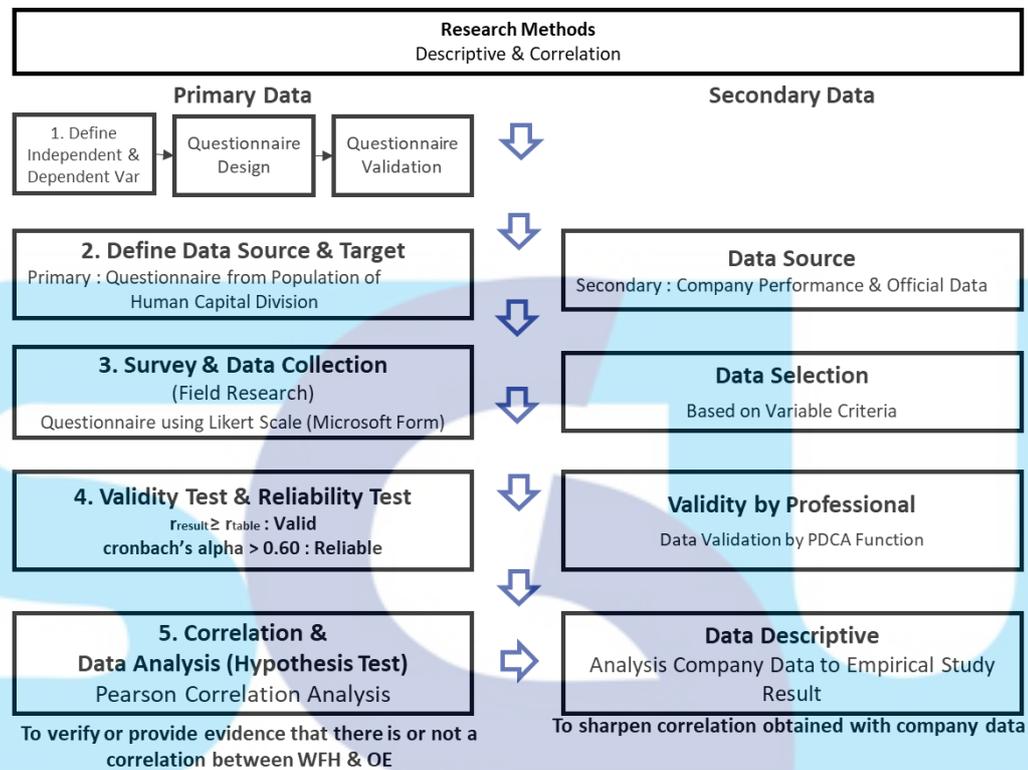


Figure 11. Correlation Research Method and Descriptive Data Analysis

This activity consists of 2 steps Variable analysis, i.e:

1. Primary Data Analysis

The purpose of this analysis is to provide evidence about the correlation between Work from Home and Organizational Effectiveness, using Pearson Correlation Analysis.

2. Secondary Data Analysis

The purpose of this analysis is to find out the objective evidence of Organizational Effectiveness indicators/ parameters, using Descriptive analysis from company data and empirical study.

The understanding of this process is, when the Primary Data show the positive correlation, it will be more strong, accurate and undeniable when it was proved and supported by secondary data such as the organization performance official data.

3.5 Define Variable dan Develop Questionnaire

3.5.1 Define Variable

Based on the purpose of this research, there are 2 main variables and 1 Moderate Variable to be evaluated as describe at Figure 13. Variables of Research, that is:

1. **Dependent Variable: Organizational Effectiveness**

Variables that are manipulated (i.e., the level of these variable are changed by the researcher) and whose effects are measured and compared (Malhotra, 2009). Based on research paradigm, dependent variable for this research consist of 4 dimension and 11 indicators, stated at Table 5. The Dimension and Indicator of Organizational Effectiveness.

Table 5. The Dimension and Indicators of Organizational Effectiveness

Dimension	Indicator
Purposeful	Efficiency
	Productivity
	Stability
Adaptable	Innovation
	Growth
	Evaluative
Sustainable	Output Quality
	Information Management
	Conflict and Cohesion
Harm Minimization	Intra Organization Harm Minimization
	Extra Organization Harm Minimization

2. Independent Variable: Work from Home

Variables that measured the effect of the independent variables on the test units (Malhotra, 2009), and for this research, independent variables consist of 3 dimension and 10 indicators, that is:

Table 6. The Dimension and Indicators of Work from Home

Dimension	Indicator
Cognitive	Confidence in Adaptability
	Understanding of Time Management
	Understanding to Career Boosting
Affective	Distraction
	Disengage
	Distress
Conative	Less of Social
	Performance
	Higher Work Effort
	Work Coordination

3. Moderate Variable

Moderate Variable is variable that may influence positive or negative the correlation between Independent Variable and Dependent Variable. This moderate variable consists of 3 variables that may to affect correlation Work from Home and Organizational Effectiveness: Having children at home, Home Internet Connection and Mobile Device.

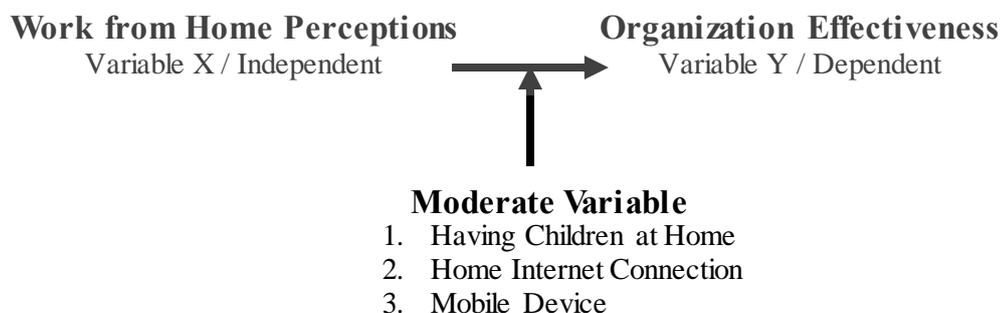


Figure 12. Variables of Research

3.5.2 Questionnaire Development

Definition of Questionnaire is a formalized set of questions for obtaining information from respondents and a structured technique for data collection that consists of a series of questions, written or verbal, that a respondent answer (Malhotra, 2009).

The questionnaire development is very critical, and it does not simply task. There are 63 special question that have been developed to evaluate 21 indicators (11 Indicators for Organization Effectiveness and 10 indicators for Work from Home). And for this research, there are 3 certified and professional psychologists involved to review, validate and fine-tune the questionnaire.

The design of questionnaire tends to the positive perspective of Work from Home Method to evaluate the impact / correlation with Organization Effectiveness as dependent variable. List of the questionnaire attached to this thesis research.

3.6 Define Data Source and Target

As shown at Figure 12, there are 2 main data that have to be gathered, i.e.:

3.6.1 Primary Data

Primary data are originated by a researcher for the specific purpose of addressing the problem at hand (Malhotra, 2009). This Primary data source came from the result of the questionnaire distributed to 100% employee of Human Capital Organization (70 employee as target respondent).

3.6.2 Secondary Data

Secondary data are data that have already been collected for purposes other than the problem at hand (Malhotra, 2009). The source of this data is came from official company data, such as: the result of Key Performance Indicators of Human Capital Organization, periodic January – November 2020.

3.7 Survey and Data Collection

The Primary data was the result of Total Sampling method from the questionnaire distributed online (using Google form tools) to 100% of Human Capital organization employee (70 employee), from 24 – 25 November 2020. This data will be analyzed using Pearson Correlation Analysis to check the correlation between Work from Home and Organizational Effectiveness.

The Secondary data collected from the leaders who responsible for approving the result of official program review, with periodic report from January until end of November 2020. This Secondary data will analyze using Descriptive Analysis method.

The result of Secondary Data Analysis will be used for cross analysis with the Primary Data Analysis result for ensuring the hypothesis of the research.

3.8 Data Validation and Reliability Test

3.8.1 Data Validation

Validity test is used to determine the accuracy and precision of a measuring instrument in carrying out its measuring function. And the criteria validity test is used in a study if previously there was no an appropriate criterion size (Kane, 2001).

Cites Azwar (Azwar, 2010) there are 3 types of validity test and all of that validity test had been executed for this research, i.e.:

1. Content Validity

This is a measure of validity based on an evaluation of the subjects, topics, or content covered by the items in the test.

a. Professional Judgment

The content validity was executed by testing a rational analysis test through professional judgment. This research involved 3 Certified Professionals Psychologists and have master's degree of Psychology. All of the questionnaire reviewed and tested by them.

b. Face Validity

The degree to which procedure, especially a psychological test or assessment, appears effective in terms of its stated aims. This research involved 3 *Certified Professionals Psychologists* and have *master's degree of Psychology*. The design of questionnaire was *reviewed* and *tested* by them.

2. Construct Validity / Statistic Validity

Construct validity is about how can the scores of the measurement results with the instrument in question reflect the theoretical constructs that underlie the preparation of the measuring instrument. Commonly using Statistics Validity.

Statistic validity testing is usually used with the correlation coefficient technique. This is in line with what Aaker et al., (Aaker, et al., 2011) stated that validity testing was carried out using correlation techniques or commonly called the correlation coefficient (*r*).

If validity test using SPSS application program, then the order of the process is as follows, see Figure 14.Steps in Validity Test using SPSS (Azwar, 2010).

Steps in Validity Test using SPSS

(Statistical Product and Service Solution)

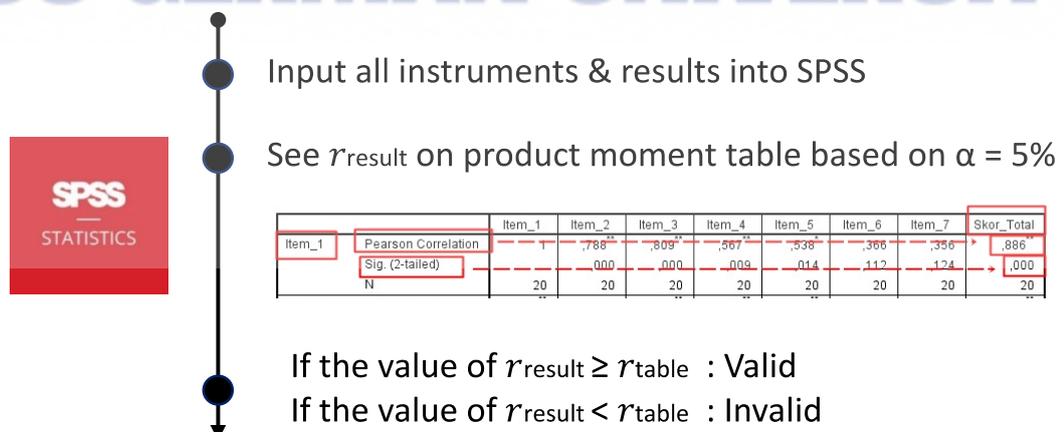


Figure 13.Steps in Validity Test using SPSS (Azwar, 2010)

In this research, the statistical Pearson correlation method used to validate the data of correlation between work from home as independent variable and organizational effectiveness as dependent variable.

The steps to use the SPSS for checking the validity are as follows (see Figure 14):

1. Insert all the data from the water questionnaire into the SPSS tabulation.
2. Select Pearson correlation method.
3. Check r in product moment table with $\alpha = 5\%$.
4. Compare r results with r table for each variable.

If the value of r result $\geq r$ table: Valid

If the value of r result $< r$ table: Invalid

And the result of SPSS validity test were:

1. Check Correlation Coefficient (r) Result on SPSS:

		Total_X
X1	Pearson Correlation	.543
	Sig. (2-tailed)	0,000
	N	70
X2	Pearson Correlation	.547
	Sig. (2-tailed)	0,000
	N	70
X3	Pearson Correlation	.600
	Sig. (2-tailed)	0,000
	N	70
X4	Pearson Correlation	.517
	Sig. (2-tailed)	0,000
	N	70

Figure 14. Correlation Coefficient (r) Result on SPSS

2. Check *r*table Coefficient from Pearson's Correlation Table (Product Moment):

df\α	0.2	0.1	0.05	0.02	0.01	0.001	df\α	0.2	0.1	0.05	0.02	0.01	0.001
1	0.951057	0.987688	0.996917	0.999507	0.999877	0.999999	35	0.215598	0.274611	0.344573	0.380976	0.418211	0.518898
2	0.800000	0.900000	0.950000	0.980000	0.990000	0.999000	40	0.201796	0.257278	0.304396	0.357787	0.393174	0.489570
3	0.687049	0.805384	0.878339	0.934333	0.958735	0.991139	45	0.190345	0.242859	0.287563	0.338367	0.372142	0.464673
4	0.608400	0.729299	0.811401	0.882194	0.917200	0.974068	50	0.180644	0.230620	0.273243	0.321796	0.354153	0.443201
5	0.550563	0.669459	0.754492	0.832874	0.874526	0.950883	60	0.164997	0.210832	0.247056	0.294846	0.324818	0.407865
6	0.506727	0.621489	0.705734	0.783720	0.834342	0.914904	70	0.153088	0.195889	0.227183	0.273695	0.301734	0.375799
7	0.471589	0.582206	0.666384	0.749776	0.797681	0.882600	80	0.142990	0.182916	0.211183	0.256525	0.282958	0.356816
8	0.442796	0.549357	0.631897	0.715459	0.764592	0.872115	90	0.134844	0.172558	0.204968	0.242227	0.267298	0.337549
9	0.418662	0.521404	0.602069	0.685095	0.734786	0.847047	100	0.127947	0.163782	0.194604	0.230079	0.253979	0.321095
10	0.398062	0.497265	0.575983	0.658070	0.707888	0.823305	125	0.114477	0.146617	0.174308	0.206245	0.227807	0.288602
11	0.380216	0.476156	0.552943	0.633863	0.683528	0.800962	150	0.104525	0.133919	0.159273	0.188552	0.208349	0.264316
12	0.364562	0.457500	0.532413	0.612047	0.661376	0.779998	175	0.096787	0.124036	0.147558	0.174749	0.193153	0.245280
13	0.350688	0.440861	0.513977	0.592270	0.641145	0.760351	200	0.090546	0.116060	0.138098	0.163592	0.180860	0.229840
14	0.338282	0.425902	0.497309	0.574245	0.622591	0.741934	250	0.081000	0.103852	0.123607	0.146483	0.160994	0.206079
15	0.327101	0.412360	0.482146	0.557737	0.605506	0.724657	300	0.073951	0.094831	0.112891	0.133819	0.148019	0.188431
16	0.316958	0.400027	0.468277	0.542548	0.589714	0.708429	350	0.068470	0.087814	0.104552	0.123957	0.137131	0.174657
17	0.307702	0.388733	0.455531	0.528517	0.575067	0.693163	400	0.064052	0.082155	0.097824	0.115997	0.128339	0.163520
18	0.299210	0.378341	0.443763	0.515505	0.561435	0.678781	450	0.060391	0.077466	0.092248	0.109397	0.121046	0.154273
19	0.291384	0.368737	0.432858	0.503397	0.548711	0.665208	500	0.057294	0.073497	0.087528	0.103808	0.114870	0.146436
20	0.284140	0.359827	0.422714	0.492094	0.536800	0.652378	600	0.053205	0.067103	0.079920	0.094798	0.104911	0.133787
21	0.277411	0.351531	0.413247	0.481512	0.525620	0.640230	700	0.048427	0.062132	0.074004	0.087789	0.097161	0.123395
22	0.271137	0.343783	0.404386	0.471579	0.515101	0.628710	800	0.045301	0.058123	0.069234	0.082135	0.090509	0.115981
23	0.265270	0.336524	0.396070	0.462231	0.505182	0.617768	900	0.042711	0.054802	0.065281	0.077450	0.085727	0.109385
24	0.259768	0.329705	0.388244	0.453413	0.495808	0.607360	1000	0.040520	0.051993	0.061935	0.073484	0.081340	0.103800
25	0.254594	0.323283	0.380863	0.445078	0.486932	0.597446	1500	0.033086	0.042458	0.050582	0.060022	0.066445	0.084822
26	0.249717	0.317223	0.373886	0.437184	0.478511	0.587988	2000	0.028654	0.036772	0.043811	0.051990	0.057557	0.073488
27	0.245110	0.311490	0.367278	0.429693	0.470509	0.578956	3000	0.023397	0.030027	0.035775	0.042457	0.047006	0.060027
28	0.240749	0.306057	0.361007	0.422572	0.462892	0.570317	4000	0.020262	0.026005	0.030984	0.036773	0.040713	0.051996
29	0.236612	0.300898	0.355046	0.415792	0.455631	0.562047	5000	0.018123	0.023260	0.027714	0.032892	0.036417	0.046512
30	0.232681	0.295991	0.349370	0.409327	0.448699	0.554119							

Figure 15. Pearson Correlation Table

See *r*table on product moment table based on: Data (N): 70, and The Level of Significance (α): 5%, so the value of *r*table is 0.231883 (as minimum reference).

3. Compared *r*result with *r*table for each Variable:

Variable	Correlation Coefficient	Validity Test	Variable	Correlation Coefficient	Validity Test
X1	.543**	Valid	Y1	.590**	Valid
X2	.547**	Valid	Y2	.436**	Valid
X3	.600**	Valid	Y3	.531**	Valid
X4	.517**	Valid	Y4	.674**	Valid
X5	.435**	Valid	Y5	.637**	Valid
X6	.520**	Valid	Y6	.596**	Valid
X7	.542**	Valid	Y7	.729**	Valid
X8	.499**	Valid	Y8	.755**	Valid
X9	.561**	Valid	Y9	.606**	Valid
X10	.403**	Valid	Y10	.845**	Valid

Figure 16. *r* Result for Independent and Dependent Variable

Note: If the value of *r*result \geq *r*table: Valid
 If the value of *r*result $<$ *r*table: Invalid

Based on the validity test that has been done, it is known that all question items for independent & dependent variable can be declared valid, where the results of the

validity test of variable X are in .308 - .711 and variable Y are in .436 - .855. This is because the coefficient of validity on each question item ($r_{\text{result}} \geq r_{\text{table}}$).

3.8.2 Reliability Test

Reliability refers to the extent to which a scale produces consistent results if repeated measurements are made (Malhotra, 2009) or extent to which a variable or set of variables is consistent in what it is intended to measure. If multiple measurements are taken, the reliable measures will all be consistent in their values (Hair Jr, et.al, 2009)

So, reliability test is the degree to which a test is stable and consistent in measuring what it is planned to measure (within itself and across time). For easy understanding of validation and reliability, see illustration Figure 18. Validation and Reliability.



Figure 17. Validation and Reliability Data

For this research, reliability test was carried out using the Cronbach Alpha method where the instruments were derived from interval data. Cited Kahle and Malhotra (Malhotra, 2009), the Cronbach's alpha method is measured based on the Cronbach's alpha scale of 0 to 1. Further reveals that the interpretation of alpha values is as follows:

- Cronbach's alpha value < 0.60 means not reliable.
- Cronbach's alpha value of 0.60 to 0.69 means marginally reliable.
- Cronbach's alpha value of 0.70 s / d 0.79 means reliable.
- Cronbach's alpha value of 0.80 to 0.90 means very reliable.
- Cronbach's alpha value > 0.90 means that it is highly reliable.

For manual calculation, Cronbach Alpha formula is:

$$\alpha = \frac{n}{n - 1} \left(\frac{S - \sum S_i}{S} \right)$$

Where, α : Reliability Coefficient / Cronbach Alpha
 n : The number of items in the test
 S : Overall score of variances
 S_i : The variance of each item

So, the reliability test was carried out using the SPSS Program, as follow:

Table 7. Reliability Test Result for Independent Variable (X)

Cronbach's Alpha	N of Items
0.911	29

Table 8. Reliability Test Result for Dependent Variable (Y)

Cronbach's Alpha	N of Items
0.969	33

Based on the Cronbach's Alpha for Independent Variable and Dependent Variable tested, it could be stated that every variable in the questionnaire on this study is highly reliable.

3.9 Data Correlation

To proof of the hypothesis between Work from Home as independent variable and Organizational Effectiveness as dependent variable, this research use Pearson correlation analysis method.

Correlation analysis is used to verify and measure the strength of the association (linear relationship) between two variables. Because it was originally proposed by Karl

Pearson, it is also known as the *Pearson correlation coefficient*. It is also referred to as *simple correlation*, *bivariate correlation*, or merely the *correlation coefficient* (Kahle and Malhotra, 1994).

The correlation coefficient (r) can be calculated as (Malhotra, 2009):

$$r = \frac{\sum_{i=1}^n (X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum_{i=1}^n (X_i - \bar{X})^2 \sum_{i=1}^n (Y_i - \bar{Y})^2}}$$

Where:

r : Correlation coefficient

X_i : Values of the x-variable in a sample

\bar{X}_i : Mean of the values of the x-variable

Y_i : Values of the y-variable in a sample

\bar{Y}_i : Mean of the values of the y-variable

This research used questionnaire that related with the main variable and moderate variable, and cites Cohen et al., (Cohen et al.,2007) explain that if the Cronbach Alpha value is known to be greater than 0.60, the questionnaire categorizes as reliable data. The detail analysis of the data correlation will be explored at next chapter.

3.10 Multiple Regression Analysis

Multiple Regression is a statistical technique that simultaneously develops a mathematical relationship between two or more independent variables/ dimension and an interval-scaled dependent variable (Malhotra, 2009).

In this research will use Multiple Regression because it can predict the value of a dependent variable based on the value of at least one independent variable and explain the impact of changes in an independent variable on the dependent variable.

The general form of the multiple regression model (Malhotra, 2009) is as follows:

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_k X_{ki} + \varepsilon_i$$

And which is estimated by the following equation:

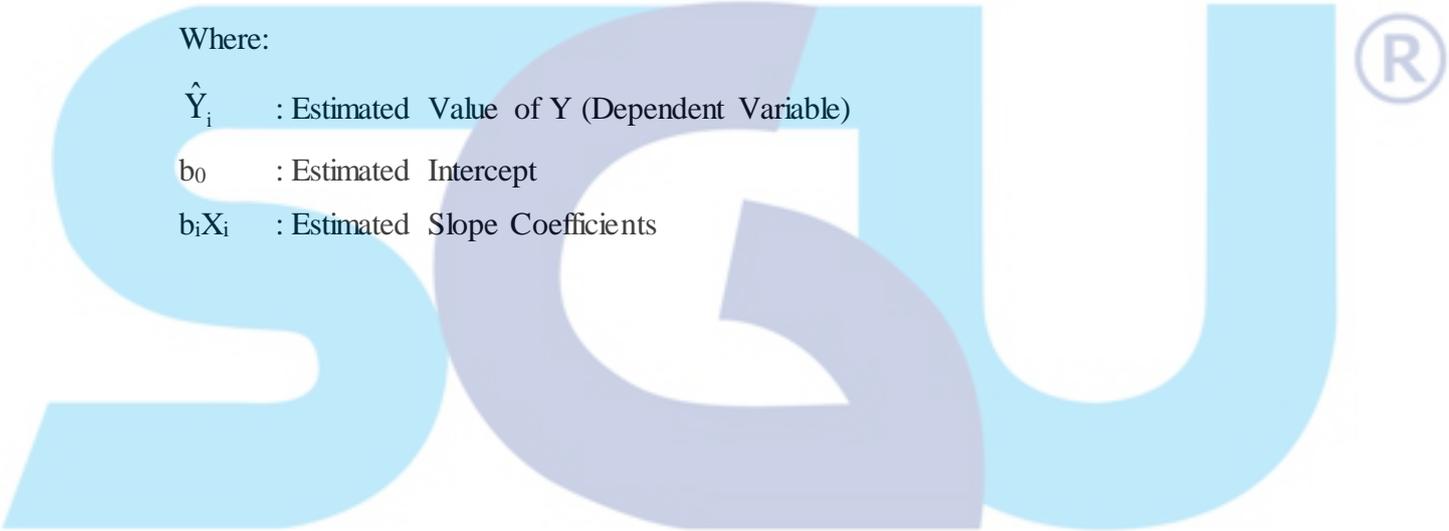
$$\hat{Y}_i = b_0 + b_1 X_{1i} + b_2 X_{2i} + \dots + b_k X_{ki}$$

Where:

\hat{Y}_i : Estimated Value of Y (Dependent Variable)

b_0 : Estimated Intercept

$b_i X_i$: Estimated Slope Coefficients



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