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Influence Factors of the Implementation of CCO in Cost Overrun (Cost Explanation) In the Implementation of Road Construction Projects in Klaten Regency APBD for Fiscal Year 2017-2018

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ABSTRACT
The construction industry is one of the largest industries in the world. In Indonesia, the construction industry is growing rapidly, for example in fulfilling people's lives especially the development of connectivity such as roads. One of the problems in the construction is cost overruns, so it is need to doing CCO (Contract Change Order). So it is necessary to know the factors that influence the implementation of the CCO then causing Cost Overrun on road construction projects in Klaten district budget for 2017-2018. The data of this research were obtained from the development of previous research in the form of questionnaire results then grouping the Cost Overrun and CCO variables based on PerPres No. 16 of 2018 in articles 54-58 and Lamp. III B. SDP PK PerMen PUPR No. 14 of 2020 in articles 36-41 concerning contracts changes order. This study with the help of the SPSS application program version 26 of 2019. From the results of the analysis, it is found that the CCO factors that affect the Cost Overrun, namely Cost Estimates (X1), Implementation & Work Relationships (X2), and Implementation Time (X8). Also the dominant factor is lack of K3 at the project location (lack of application of SMKK) (Xcco1.3) with a coefficient of 0.385. And the magnitude of the effect of CCO on Cost Overrun is explained by a regression of 47.6%.
Keywords **-** A construction, CCO, dominant factors, cost overruns.

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I. INTRODUCTION

The construction industry is one of the largest industries in the world. The average country in the world allocates state revenue budgets each year to meet the construction sector. In Indonesia, the construction industry is growing rapidly, this can be seen from the size Indonesian APBN (Anggaran Pendapatan Belanja Negara) in order to meet the infrastructure sector every year which is always increasing. Through the kemenkeu.go.id website, the APBN to meet infrastructure has increased in the past five years. As in 2019 it was 399.7 Trillion Rupiah and in 2020, with a budget absorption of funds for the infrastructure sector of 423.3 Trillion Rupiah, an increase of 5.9%. This proves that the infrastructure sector is very important to fulfill people's lives, especially the development of connectivity such as roads and bridges.

The construction service industry and its environment are very complex, starting from the implementation of development, the documents accompanying the development, the market conditions to be addressed to the problems in it. Although problems in the construction world are common, they must be considered in detail. Therefore, problems in construction are always in the spotlight that need to be followed up because they can affect cost overruns in construction projects. One of the problems that often affects cost overruns is a change in contract or CCO (Contract Change Order).

This research is a development of previous research that discusses cost overrun in Klaten Regency, this research was conducted by grouping

the cost overrun variable and the CCO variable based on Presidential Regulation No. 16 of 2018 articles 54-58 and Appendix III B. SDP PK PerMen PUPR No. 14 of 2020 articles 36-41 regarding contract changes. The purpose of this study is to find out what factors influence CCO so that it results in an increase in the cost of road projects in Klaten Regency in the formation of the 2017-2018 APBD.

As for the benefits for the parties involved in construction services such as contractors, consultants and owners to provide additional information on what factors affect CCO causing cost overrun.

Respondents in this study are contractors who can carry out road construction projects in Klaten Regency APBD in 2017-2018 with the smallest project value of IDR 500 million. This is based on the Regulation of the Minister of Public Works Number 08/PRT/M/2011 concerning the qualifications of the construction implementer.

II. METHOD

The method in this research is to conduct a survey to the respondents by providing a questionnaire of questions that are used as data sources. The sample from this survey will be the primary data source. Then to determine the minimum sample in this study using the Slovin formula and using the Isaac & Michael sample determination table with an error rate of 5%.

The original data used in this study used data from previous researchers belonging to Burhan Fauzan Nur R in the form of original data and subsequently developed into new data based on Presidential Regulation No. 16 of 2018 Articles 54-58 and Appendix III B. SDP PK PerMen PUPR No. 14 of 2020 articles 36-41 regarding contract changes.

These stages can be seen in the flow chart shown in Figure 1 below:

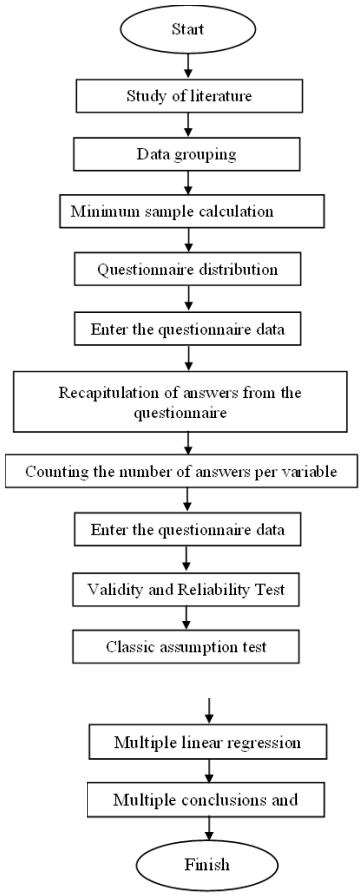

Figure 1. Research Stages Flowchart

III. RESULT AND DISCUSSION

The analysis in this study is divided into 2 parts, namely the test on the CCO factor and the second test on the cost overrun factor. This research is quantitative research because the data used are in the form of numbers obtained from distributing questionnaires to respondents. The variables used in this study are the dependent variable and the independent variable. The dependent/bound variable in this study is cost overruns (Y) on road projects in Klaten Regency APBD in 2017-2018. And the independent/independent variables are in the form of X1 to X9, and are divided into more sub-variables such as X1.1, X1.2, X1.3 and so on. In order to achieve the research objectives, Multiple Linear Regression was used with the help of the SPSS application program version 26 in 2019.

2.1 Validity Test

Validity test is used to determine whether the questionnaire used in the study is appropriate or not. Sub-variables can be declared valid if they have a value of $r_{count} > r_{table}$. Where the value of r table is 0.1975 (obtained from table r). For testing the CCO factor and cost overrun in the study, all question items were declared valid.

2.2 Reliability Test

Determination of the data can be included as reliable, namely by comparing the value items from the SPSS version 26 of 2019 output processing in the form of Cronbach's alpha value > 0.6. The purpose of this test is to determine the consistency of respondents' answers in the questionnaire questions.

Table 1. Alpha Value of Factor Reliability Test CCO

Reliability Statistics	
Cronbach's Alpha	N of Items
,919	18

From the test results above, the reliability of the CCO factor for Cronbach's Alpha value is 0.919 (>0.6 all items are reliable).

Table 2. Alpha value of reliability test factor cost overrun

Reliability Statistics	
Cronbach's Alpha	N of Items
,858	20

From the test results above, the reliability of the cost overrun factor for Cronbach's Alpha value is 0.858 (> 0.6 all items are declared reliable).

From the results of testing the validity and reliability for the CCO factor and the cost overrun factor, all items are declared valid and reliable so that they can proceed to the classical assumption test.

2.3 Classic Assumption Test

The classical assumption test aims to determine whether there are deviations from the classical assumptions in fulfilling the multiple linear regression analysis method. The classical assumption test in this study was carried out 2 times by testing the classical assumption of the CCO factor and the Cost Overrun factor.

2.3.1 Classical Assumption Test for CCO Faktor Factor

a. Normality Test

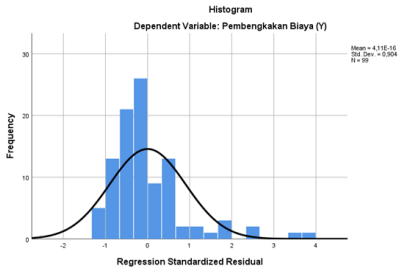

Figure 2. Histogram of Normality of CCO Factors (before removing Outlier)

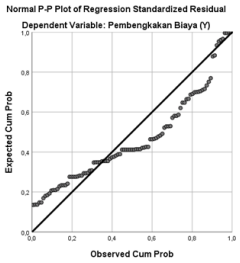

Figure 3. Normal PP Plot of Resgression Standardized CCO Factors (before removing Outlier)

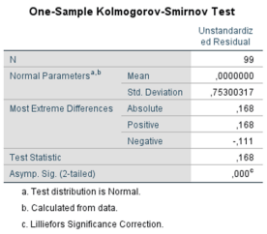

Figure 4. One-Sample Kolmogorov-Smirnov Test of CCO Factors (before removing Outlier)

From the histogram diagram, the PP-Plot graph visually, can show that the histogram distribution shows that the data is not normally distributed and the value p_value the Kolmogorov-Smirnov test is smaller than 0.05 so that it further proves the data is not normally distributed, so that data that are not normally distributed, it is necessary to remove outlier data. After getting the results that the data is not normally distributed, an outlier test is carried out, the outlier test is carried out by looking at the histogram diagram, PP-Plot and the Kolmogorov-Smirnov One-Sample table, the numbers that lie outside the histogram graph are

observation numbers that need to be removed. The outlier test can be seen in appendix 6.

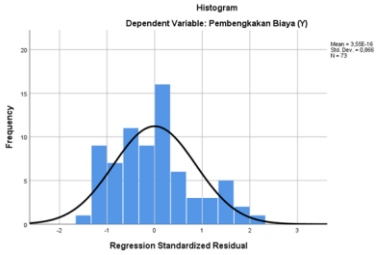

Figure 5. CCO Factors Normality Histogram Diagram (after removing Outlier)

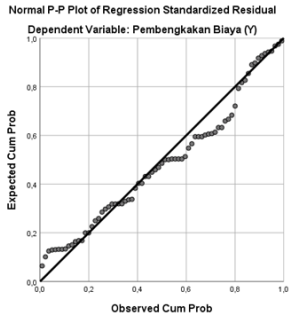

Figure 6. Normal PP Plot of Regression Standardized CCO Factors (after removing Outlier)

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		73
Normal Parameters[a,b]	Mean	,0000000
	Std. Deviation	,44938869
Most Extreme Differences	Absolute	,102
	Positive	,102
	Negative	-,065
Test Statistic		,102
Asymp. Sig. (2-tailed)		,060[c]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

Figure 7. One-Sample *Kolmogorov-Smirnov Test of CCO Factors* (after removing Outlier)

Based on the histogram diagram, the PP-Plot graph visually and seen in Figure V.6 above the value of p_value Kolmogorov-Smirnov test is 0.369, because p_value > 0,05 then the normal distribution is met. The results of this test are obtained by removing outliers (data that are too extreme). So that the number of respondents who were originally 99 respondents became 73 respondents.

b. Heteroscedasticity Test

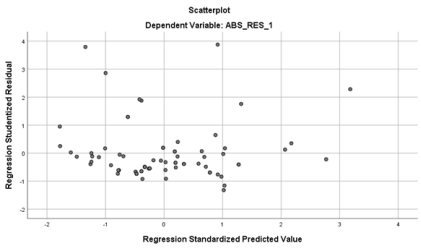

Figure 8. Scatterplot Error CCO Factors

Based on the observation that the data has conclution that there is no symptom of heteroscedasticity fulfilled.

c. Multicollinearity Test

Tabel 3. CCO Factor Multicollinearity Test Results

Variabel	VIF	*Tolerance*	Description
Cost Estimate (X1)	7,408	0,135	Non-Multicollinearity
Hub. & Pelaxs. Work (X2)	7,548	0,132	Non-Multicollinearity
Document Aspect (X3)	2,004	0,499	Non-Multicollinearity
Materials (X4)	1,485	0,673	Non-Multicollinearity
Labor (X5)	2,080	0,481	Non-Multicollinearity
Equipment (X6)	2,374	0,421	Non-Multicollinearity
Project Finance (X7)	1,308	0,764	Non-Multicollinearity
Execution Time (X8)	2,082	0,480	Non-Multicollinearity

Based on the results in the table, it can be seen that the VIF value for all X1-X8 variables is smaller than 10 and the Tolerance value is <0.1, it can be concluded that multicollinearity is not met.

2.3.2 Classical Assumption Test for CCO Faktor Factor

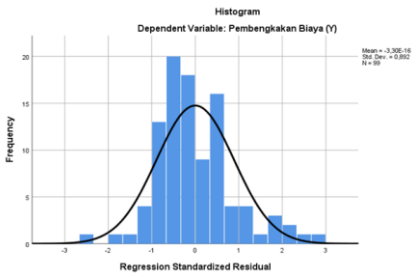

Figure 9. Normality Histogram Diagram of Cost Overrun Factors (before removing Outliers)

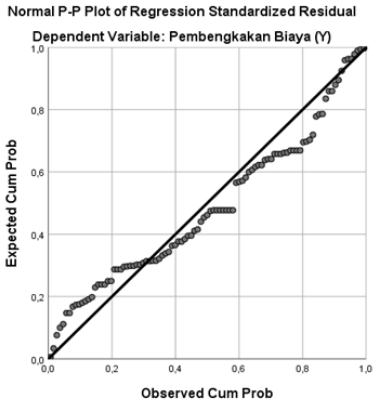

Figure 10. Normal PP Plot Cost Overrun Factors (before removing Outlier)

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		99
Normal Parameters[a,b]	Mean	,0000000
	Std. Deviation	,65109983
Most Extreme Differences	Absolute	,112
	Positive	,112
	Negative	-,069
Test Statistic		,112
Asymp. Sig. (2-tailed)		,004[c]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

Figure 11. One-Sample Kolmogorov-Smirnov Test of CCO Factors (before removing Outlier)

From the histogram diagram, thus further proving that the data is not normally distributed, so that the data are not distributed.

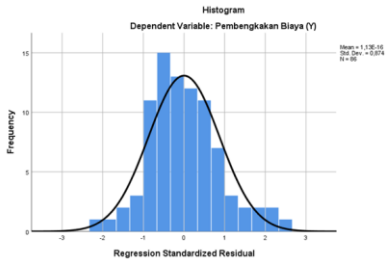

Figure 12. Normality Histogram Diagram of Cost Overrun Factors (after removing Outliers)

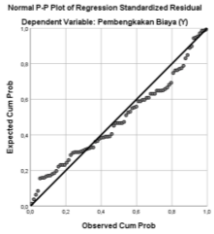

Figure 13. Normal PP Plot Cost Overrun Factors (after removing Outliers)

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		86
Normal Parameters[a,b]	Mean	,0000000
	Std. Deviation	,68729778
Most Extreme Differences	Absolute	,091
	Positive	,091
	Negative	-,077
Test Statistic		,091
Asymp. Sig. (2-tailed)		,073[c]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

Figure 14. One-Sample K-Smirnov Test Cost Overrun Factors (after removing Outliers)

Based on the histogram diagram, the PP-Plot graph visually and as seen in Figure 14 above, the p_{value} of the Kolmogorov-Smirnov test for the Cost Overrun Factor is 0.067, because $p_{value} > 0.05$, the normal distribution is fulfilled. The results of this test are obtained by removing outliers (data that are too extreme). So that the number of respondents was originally 99 respondents to 86 respondents due to the disposal of outliers (data that is too extreme).

b. Heteroscedasticity Test

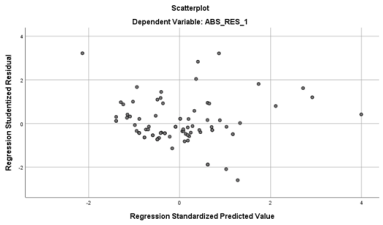

Figure 15. Scatterplot Error Cost Overrun Factors

Based on the observations of Figure V.14. Scatterplot Error Cost Overrun Factors the data points spread above and below or around the number 0, the points do not collect only above and below and the spread of the dots does not form a wavy/funnel pattern or form a wide and then narrow. So, it can be concluded that there is no symptom of heteroscedasticity fulfilled.

c. Multicollinearity test

Multicollinearity test can be seen from the VIF value. Multicollinearity occurs when the VIF value is > 10 and the Tolerance value is < 0.1.

Table 4. Multicollinearity Test Results Cost Overrun

Variabel	VIF	*Tolerance*	Explanation
Cost Estimate (X1)	2,000	0,500	Non-Multicollinearity
Relations. & Workers (X2)	1,124	0,890	Non-Multicollinearity
Document Aspect (X3)	1,257	0,796	Non-Multicollinearity
Materials (X4)	2,835	0,353	Non-Multicollinearity
Labor (X5)	1,944	0,514	Non-Multicollinearity
Equipment (X6)	1,924	0,520	Non-Multicollinearity
Project Finance (X7)	1,907	0,524	Non-Multicollinearity
Execution Time (X8)	2,492	0,401	Non-Multicollinearity
Field Setting (X9)	2,278	0,439	Non-Multicollinearity

Based on the results in the table, it can be seen that the VIF value for all variables X1-X9 is smaller than 10 and the Tolerance value is <0.1, it can be concluded that there is no multicollinearity fulfilled.

2.4 Multiple Linear Regression Analysis Test

2.4.1 CCO Factor Multiple Linear Regression Test

a. Simultaneous Significance Test (F Test)

Table 5. ANOVA CCO

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13,213	18	0,734	2,726	,002[b]
	Residual	14,540	54	0,269		
	Total	27,753	72			

Based on the results of the F test above, the pvalue is 0.002. Because $p_{value} = 0.002 < \alpha = 0.05$, so H1 is accepted so that there is an independent variable that has a significant effect on the Swelling of Costs (Y) of Road Projects in Klaten Regency.

b. Individual Parameter Significance Test (t Test)

Table 6. T-Test Results of CCO Factors

Analysis Factors			α	p_{value}	t_{table}	t_{count}	Expl.
Variabel	Question Items						
X1 Estimated Cost	X1.1	Incomplete project data and information (working drawings, technical specifications)	0,05	0,736	2,00488	0,339	TBS
	X1.2	Does not account for incidental costs	0,05	0,367	2,00488	-0,910	TBS
	X1.3	Lack of OHS at the project site (lack of implementation of SMKK)	0,05	0,050	2,00488	2,005	BS
	X1.4	Inaccuracy of initial project cost estimation	0,05	0,196	2,00488	1,310	TBS
	X1.5	Errors in design and engineering calculations	0,05	0,003	2,00488	-3,122	BS
X2 Relationship & Executor. work	X2.1	There are new public policies from the government (such as appeals for natural disasters, social disasters, pandemics, etc.)	0,05	0,110	2,00488	-1,625	TBS
	X2.2	Inappropriate appointment of subcontractors and supplier selection	0,05	0,886	2,00488	-0,144	TBS
	X2.3	Delay in decision making to neglect of work	0,05	0,856	2,00488	-0,183	TBS
	X2.4	Lack of attention to location and construction risks	0,05	0,590	2,00488	0,543	TBS
X2 Relationship & Executor. work	X2.5	Poor schedule and resource management	0,05	0,596	2,00488	0,533	TBS
	X2.6	Inappropriate placement of project personnel in the organizational structure so that they are unable or neglecting work	0,05	0,555	2,00488	0,595	TBS
X3 Document Aspect	X3.1	Differences in field conditions written in the contract (work drawings, technical specifications)	0,05	0,723	2,00488	-0,357	TBS
X4 Material	X4.1	There is an increase in the price of project materials	0,05	0,218	2,00488	1,248	TBS
X5 Labor	X5.1	Poor worker performance productivity	0,05	0,137	2,00488	1,509	TBS
X6 Equipment	X6.1	The performance/ability of the equipment is not optimal and does not match the specifications of the equipment rented	0,05	0,780	2,00488	-0,280	TBS
X7 Project Finance	X7.1	Improper disbursement system	0,05	0,336	2,00488	-0,970	TBS
X8 Execution Time	X8.1	There is a delay in the schedule due to the influence of extreme weather	0,05	0,834	2,00488	0,211	TBS
	X8.2	There is a natural disaster	0,05	0,045	2,00488	2,052	BS

Explanation:
TBS = No Significant Effect
BS = Significant Influence

c. Test the coefficient of determination (R^2)

Table 7. Coefficient of Determination of CCO Factors

Model Summary[b]

Model	R	R square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,690[a]	0,476	0,301	0,519	1,784

The result R-squared value of 0.476. It means that the influence of the independent variable (X) on the dependent variable (Y) that can be explained by the regression is 47.6% and the remaining 52.4% is an influence that cannot be explained by the regression.

d. Multiple linear regression equation CCO. factor

Y = 0,469 + 0,033(X1.1) – 0,102(X1.2) + 0,245(X1.3) + 0,118(X1.4) – 0,303(X1.5) – 0,143(X2.1) – 0,017(X2.2) – 0,019(X2.3) + 0,063(X2.4) + 0,079(X2.5) + 0,067(X2.6) – 0,031(X3.1) + 0,100(X4.1) + 0,145(X5.1) – 0,028(X6.1) – 0,082(X7.1) + 0,016(X8.1) + 0,146(X8.2) + e

From the CCO factor regression equation, it is explained that with incomplete project data and information (working drawings, technical specifications) (XCCO1.1) showing a positive (+)

value with a value of +0.033 (Xcco1.1) it can be ascertained that it is directly proportional with Swelling of project costs (Y). Meanwhile, on the other hand, not taking into account unexpected costs (XCCO1.2) shows a negative value (–) with a value of -0.102 (Xcco1.2), which means that it is inversely proportional to the swelling of project costs (Y). So, it can be concluded that a positive (+) value will increase while a negative (–) value can cause a decrease in project cost swelling (Y).

2.4.2 Multiple Linear Regression Test Cost Overrun Factor

a.Simultaneous Significance Test (F Test)

Table 8. ANOVA *cost overrun*

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28,778	20	1,438	2,329	,006[b]
	Residual	40,152	65	0,618		
	Total	68,930	85			

Based on the results of the F test above, the pvalue is 0.002. Because pvalue = 0.006 < α = 0.05, so H1 is accepted so that there is an independent variable that has a significant effect on Swelling Cost (Y) Road Projects in Klaten Regency.

b. Individual Parameter Significance Test (t Test)

Tabel 9. T Test Results of Cost Overrun Factors

Analysis Factors			A	p_{value}	t_{table}	t_{count}	Expl.
Variabel	Question Items						
X1 Estimated costs	X1.1	Does not take into account the effect of inflation and expansion (the effect of rising prices of goods)	0,05	0,868	1,99714	0,167	TBS
	X1.2	Compensation costs for disputes around the project/project environment (land, rice fields)	0,05	0,504	1,99714	-0,673	TBS
X2 Implementation & Work Relations	X2.2	The impact of the addendum and *CCO (Contract Change Order)*	0,05	0,545	1,99714	0,609	TBS
X3 Document Aspect	X3.1	Different types of contracts used	0,05	0,159	1,99714	-1,423	TBS
	X3.2	The local community's rejection of the existence of a project	0,05	0,361	1,99714	-0,920	TBS
X4 Material	X4.1	Use of imported materials	0,05	0,500	1,99714	-0,678	TBS
	X4.2	Theft of project materials	0,05	0,438	1,99714	-0,780	TBS
	X4.3	Damage to project materials	0,05	0,008	1,99714	-2,727	BS
		Delay in material supply	0,05	0,648	1,99714	-0,458	TBS
X5 Labor	X5.1	Shortage of labor	0,05	0,478	1,99714	0,714	TBS
		Too often in Procurement of overtime schedule	0,05	0,955	1,99714	-0,057	TBS
X6 Equipment	X6.1	Expensive equipment rental prices	0,05	0,295	1,99714	1,056	TBS
	X6.2	Equipment maintenance costs not according to plan or exceeding estimated costs	0,05	0,154	1,99714	1,443	TBS
	X6.3	High cost of equipment mobilization/demobilization equipment	0,05	0,952	1,99714	0,060	TBS
		Transportation to difficult project sites	0,05	0,097	1,99714	1,686	TBS
X7 Project Finance	X7.1	Poor cost control	0,05	0,924	1,99714	-0,096	TBS
	X7.2	High bank loan interest rates	0,05	0,603	1,99714	0,523	TBS
X8 Execution time	X8.1	Absence or shortage of materials/materials at the time of project implementation	0,05	0,001	1,99714	3,515	BS
X9 Field Setting	X9.1	Limited project area	0,05	0,555	1,99714	-0,594	TBS
	X9.2	Lack of provision of field support facilities (communication equipment, water supply, and generator)	0,05	0,138	1,99714	-1,502	TBS

Explanation:

TBS = No Significant Effect

BS = Significant Influence

c. Test the coefficient of determination (R^2)

Table 10. Coefficient of Determination of Cost Overrun Factors

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,646[a]	0,417	0,238	0,784	1,726

The result R-squared value of 0.417. It means that the influence of the independent variable (X) on the dependent variable (Y) which can be explained by the regression is 41.7% and the remaining 58.3% is an influence that cannot be explained by the regression.

d. Multiple linear regression equation Cost Overrun

Y = 1,633 + 0,018(X1.1) – 0,088(X1.2) + 0,060(X2.1) – 0,181(X3.1) – 0,113(X3.2) – 0,109(X4.1) – 0,092(X4.2) – 0,379(X4.3) – 0,081(X4.4) + 0,114(X5.1) – 0,006(X5.2) + 0,144(X6.1) + 0,167(X6.2) + 0,008(X6.3) + 0,204(X6.4) – 0,015(X7.1) + 0,053(X7.2) + 0,487(X8.1) – 0,075(X9.1) – 0,224(X9.2) + e

From the regression equation for the cost overrun factor, it is explained that by not taking into account the effect of inflation and exclusion (the effect of rising prices of goods) (XCO1.1) shows a positive (+) value with a value of +0.018 (Xco1.1), then it can be ascertained that it is directly proportional to the swelling of project costs (Y). Meanwhile, on the contrary, the cost of compensation for disputes around the project/project environment (land, rice fields) (XCO1.2) shows a negative value (–) with a value of -0.088(Xco1.2) which means that it is inversely proportional to the swelling of project costs (Y). So, it can be concluded that a positive (+) value will increase while a negative (–) value can cause a decrease in project cost swelling (Y).

2.5 Determination of the dominant Contract Change Order (CCO) factors from t-test analysis, multiple linear regression equations, and the Pearson correlation value of Cost Overrun (CO) or cost overruns on road projects in Klaten Regency APBD 2017-2018.

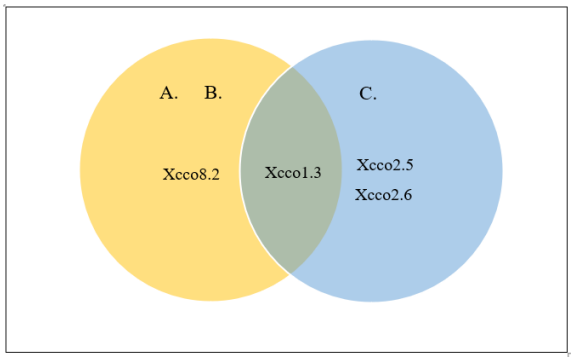

Figure 16. Determination of the dominant factor of Contract Change Order (CCO)

Explanation:

A = Multiple Linear Regression Analysis T Test,

B = Multiple Linear Regression Equation, and

C = Pearson Correlation Value.

From the results of the t-test, multiple linear regression equations, and the Pearson correlation value, it is found that the difference in the dominant factors that cause road project cost overruns is the variable Lack of K3 at the project site (lack of implementation of SMKK) (Xcco1.3), Poor schedule and resource management (Xcco2.5), Inappropriate placement of project personnel in the organizational structure so that they are unable or neglecting work (Xcco2.6) and the presence of natural disasters (Xcco8.2) which are shown in the following percentage, such as:

a. t test results

Xcco1.3 = Lack of K3 at the project site (lack of implementation of SMKK) (20,05%)

Xcco8.2 = The presence of natural disasters(20.52%)

b. Result of multiple linear regression equation

Xcco1.3 = Lack of K3 at the project site (lack of implementation of SMKK) (24,5%)

Xcco8.2 = Adanya bencana alam (14,6%)

c. Pearson correlation value

Xcco1.3 = Lack of K3 at the project site (lack of implementation of SMKK) (42,9%)

Xcco2.5 = Poor schedule and resource management (35.4%)

Xcco2.6 = Inappropriate placement of project personnel on the structure organization so that they are unable or neglecting their work (38.6%)

2.6 Determination of the magnitude of the influence of CCO factors on Cost Overrun (CO) or cost overruns on road projects in Klaten Regency

Based on the coefficient of determination indicated by the R-squared value of 0.476. It means that the influence of the independent variable (X) on the dependent variable (Y) that can be explained by the regression is 47.6% and the remaining 52.4% is an influence that cannot be explained by the regression. It could be due to other factors not included in the study

IV. CONCLUSION

The conclusion of this study is that the factors that affect CCO causing cost overruns for road projects in Klaten Regency APBD in 2017-2018 are the Cost Estimation factor (X1) due to Lack of K3 at the project site (lack of implementation of SMKK) (Xcco1.3), Implementation & Work Relations factors (X2) due

to poor schedule and resource management (Xcco2.5) and inappropriate placement of project personnel in the organizational structure so that they are unable or neglecting work (Xcco2.6), and the last factor is Implementation Time (X8) due to a natural disaster (Xcco8.2). With the dominant influence of the CCO factor on the occurrence of road project cost overruns of 47.6%.

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