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LAMPIRAN

Lampiran 1. Peramalan jumlah penduduk (X1) dan PDRB (X2)

1. Jumlah penduduk

a. Hasil peramalan

Tahun	Metode Permalan				Keterangan
	Metode Pertumbuhan Geometrik	SMA (n = 2 tahun)	SMA (n = 3 tahun)	SMA (n = 4 tahun)	
2019	825.768	825.768	825.768	825.768	Eksisting
2020	880.488	880.488	880.488	880.488	
2021	890.039	890.039	890.039	890.039	
2022	902.632	902.632	902.632	902.632	
2023	930.294	930.294	930.294	930.294	
2024	949.741	916.463	907.655	900.863	Peramalan
2025	969.595	923.379	913.527	905.957	
2026	989.865	919.921	917.159	909.937	
2027	1.010.557	921.650	912.780	911.763	
2028	1.031.683	920.785	914.489	907.130	
2029	1.053.250	921.217	914.809	908.697	

b. Metode pertumbuhan

Tahun	Jumlah Penduduk (orang)	Periode	Laju pertumbuhan (%)	Peramalan (X1)			
				Tahun	Periode	Jumlah Penduduk (orang)	Laju pertumbuhan (%)
2019	825.768	1	0	2024	1	949.741	2,09%
2020	880.488	2	3,26%	2025	2	969.595	2,09%
2021	890.039	3	2,53%	2026	3	989.865	2,09%
2022	902.632	4	2,25%	2027	4	1.010.557	2,09%
2023	930.294	5	2,41%	2028	5	1.031.683	2,09%
Rata-rata pertumbuhan (%)			2,09%	2029	6	1.053.250	2,09%

c. Metode *Single Moving Average* (SMA)

Tahun	Jumlah Penduduk (orang)	<i>Single Moving Average</i> (n = 2 tahun)			
		Peramalan	Error	Tahun	Peramalan (X1)
2019	825.768	-	-	2024	916.463
2020	880.488	-	-	2025	923.379
2021	890.039	853.128	36.911	2026	919.921
2022	902.632	885.264	17.369	2027	921.650
2023	930.294	896.336	33.959	2028	920.785
Mean Absolute Error (MAE)			29.413	2029	921.217

Tahun	Jumlah Penduduk (orang)	<i>Single Moving Average (n = 3 tahun)</i>			
		Peramalan	Error	Tahun	Peramalan (X1)
2019	825.768	-	-	2024	907.655
2020	880.488	-	-	2025	913.527
2021	890.039	-	-	2026	917.159
2022	902.632	865.432	37.200	2027	912.780
2023	930.294	891.053	39.241	2028	914.489
Mean Absolute Error (MAE)			38.221	2029	914.809

Tahun	Jumlah Penduduk (orang)	<i>Single Moving Average (n = 4 tahun)</i>			
		Peramalan	Error	Tahun	Peramalan (X1)
2019	825.768	-	-	2024	900.863
2020	880.488	-	-	2025	905.957
2021	890.039	-	-	2026	909.937
2022	902.632	-	-	2027	911.763
2023	930.294	874.732	55.562	2028	907.130
Mean Absolute Error (MAE)			55.562	2029	908.697

2. PDRB

a. Hasil peramalan

Tahun	Metode Permalan				Keterangan
	Metode Pertumbuhan Geometrik	SMA (n = 2 tahun)	SMA (n = 3 tahun)	SMA (n = 4 tahun)	
2019	13.756	13.756	13.756	13.756	Eksisting
2020	13.922	13.922	13.922	13.922	
2021	14.220	14.220	14.220	14.220	
2022	14.653	14.653	14.653	14.653	
2023	15.204	15.204	15.204	15.204	
2024	15.366	14.928	14.692	14.500	Peramalan
2025	15.529	15.066	14.850	14.644	
2026	15.695	14.997	14.915	14.750	
2027	15.862	15.031	14.819	14.774	
2028	16.031	15.014	14.861	14.667	
2029	16.202	15.023	14.865	14.709	

b. Metode Pertumbuhan

Tahun	PDRB	Periode	Laju pertumbuhan (%)	Peramalan (X2)			
				Tahun	Periode	PDRB	Laju pertumbuhan (%)
2019	13.755,6	1	0,00%	2024	1	15.365,7	1,07%
2020	13.921,9	2	0,60%	2025	2	15.529,4	1,07%
2021	14.220,2	3	1,11%	2026	3	15.695,0	1,07%
2022	14.652,7	4	1,59%	2027	4	15.862,3	1,07%
2023	15.203,6	5	2,02%	2028	5	16.031,4	1,07%
Rata-rata pertumbuhan (%)			1,07%	2029	6	16.202,2	1,07%

c. Metode *Single Moving Average* (SMA)

Tahun	Jumlah Penduduk (orang)	<i>Single Moving Average</i> (n = 2 tahun)			
		Peramalan	Error	Tahun	Peramalan (X2)
2019	13.755,6	-	-	2024	14.928,2
2020	13.921,9	-	-	2025	15.065,9
2021	14.220,2	13.838,8	381	2026	14.997,0
2022	14.652,7	14.071,1	582	2027	15.031,5
2023	15.203,6	14.436,5	767	2028	15.014,2
Mean Absolute Error (MAE)			577	2029	15.022,8

Tahun	Jumlah Penduduk (orang)	<i>Single Moving Average (n = 3 tahun)</i>			
		Peramalan	Error	Tahun	Peramalan (X2)
2019	13.755,6	-	-	2024	14.692,2
2020	13.921,9	-	-	2025	14.849,5
2021	14.220,2	-	-	2026	14.915,1
2022	14.652,7	13.965,9	687	2027	14.818,9
2023	15.203,6	14.264,9	939	2028	14.861,2
Mean Absolute Error (MAE)			813	2029	14.865,1

Tahun	Jumlah Penduduk (orang)	<i>Single Moving Average (n = 4 tahun)</i>			
		Peramalan	Error	Tahun	Peramalan (X2)
2019	13.755,6	-	-	2024	14.499,6
2020	13.921,9	-	-	2025	14.644,0
2021	14.220,2	-	-	2026	14.750,0
2022	14.652,7	-	-	2027	14.774,3
2023	15.203,6	14.137,6	1.066	2028	14.667,0
Mean Absolute Error (MAE)			1.066	2029	14.708,8

Lampiran 2. Peramalan arus penumpang (X3)

a. Hasil Peramalan

Tahun	Metode Permalan								
	Regresi Linear Sederhana (X1)	Regresi Linear Sederhana (X2)	Regresi Linear Berganda (X1,X2)	Pertumbuhan Geometrik	SMA (n = 2 bulan)	SMA (n = 3 bulan)	SMA (n = 4 bulan)	SMA (n = 5 bulan)	SMA (n = 10 bulan)
2023	475841	475841	475841	475841	475841	475841	475841	475841	475841
2024	293916	407071	293916	361869	378346	380853	377066	373665	409246
2025	-105200	415454	-105200	214026	369171	372885	366284	360450	413305
2026	-520117	402596	-520117	116136	369192	372912	366312	360432	414362
2027	-947138	389601	-947138	63022	369192	372912	366312	360432	414175
2028	-1386551	376468	-1386551	34194	369192	372912	366312	360432	414191
2029	-1838652	363195	-1838652	18557	369192	372912	366312	360432	414192

b. Metode regresi linear sederhana (X1)

Bulan	Penumpang (orang)	Penduduk (X1)
Jan-23	57.591	904.937
Feb-23	36.524	907.242
Mar-23	25.176	909.548
Apr-23	33.541	911.853
May-23	29.854	914.158
Jun-23	36.562	916.463
Jul-23	38.488	918.768
Aug-23	38.488	921.073
Sep-23	38.489	923.379
Oct-23	38.490	925.684
Nov-23	51.068	927.989
Dec-23	51.570	930.294
Jan-24	49.275	931.915
Feb-24	26.496	933.535
Mar-24	24.627	935.156
Apr-24	35.078	936.776
May-24	25.887	938.397
Jun-24	33.201	940.018

c. Metode regresi linear sederhana (X2)

Bulan	Penumpang (orang)	PDRB (X2)
Jan-23	57.591	14.699
Feb-23	36.524	14.745
Mar-23	25.176	14.790
Apr-23	33.541	14.836
May-23	29.854	14.882
Jun-23	36.562	14.928
Jul-23	38.488	14.974
Aug-23	38.488	15.020
Sep-23	38.489	15.066
Oct-23	38.490	15.112
Nov-23	51.068	15.158
Dec-23	51.570	15.204

Bulan	Penumpang (orang)	PDRB (X2)
Jan-24	49.275	15.217
Feb-24	26.496	15.231
Mar-24	24.627	15.244
Apr-24	35.078	15.258
May-24	25.887	15.271
Jun-24	33.201	15.285

d. Metode regresi linear berganda (X1, X2)

Bulan	Penumpang (orang)	Penduduk (X1)	PDRB (X2)
Jan-23	57.591	904.937	14.699
Feb-23	36.524	907.242	14.745
Mar-23	25.176	909.548	14.790
Apr-23	33.541	911.853	14.836
May-23	29.854	914.158	14.882
Jun-23	36.562	916.463	14.928
Jul-23	38.488	918.768	14.974
Aug-23	38.488	921.073	15.020
Sep-23	38.489	923.379	15.066
Oct-23	38.490	925.684	15.112
Nov-23	51.068	927.989	15.158
Dec-23	51.570	930.294	15.204
Jan-24	49.275	931.915	15.217
Feb-24	26.496	933.535	15.231
Mar-24	24.627	935.156	15.244
Apr-24	35.078	936.776	15.258
May-24	25.887	938.397	15.271
Jun-24	33.201	940.018	15.285

e. Metode pertumbuhan geometrik

Bulan	Penumpang (orang)	Periode	Laju pertumbuhan
Jan-23	57.591	1	0
Feb-23	36.524	2	-20,36%
Mar-23	25.176	3	-24,11%
Apr-23	33.541	4	-12,64%
May-23	29.854	5	-12,31%
Jun-23	36.562	6	-7,29%
Jul-23	38.488	7	-5,59%
Aug-23	38.488	8	-4,91%
Sep-23	38.489	9	-4,38%
Oct-23	38.490	10	-3,95%
Nov-23	51.068	11	-1,09%
Dec-23	51.570	12	-0,92%
Jan-24	49.275	13	-1,19%
Feb-24	26.496	14	-5,39%
Mar-24	24.627	15	-5,51%
Apr-24	35.078	16	-3,05%
May-24	25.887	17	-4,59%
Jun-24	33.201	18	-3,01%
Rata-rata pertumbuhan			-6,68%

f. Metode *Single Moving Average* (SMA)

Bulan	Penumpang (orang)	SMA (n = 2 bulan)	Error
Jan-23	57.591	-	-
Feb-23	36.524	-	-
Mar-23	25.176	47.058	21.882
Apr-23	33.541	30.850	691
May-23	29.854	29.359	495
Jun-23	36.562	31.698	4.864
Jul-23	38.488	33.208	5.280
Aug-23	38.488	37.525	963
Sep-23	38.489	38.488	1
Oct-23	38.490	38.489	1

Bulan	Penumpang (orang)	SMA (n = 2 bulan)	Error
Nov-23	51.068	38.490	12.578
Dec-23	51.570	44.779	6.791
Jan-24	49.275	51.319	2.044
Feb-24	26.496	50.423	23.927
Mar-24	24.627	37.886	13.259
Apr-24	35.078	25.562	9.516
May-24	25.887	29.853	3.966
Jun-24	33.201	30.483	2.718
Mean Absolute Error (MAE)			6.936

Bulan	Penumpang (orang)	SMA (n = 3 bulan)	Error
Jan-23	57.591	-	-
Feb-23	36.524	-	-
Mar-23	25.176	-	-
Apr-23	33.541	39.764	6.223
May-23	29.854	31.747	1.893
Jun-23	36.562	29.524	7.038
Jul-23	38.488	33.319	5.169
Aug-23	38.488	34.968	3.520
Sep-23	38.489	37.846	643
Oct-23	38.490	38.488	2
Nov-23	51.068	38.489	12.579
Dec-23	51.570	42.682	8.888
Jan-24	49.275	47.043	2.232
Feb-24	26.496	50.638	24.142
Mar-24	24.627	42.447	17.820
Apr-24	35.078	33.466	1.612
May-24	25.887	28.734	2.847
Jun-24	33.201	28.531	4.670
Mean Absolute Error (MAE)			6618,53333

Bulan	Penumpang (orang)	SMA (n = 4 bulan)	Error
Jan-23	57.591	-	-
Feb-23	36.524	-	-
Mar-23	25.176	-	-
Apr-23	33.541	-	-
May-23	29.854	38208	8354
Jun-23	36.562	31274	5288
Jul-23	38.488	31283	7205
Aug-23	38.488	34611	3877
Sep-23	38.489	35848	2641
Oct-23	38.490	38007	483
Nov-23	51.068	38489	12579
Dec-23	51.570	41634	9936
Jan-24	49.275	44904	4371
Feb-24	26.496	47601	21105
Mar-24	24.627	44602	19975
Apr-24	35.078	37992	2914
May-24	25.887	33869	7982
Jun-24	33.201	28022	5179
Mean Absolute Error (MAE)			7992,071

Bulan	Penumpang (orang)	SMA (n = 5 bulan)	Error
Jan-23	57.591	-	-
Feb-23	36.524	-	-
Mar-23	25.176	-	-
Apr-23	33.541	-	-
May-23	29.854	-	-
Jun-23	36.562	36.537	25
Jul-23	38.488	32.331	6.157
Aug-23	38.488	32.724	5.764
Sep-23	38.489	35.387	3.102
Oct-23	38.490	36.376	2.114
Nov-23	51.068	38.103	12.965
Dec-23	51.570	41.005	10.565
Jan-24	49.275	43.621	5.654
Feb-24	26.496	45.778	19.282
Mar-24	24.627	43.380	18.753
Apr-24	35.078	40.607	5.529

Bulan	Penumpang (orang)	SMA (n = 5 bulan)	Error
May-24	25.887	37.409	11.522
Jun-24	33.201	32.273	928
Mean Absolute Error (MAE)			7.873,85

Bulan	Penumpang (orang)	SMA (n = 10 bulan)	Error
Jan-23	57.591	-	-
Feb-23	36.524	-	-
Mar-23	25.176	-	-
Apr-23	33.541	-	-
May-23	29.854	-	-
Jun-23	36.562	-	-
Jul-23	38.488	-	-
Aug-23	38.488	-	-
Sep-23	38.489	-	-
Oct-23	38.490	-	-
Nov-23	51.068	37.320	13.748
Dec-23	51.570	36.668	14.902
Jan-24	49.275	38.173	11.102
Feb-24	26.496	40.583	14.087
Mar-24	24.627	39.878	15.251
Apr-24	35.078	39.355	4.277
May-24	25.887	39.207	13.320
Jun-24	33.201	37.947	4.746
Mean Absolute Error (MAE)			11.429,13

g. Analisis regresi linear sederhana (X1)

SUMMARY OUTPUT

Regression Statistics								
Multiple R	0,18637829							
R Square	0,03473687							
Adjusted R Square	-0,02559208							
Standard Error	9827,70217							
Observations	18							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	1	55612050	55612050	0,575791	0,459			
Residual	16	1,55E+09	96583730					
Total	17	1,6E+09						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	185710,9088	195670,6	0,9491	0,356686	-229092	600514	-229092	600514
X Variable 1	-0,16072423	0,211811	-0,75881	0,459	-0,60974	0,288295	-0,60974	0,288295

h. Analisis regresi linear sederhana (X2)

SUMMARY OUTPUT	
<i>Regression Statistics</i>	
Multiple R	0,13245926
R Square	0,01754546
Adjusted R Square	-0,04385795
Standard Error	9914,83201
Observations	18
ANOVA	

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	1	28089429	28089429	0,285741	0,600313			
Residual	16	1,57E+09	98303894					
Total	17	1,6E+09						

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	135144,243	183159,7	0,737849	0,47129	-253137	523425,4	-253137	523425,4
X Variable 1	-6,50450325	12,16825	-0,53455	0,600313	-32,3	19,29103	-32,3	19,29103

i. Analisis regresi linear berganda (X1,X2)

SUMMARY OUTPUT

<i>Regression Statistics</i>								
Multiple R	0,464455558							
R Square	0,215718965							
Adjusted R Square	0,111148161							
Standard Error	9149,120463							
Observations	18							

<i>ANOVA</i>								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	2	3,45E+08	1,73E+08	2,062899	0,161636			
Residual	15	1,26E+09	83706405					
Total	17	1,6E+09						

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	362939,1941	205563,9	1,765579	0,097808	-75209,8	801088,2	-75209,8	801088,2
X Variable 1	-3,11108228	1,598008	-1,94685	0,070527	-6,51716	0,294991	-6,51716	0,294991
X Variable 2	169,2981768	90,9965	1,860491	0,082535	-24,6563	363,2526	-24,6563	363,2526

Lampiran 3. Peramalan arus barang (X4)

a. Hasil peramalan

Tahun	Metode Permalan								
	Regresi Linear Sederhan a (X1)	Regresi Linear Sederhan a (X2)	Regresi Linear Berganda (X1,X2)	Pertumbuh an Geometrik	SMA (n = 2 bulan)	SMA (n = 3 bulan)	SMA (n = 4 bulan)	SMA (n = 5 bulan)	SMA (n = 10 bulan)
2023	84.157,20	84.157,20	84.157,20	84.157,20	84.157,20	84.157,20	84.157,20	84.157,20	84.157,20
2024	74.118,47	74.492,64	84.540,83	97.652,38	88.248,99	76.766,95	81.068,15	78.507,12	74.874,76
2025	70.757,04	73.236,37	119.357,02	143.933,34	103.559,73	78.748,26	90.469,21	85.698,47	79.006,93
2026	65.376,31	70.228,11	151.896,67	179.474,02	103.564,32	78.734,01	90.435,73	85.703,67	78.685,29
2027	59.883,09	67.187,78	185.462,15	223.790,57	103.564,32	78.734,03	90.435,74	85.704,20	78.687,58
2028	54.275,05	64.115,05	220.078,61	279.049,97	103.564,32	78.734,03	90.435,74	85.704,19	78.690,57
2029	48.549,76	61.009,56	255.771,71	347.954,27	103.564,32	78.734,03	90.435,74	85.704,19	78.690,19

b. Metode regresi linear sederhana (X1)

Bulan	Arus barang (ton)	Penduduk (X1)
Jan-23	4671,31	904.937
Feb-23	8986,11	907.242
Mar-23	8702,03	909.548
Apr-23	8164,77	911.853
May-23	5851,05	914.158
Jun-23	6054,73	916.463
Jul-23	6863,87	918.768
Aug-23	6963,87	921.073
Sep-23	6974,87	923.379
Oct-23	6974,87	925.684
Nov-23	6970,87	927.989
Dec-23	6978,85	930.294
Jan-24	4989	931.915
Feb-24	5088	933.535
Mar-24	3886,2	935.156
Apr-24	6413,84	936.776
May-24	6867,08	938.397
Jun-24	9512	940.018

c. Metode regresi linear sederhana (X2)

Bulan	Arus barang (ton)	PDRB (X2)
Jan-23	4671,31	14.699
Feb-23	8986,11	14.745
Mar-23	8702,03	14.790
Apr-23	8164,77	14.836
May-23	5851,05	14.882
Jun-23	6054,73	14.928
Jul-23	6863,87	14.974
Aug-23	6963,87	15.020
Sep-23	6974,87	15.066
Oct-23	6974,87	15.112
Nov-23	6970,87	15.158
Dec-23	6978,85	15.204
Jan-24	4989	15.217

Bulan	Arus barang (ton)	PDRB (X2)
Feb-24	5088	15.231
Mar-24	3886,2	15.244
Apr-24	6413,84	15.258
May-24	6867,08	15.271
Jun-24	9512	15.285

d. Metode regresi linear berganda (X1,X2)

Bulan	Arus barang (ton)	Penduduk (X1)	PDRB (X2)
Jan-23	4671,31	904.937	14.699
Feb-23	8986,11	907.242	14.745
Mar-23	8702,03	909.548	14.790
Apr-23	8164,77	911.853	14.836
May-23	5851,05	914.158	14.882
Jun-23	6054,73	916.463	14.928
Jul-23	6863,87	918.768	14.974
Aug-23	6963,87	921.073	15.020
Sep-23	6974,87	923.379	15.066
Oct-23	6974,87	925.684	15.112
Nov-23	6970,87	927.989	15.158
Dec-23	6978,85	930.294	15.204
Jan-24	4989	931.915	15.217
Feb-24	5088	933.535	15.231
Mar-24	3886,2	935.156	15.244
Apr-24	6413,84	936.776	15.258
May-24	6867,08	938.397	15.271
Jun-24	9512	940.018	15.285

e. Metode pertumbuhan geometrik

Bulan	Arus barang (ton)	Periode	Laju pertumbuhan
Jan-23	4671,31	1	0,00%
Feb-23	8986,11	2	38,70%
Mar-23	8702,03	3	-1,07%
Apr-23	8164,77	4	-1,58%

Bulan	Arus barang (ton)	Periode	Laju pertumbuhan
May-23	5851,05	5	-6,45%
Jun-23	6054,73	6	0,57%
Jul-23	6863,87	7	1,81%
Aug-23	6963,87	8	0,18%
Sep-23	6974,87	9	0,02%
Oct-23	6974,87	10	0,00%
Nov-23	6970,87	11	-0,01%
Dec-23	6978,85	12	0,01%
Jan-24	4989	13	-2,55%
Feb-24	5088	14	0,14%
Mar-24	3886,2	15	-1,78%
Apr-24	6413,84	16	3,18%
May-24	6867,08	17	0,40%
Jun-24	9512	18	1,83%
Rata-rata pertumbuhan			1,96%

f. Metode *Single Moving Average* (SMA)

Bulan	Arus barang (ton)	SMA (n = 2 bulan)	Error
Jan-23	4.671	-	-
Feb-23	8.986	-	-
Mar-23	8.702	6828,71	1873,32
Apr-23	8.165	8844,07	679,3
May-23	5.851	8433,40	2582,35
Jun-23	6.055	7007,91	953,18
Jul-23	6.864	5952,89	910,98
Aug-23	6.964	6459,30	504,57
Sep-23	6.975	6913,87	61
Oct-23	6.975	6969,37	5,5
Nov-23	6.971	6974,87	4
Dec-23	6.979	6972,87	5,98
Jan-24	4.989	6974,86	1985,86
Feb-24	5.088	5983,93	895,925
Mar-24	3.886	5038,50	1152,3
Apr-24	6.414	4487,10	1926,74

Bulan	Arus barang (ton)	SMA (n = 2 bulan)	Error
May-24	6.867	5150,02	1717,06
Jun-24	9.512	6640,46	2871,54
Mean Absolute Error (MAE)			1133

Bulan	Arus barang (ton)	SMA (n = 3 bulan)	Error
Jan-23	4.671	0,00	-
Feb-23	8.986	-	-
Mar-23	8.702	-	-
Apr-23	8.165	7453,15	711,62
May-23	5.851	8617,64	2766,587
Jun-23	6.055	7572,62	1517,887
Jul-23	6.864	6690,18	173,6867
Aug-23	6.964	6256,55	707,32
Sep-23	6.975	6627,49	347,38
Oct-23	6.975	6934,20	40,66667
Nov-23	6.971	6971,20	0,333333
Dec-23	6.979	6973,54	5,313333
Jan-24	4.989	6974,86	1985,863
Feb-24	5.088	6312,91	1224,907
Mar-24	3.886	5685,28	1799,083
Apr-24	6.414	4654,40	1759,44
May-24	6.867	5129,35	1737,733
Jun-24	9.512	5722,37	3789,627
Mean Absolute Error (MAE)			1238

Bulan	Arus barang (ton)	SMA (n = 4 bulan)	Error
Jan-23	4.671	0,00	-
Feb-23	8.986	-	-
Mar-23	8.702	-	-

Bulan	Arus barang (ton)	SMA (n = 4 bulan)	Error
Apr-23	8.165	-	-
May-23	5.851	7631,06	1780,005
Jun-23	6.055	7925,99	1871,26
Jul-23	6.864	7193,15	329,275
Aug-23	6.964	6733,61	230,265
Sep-23	6.975	6433,38	541,49
Oct-23	6.975	6714,34	260,535
Nov-23	6.971	6944,37	26,5
Dec-23	6.979	6971,12	7,73
Jan-24	4.989	6974,87	1985,865
Feb-24	5.088	6478,40	1390,398
Mar-24	3.886	6006,68	2120,48
Apr-24	6.414	5235,51	1178,328
May-24	6.867	5094,26	1772,82
Jun-24	9.512	5563,78	3948,22
Mean Absolute Error (MAE)			1246

Bulan	Arus barang (ton)	SMA (n = 5 bulan)	Error
Jan-23	4.671	0,00	-
Feb-23	8.986	-	-
Mar-23	8.702	-	-
Apr-23	8.165	-	-
May-23	5.851	-	-
Jun-23	6.055	7275,05	1220,324
Jul-23	6.864	7551,74	687,868
Aug-23	6.964	7127,29	163,42
Sep-23	6.975	6779,66	195,212
Oct-23	6.975	6541,68	433,192
Nov-23	6.971	6766,44	204,428
Dec-23	6.979	6949,67	29,18
Jan-24	4.989	6972,67	1983,666
Feb-24	5.088	6577,69	1489,692

Bulan	Arus barang (ton)	SMA (n = 5 bulan)	Error
Mar-24	3.886	6200,32	2314,118
Apr-24	6.414	5582,58	831,256
May-24	6.867	5471,18	1395,902
Jun-24	9.512	5448,82	4063,176
Mean Absolute Error (MAE)			1155

Bulan	Arus barang (ton)	SMA (n = 10 bulan)	Error
Jan-23	4.671	0,00	-
Feb-23	8.986	-	-
Mar-23	8.702	-	-
Apr-23	8.165	-	-
May-23	5.851	-	-
Jun-23	6.055	-	-
Jul-23	6.864	-	-
Aug-23	6.964	-	-
Sep-23	6.975	-	-
Oct-23	6.975	-	-
Nov-23	6.971	7020,75	49,878
Dec-23	6.979	7250,70	271,854
Jan-24	4.989	7049,98	2060,978
Feb-24	5.088	6678,68	1590,675
Mar-24	3.886	6371,00	2484,798
Apr-24	6.414	6174,51	239,327
May-24	6.867	6210,42	656,656
Jun-24	9.512	6210,75	3301,255
Mean Absolute Error (MAE)			1332

g. Analisis regresi linear sederhana (X1)

SUMMARY OUTPUT

Regression Statistics								
Multiple R	0,167020567							
R Square	0,02789587							
Adjusted R Square	-0,032860638							
Standard Error	1529,153654							
Observations	18							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	1	1073616,945	1073617	0,459142	0,507706			
Residual	16	37412974,37	2338311					
Total	17	38486591,32						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95,0%	Upper 95,0%
Intercept	27345,91291	30445,60885	0,898189	0,382402	-37195,9	91887,72	-37195,9	91887,72
X Variable 1	-0,02233169	0,032957027	-0,6776	0,507706	-0,0922	0,047534	-0,0922	0,047534

h. Analisis regresi linear sederhana (X2)

SUMMARY OUTPUT	
<i>Regression Statistics</i>	
Multiple R	0,19987
R Square	0,039948
Adjusted R Square	-0,02006

Standard Error	1519,645
Observations	18

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	1537470,1	1537470	0,665767	0,426512
Residual	16	36949121,2	2309320		
Total	17	38486591,3			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	29621,47	28072,8516	1,055164	0,307024	-29890,3	89133,25	-29890,3	89133,25
X Variable 1	-1,52176	1,86502537	-0,81595	0,426512	-5,47544	2,431918	-5,47544	2,431918

i. Analisis regresi linear berganda (X1,X2)

SUMMARY OUTPUT	
<i>Regression Statistics</i>	
Multiple R	0,3230825
R Square	0,104382302
Adjusted R Square	-0,01503339
Standard Error	1515,899564
Observations	18
ANOVA	

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>				
Regression	2	4017318,99	2008659	0,874109	0,437442				
Residual	15	34469272,3	2297951						
Total	17	38486591,3							

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	9482,1464	34059,4661	0,2784	0,784507	-63113,9	82078,18	-63113,9	82078,18
X Variable 1	0,275050341	0,26477075	1,038824	0,315343	-0,2893	0,839396	-0,2893	0,839396
X Variable 2	-17,0644494	15,0770294	-1,13182	0,275481	-49,2004	15,07148	-49,2004	15,07148

Lampiran 4. Peramalan arus kunjungan kapal *Ro-ro*

a. Hasil peramalan

Tahun	Metode Permalan										
	Regresi Linear Sederhana (X1)	Regresi Linear Sederhana (X2)	Regresi Linear Sederhana (X3)	Regresi Linear Berganda (X1,X2)	Regresi Linear Berganda (X1,X2,X3)	Pertumbuhan Geometrik	SMA (n = 2 bulan)	SMA (n = 3 bulan)	SMA (n = 4 bulan)	SMA (n = 5 bulan)	SMA (n = 10 bulan)
2023	822	822	822	822	822	822	822	822	822	822	822
2024	524	745	737	729	687	707	732	725	724	722	743
2025	294	761	756	511	546	584	744	732	732	720	755
2026	244	747	756	201	402	463	744	732	732	720	756
2027	194	732	756	-120	258	366	744	732	732	720	756
2028	145	717	756	-448	106	289	744	732	732	720	756
2029	94	702	756	-786	-50	229	744	732	732	720	756

b. Metode regresi linear sederhana (X1)

Bulan	Call kapal <i>Ro-ro</i>	Penduduk (X1)
Jan-23	75	904.937
Feb-23	65	907.242
Mar-23	65	909.548
Apr-23	65	911.853
May-23	65	914.158
Jun-23	60	916.463
Jul-23	66	918.768
Aug-23	67	921.073
Sep-23	67	923.379
Oct-23	67	925.684
Nov-23	79	927.989
Dec-23	81	930.294
Jan-24	61	931.915
Feb-24	58	933.535
Mar-24	61	935.156
Apr-24	56	936.776
May-24	62	938.397
Jun-24	62	940.018

c. Metode regresi linear sederhana (X2)

Bulan	Call kapal <i>Ro-ro</i>	PDRB (X2)
Jan-23	75	14.699
Feb-23	65	14.745
Mar-23	65	14.790
Apr-23	65	14.836
May-23	65	14.882
Jun-23	60	14.928
Jul-23	66	14.974
Aug-23	67	15.020
Sep-23	67	15.066
Oct-23	67	15.112
Nov-23	79	15.158
Dec-23	81	15.204
Jan-24	61	15.217
Feb-24	58	15.231

Bulan	Call kapal <i>Ro-ro</i>	PDRB (X2)
Mar-24	61	15.244
Apr-24	56	15.258
May-24	62	15.271
Jun-24	62	15.285

d. Metode regresi linear sederhana (X3)

Bulan	Call kapal <i>Ro-ro</i>	Penumpang (X3)
Jan-23	75	57.591
Feb-23	65	36.524
Mar-23	65	25.176
Apr-23	65	33.541
May-23	65	29.854
Jun-23	60	36.562
Jul-23	66	38.488
Aug-23	67	38.488
Sep-23	67	38.489
Oct-23	67	38.490
Nov-23	79	51.068
Dec-23	81	51.570
Jan-24	61	49.275
Feb-24	58	26.496
Mar-24	61	24.627
Apr-24	56	35.078
May-24	62	25.887
Jun-24	62	33.201

e. Metode regresi linear berganda (X1,X2)

Bulan	Call kapal <i>Ro-ro</i>	Penduduk (X1)	PDRB (X2)
Jan-23	75	904.937	14.699
Feb-23	65	907.242	14.745
Mar-23	65	909.548	14.790
Apr-23	65	911.853	14.836
May-23	65	914.158	14.882

Bulan	Call kapal <i>Ro-ro</i>	Penduduk (X1)	PDRB (X2)
Jun-23	60	916.463	14.928
Jul-23	66	918.768	14.974
Aug-23	67	921.073	15.020
Sep-23	67	923.379	15.066
Oct-23	67	925.684	15.112
Nov-23	79	927.989	15.158
Dec-23	81	930.294	15.204
Jan-24	61	931.915	15.217
Feb-24	58	933.535	15.231
Mar-24	61	935.156	15.244
Apr-24	56	936.776	15.258
May-24	62	938.397	15.271
Jun-24	62	940.018	15.285

f. Metode regresi linear berganda (X1,X2,X3)

Bulan	Call kapal <i>Ro-ro</i>	Penduduk (X1)	PDRB (X2)	Penumpang (X3)
Jan-23	75	904.937	14.699	57.591
Feb-23	65	907.242	14.745	36.524
Mar-23	65	909.548	14.790	25.176
Apr-23	65	911.853	14.836	33.541
May-23	65	914.158	14.882	29.854
Jun-23	60	916.463	14.928	36.562
Jul-23	66	918.768	14.974	38.488
Aug-23	67	921.073	15.020	38.488
Sep-23	67	923.379	15.066	38.489
Oct-23	67	925.684	15.112	38.490
Nov-23	79	927.989	15.158	51.068
Dec-23	81	930.294	15.204	51.570
Jan-24	61	931.915	15.217	49.275
Feb-24	58	933.535	15.231	26.496
Mar-24	61	935.156	15.244	24.627
Apr-24	56	936.776	15.258	35.078
May-24	62	938.397	15.271	25.887
Jun-24	62	940.018	15.285	33.201

g. Metode pertumbuhan geometrik

Bulan	Call kapal Ro-ro	Periode	Laju pertumbuhan
Jan-23	75	1	0,00%
Feb-23	65	2	-6,91%
Mar-23	65	3	-4,66%
Apr-23	65	4	-3,51%
May-23	65	5	-2,82%
Jun-23	60	6	-3,65%
Jul-23	66	7	-1,81%
Aug-23	67	8	-1,40%
Sep-23	67	9	-1,25%
Oct-23	67	10	-1,12%
Nov-23	79	11	0,47%
Dec-23	81	12	0,64%
Jan-24	61	13	-1,58%
Feb-24	58	14	-1,82%
Mar-24	61	15	-1,37%
Apr-24	56	16	-1,81%
May-24	62	17	-1,11%
Jun-24	62	18	-1,05%
Rata-rata pertumbuhan			-1,93%

h. Metode *Single Moving Average* (SMA)

Bulan	Call kapal Ro-ro	SMA (n = 2 bulan)	Error
Jan-23	75	-	-
Feb-23	65	-	-
Mar-23	65	70	5
Apr-23	65	65	0
May-23	65	65	0
Jun-23	60	65	5
Jul-23	66	63	3
Aug-23	67	63	4
Sep-23	67	67	0
Oct-23	67	67	0
Nov-23	79	67	12
Dec-23	81	73	8
Jan-24	61	80	19

Bulan	Call kapal <i>Ro-ro</i>	SMA (n = 2 bulan)	Error
Feb-24	58	71	13
Mar-24	61	60	1
Apr-24	56	60	4
May-24	62	59	3
Jun-24	62	59	3
Mean Absolute Error (MAE)			5

Bulan	Call kapal <i>Ro-ro</i>	SMA (n = 3 bulan)	Error
Jan-23	75	-	-
Feb-23	65	-	-
Mar-23	65	-	-
Apr-23	65	68	3
May-23	65	65	0
Jun-23	60	65	5
Jul-23	66	63	3
Aug-23	67	64	3
Sep-23	67	64	3
Oct-23	67	67	0
Nov-23	79	67	12
Dec-23	81	71	10
Jan-24	61	76	15
Feb-24	58	74	16
Mar-24	61	67	6
Apr-24	56	60	4
May-24	62	58	4
Jun-24	62	60	2
Mean Absolute Error (MAE)			5,733333

Bulan	Call kapal <i>Ro-ro</i>	SMA (n = 4 bulan)	Error
Jan-23	75	-	-
Feb-23	65	-	-
Mar-23	65	-	-
Apr-23	65	-	-
May-23	65	68	3

Bulan	Call kapal <i>Ro-ro</i>	SMA (n = 4 bulan)	Error
Jun-23	60	65	5
Jul-23	66	64	2
Aug-23	67	64	3
Sep-23	67	65	2
Oct-23	67	65	2
Nov-23	79	67	12
Dec-23	81	70	11
Jan-24	61	74	13
Feb-24	58	72	14
Mar-24	61	70	9
Apr-24	56	65	9
May-24	62	59	3
Jun-24	62	59	3
Mean Absolute Error (MAE)			6,5

Bulan	Call kapal <i>Ro-ro</i>	SMA (n = 5 bulan)	Error
Jan-23	75	-	-
Feb-23	65	-	-
Mar-23	65	-	-
Apr-23	65	-	-
May-23	65	-	-
Jun-23	60	67	7
Jul-23	66	64	2
Aug-23	67	64	3
Sep-23	67	65	2
Oct-23	67	65	2
Nov-23	79	65	14
Dec-23	81	69	12
Jan-24	61	72	11
Feb-24	58	71	13
Mar-24	61	69	8
Apr-24	56	68	12
May-24	62	63	1
Jun-24	62	60	2
Mean Absolute Error (MAE)			6,846154

Bulan	Call kapal <i>Ro-ro</i>	SMA (n = 10 bulan)	Error
Jan-23	75	-	-
Feb-23	65	-	-
Mar-23	65	-	-
Apr-23	65	-	-
May-23	65	-	-
Jun-23	60	-	-
Jul-23	66	-	-
Aug-23	67	-	-
Sep-23	67	-	-
Oct-23	67	-	-
Nov-23	79	66	13
Dec-23	81	67	14
Jan-24	61	68	7
Feb-24	58	68	10
Mar-24	61	67	6
Apr-24	56	67	11
May-24	62	66	4
Jun-24	62	66	4
Mean Absolute Error (MAE)			8,625

a. Analisis regresi linear sederhana (X1)

SUMMARY OUTPUT

Regression Statistics								
Multiple R	0,274366							
R Square	0,075277							
Adjusted R Square	0,017482							
Standard Error	6,63626							
Observations	18							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	1	57,36091	57,36091	1,302475	0,270556			
Residual	16	704,6391	44,03994					
Total	17	762						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	216,4492	132,1286	1,638171	0,120899	-63,6509	496,5494	-63,6509	496,5494
X Variable 1	-0,00016	0,000143	-1,14126	0,270556	-0,00047	0,00014	-0,00047	0,00014

b. Analisis regresi linear sederhana (X2)

SUMMARY OUTPUT								
<i>Regression Statistics</i>								
Multiple R	0,216834							
R Square	0,047017							
Adjusted R Square	-0,01254							
Standard Error	6,736899							
Observations	18							
ANOVA								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	1	35,82708	35,82708	0,789389	0,387447			
Residual	16	726,1729	45,38581					
Total	17	762						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	176,2309	124,4528	1,416047	0,175935	-87,5971	440,059	-87,5971	440,059
X Variable 1	-0,00735	0,008268	-0,88848	0,387447	-0,02487	0,010182	-0,02487	0,010182

c. Analisis regresi linear sederhana (X3)

SUMMARY OUTPUT	
<i>Regression Statistics</i>	
Multiple R	0,707659
R Square	0,500782
Adjusted R Square	0,469581
Standard Error	4,875989
Observations	18
ANOVA	

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	1	381,5957	381,5957	16,05011	0,001019			
Residual	16	380,4043	23,77527					
Total	17	762						

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	47,48317	4,682019	10,1416	2,26E-08	37,55774	57,40861	37,55774	57,40861
X Variable 1	0,000488	0,000122	4,006259	0,001019	0,00023	0,000747	0,00023	0,000747

a. Analisis regresi linear berganda (X1, X2)

SUMMARY OUTPUT

<i>Regression Statistics</i>								
Multiple R	0,526403							
R Square	0,277101							
Adjusted R Square	0,180714							
Standard Error	6,059974							
Observations	18							

<i>ANOVA</i>								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	2	211,1506	105,5753	2,874887	0,087717			
Residual	15	550,8494	36,72329					
Total	17	762						

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	345,5681	136,1564	2,538022	0,022731	55,35752	635,7787	55,35752	635,7787
X Variable 1	-0,00231	0,001058	-2,18499	0,04517	-0,00457	-5,7E-05	-0,00457	-5,7E-05
X Variable 2	0,123341	0,060272	2,046411	0,058659	-0,00513	0,251808	-0,00513	0,251808

b. Analisis regresi linear berganda (X1, X2, X3)

SUMMARY OUTPUT

Regression Statistics								
Multiple R	0,743827							
R Square	0,553279							
Adjusted R Square	0,457553							
Standard Error	4,930964							
Observations	18							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	3	421,5984	140,5328	5,779816	0,008699			
Residual	14	340,4016	24,3144					
Total	17	762						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	196,9811	121,7587	1,617799	0,128007	-64,1654	458,1275	-64,1654	458,1275
X Variable 1	-0,00104	0,000964	-1,07789	0,299305	-0,00311	0,001028	-0,00311	0,001028
X Variable 2	0,054031	0,054408	0,993066	0,337533	-0,06266	0,170725	-0,06266	0,170725
X Variable 3	0,000409	0,000139	2,941984	0,010715	0,000111	0,000708	0,000111	0,000708

Lampiran 5. Peramalan arus kunjungan kapal barang

a. Hasil permalan

Tahun	Metode Permalan										
	Regresi Linear Sederha na (X1)	Regresi Linear Sederha na (X2)	Regresi Linear Sederha na (X4)	Regresi Linear Berganda (X1,X2)	Regresi Linear Berganda (X1,X2,X4)	Pertumbuhan Geometrik	SMA (n = 2 bulan)	SMA (n = 3 bulan)	SMA (n = 4 bulan)	SMA (n = 5 bulan)	SMA (n = 10 bulan)
2023	89	89	89	89	89	89	89	89	89	89	89
2024	73	73	79	73	57	82	85	84	78	77	76
2025	68	72	84	72	25	78	96	96	84	84	84
2026	60	64	84	64	5	64	96	96	84	84	84
2027	48	60	84	60	-16	52	96	96	84	84	84
2028	39	51	74	51	-37	43	96	96	84	84	84
2029	30	48	72	48	-58	36	96	96	84	84	84

b. Metode regresi linear sederhana (X1)

Bulan	Call kapal barang	Penduduk (X1)
Jan-23	8	904.937
Feb-23	7	907.242
Mar-23	8	909.548
Apr-23	7	911.853
May-23	8	914.158
Jun-23	7	916.463
Jul-23	7	918.768
Aug-23	7	921.073
Sep-23	7	923.379
Oct-23	7	925.684
Nov-23	8	927.989
Dec-23	8	930.294
Jan-24	7	931.915
Feb-24	5	933.535
Mar-24	4	935.156
Apr-24	5	936.776
May-24	8	938.397
Jun-24	8	940.018

a. Metode regresi linear sederhana (X2)

Bulan	Call kapal barang	PDRB (X2)
Jan-23	8	14.699
Feb-23	7	14.745
Mar-23	8	14.790
Apr-23	7	14.836
May-23	8	14.882
Jun-23	7	14.928
Jul-23	7	14.974
Aug-23	7	15.020
Sep-23	7	15.066
Oct-23	7	15.112
Nov-23	8	15.158
Dec-23	8	15.204
Jan-24	7	15.217
Feb-24	5	15.231

Bulan	Call kapal barang	PDRB (X2)
Mar-24	4	15.244
Apr-24	5	15.258
May-24	8	15.271
Jun-24	8	15.285

a. Metode regresi linear sederhana (X4)

Bulan	Call kapal barang	Arus barang (X4)
Jan-23	8	4.443
Feb-23	7	8.788
Mar-23	8	8.615
Apr-23	7	7.821
May-23	8	5.763
Jun-23	7	5.916
Jul-23	7	6.683
Aug-23	7	6.783
Sep-23	7	6.794
Oct-23	7	6.794
Nov-23	8	6.790
Dec-23	8	6.798
Jan-24	7	4.932
Feb-24	5	4.988
Mar-24	4	3.754
Apr-24	5	6.232
May-24	8	6.791
Jun-24	8	9.300

a. Metode regresi linear berganda (X1,X2)

Bulan	Call kapal barang	Penduduk (X1)	PDRB (X2)
Jan-23	8	904.937	14.699
Feb-23	7	907.242	14.745
Mar-23	8	909.548	14.790
Apr-23	7	911.853	14.836
May-23	8	914.158	14.882

Bulan	Call kapal barang	Penduduk (X1)	PDRB (X2)
Jun-23	7	916.463	14.928
Jul-23	7	918.768	14.974
Aug-23	7	921.073	15.020
Sep-23	7	923.379	15.066
Oct-23	7	925.684	15.112
Nov-23	8	927.989	15.158
Dec-23	8	930.294	15.204
Jan-24	7	931.915	15.217
Feb-24	5	933.535	15.231
Mar-24	4	935.156	15.244
Apr-24	5	936.776	15.258
May-24	8	938.397	15.271
Jun-24	8	940.018	15.285

a. Metode regresi linear berganda (X1,X2,X4)

Bulan	Call kapal barang	Penduduk (X1)	PDRB (X2)	Arus barang (X4)
Jan-23	8	904.937	14.699	4.443
Feb-23	7	907.242	14.745	8.788
Mar-23	8	909.548	14.790	8.615
Apr-23	7	911.853	14.836	7.821
May-23	8	914.158	14.882	5.763
Jun-23	7	916.463	14.928	5.916
Jul-23	7	918.768	14.974	6.683
Aug-23	7	921.073	15.020	6.783
Sep-23	7	923.379	15.066	6.794
Oct-23	7	925.684	15.112	6.794
Nov-23	8	927.989	15.158	6.790
Dec-23	8	930.294	15.204	6.798
Jan-24	7	931.915	15.217	4.932
Feb-24	5	933.535	15.231	4.988
Mar-24	4	935.156	15.244	3.754
Apr-24	5	936.776	15.258	6.232
May-24	8	938.397	15.271	6.791
Jun-24	8	940.018	15.285	9.300

a. Metode pertumbuhan geometrik

Bulan	Call kapal barang	Periode	Laju pertumbuhan
Jan-23	8	1	0,00%
Feb-23	7	2	-6,46%
Mar-23	8	3	0,00%
Apr-23	7	4	-3,28%
May-23	8	5	0,00%
Jun-23	7	6	-2,20%
Jul-23	7	7	-1,89%
Aug-23	7	8	-1,66%
Sep-23	7	9	-1,47%
Oct-23	7	10	-1,33%
Nov-23	8	11	0,00%
Dec-23	8	12	0,00%
Jan-24	7	13	-1,02%
Feb-24	5	14	-3,30%
Mar-24	4	15	-4,52%
Apr-24	5	16	-2,89%
May-24	8	17	0,00%
Jun-24	8	18	0,00%
Rata-rata pertumbuhan			-1,67%

b. Metode *Single Moving Average* (SMA)

Bulan	Call kapal barang	SMA (n = 2 bulan)	Error
Jan-23	8	-	-
Feb-23	7	-	-
Mar-23	8	8	0
Apr-23	7	8	1
May-23	8	8	0
Jun-23	7	8	1
Jul-23	7	8	1
Aug-23	7	7	0
Sep-23	7	7	0
Oct-23	7	7	0
Nov-23	8	7	1
Dec-23	8	8	0
Jan-24	7	8	1

Bulan	Call kapal barang	SMA (n = 2 bulan)	Error
Feb-24	5	8	3
Mar-24	4	6	2
Apr-24	5	5	0
May-24	8	5	3
Jun-24	8	7	1
Mean Absolute Error (MAE)			0,875

Bulan	Call kapal barang	SMA (n = 3 bulan)	Error
Jan-23	8	-	-
Feb-23	7	-	-
Mar-23	8	-	-
Apr-23	7	8	1
May-23	8	7	1
Jun-23	7	8	1
Jul-23	7	7	0
Aug-23	7	7	0
Sep-23	7	7	0
Oct-23	7	7	0
Nov-23	8	7	1
Dec-23	8	7	1
Jan-24	7	8	1
Feb-24	5	8	3
Mar-24	4	7	3
Apr-24	5	5	0
May-24	8	5	3
Jun-24	8	6	2
Mean Absolute Error (MAE)			1,133333

Bulan	Call kapal barang	SMA (n = 4 bulan)	Error
Jan-23	8	-	-
Feb-23	7	-	-
Mar-23	8	-	-
Apr-23	7	-	-
May-23	8	8	0

Bulan	Call kapal barang	SMA (n = 4 bulan)	Error
Jun-23	7	8	1
Jul-23	7	8	1
Aug-23	7	7	0
Sep-23	7	7	0
Oct-23	7	7	0
Nov-23	8	7	1
Dec-23	8	7	1
Jan-24	7	8	1
Feb-24	5	8	3
Mar-24	4	7	3
Apr-24	5	6	1
May-24	8	5	3
Jun-24	8	6	2
Mean Absolute Error (MAE)			1,214286

Bulan	Call kapal barang	SMA (n = 5 bulan)	Error
Jan-23	8	-	-
Feb-23	7	-	-
Mar-23	8	-	-
Apr-23	7	-	-
May-23	8	-	-
Jun-23	7	8	1
Jul-23	7	7	0
Aug-23	7	7	0
Sep-23	7	7	0
Oct-23	7	7	0
Nov-23	8	7	1
Dec-23	8	7	1
Jan-24	7	7	0
Feb-24	5	7	2
Mar-24	4	7	3
Apr-24	5	6	1
May-24	8	6	2
Jun-24	8	6	2
Mean Absolute Error (MAE)			1

Bulan	Call kapal barang	SMA (n = 10 bulan)	Error
Jan-23	8	-	-
Feb-23	7	-	-
Mar-23	8	-	-
Apr-23	7	-	-
May-23	8	-	-
Jun-23	7	-	-
Jul-23	7	-	-
Aug-23	7	-	-
Sep-23	7	-	-
Oct-23	7	-	-
Nov-23	8	7	1
Dec-23	8	7	1
Jan-24	7	7	0
Feb-24	5	7	2
Mar-24	4	7	3
Apr-24	5	7	2
May-24	8	7	1
Jun-24	8	7	1
Mean Absolute Error (MAE)			1,375

a. Analisis regresi linear sederhana (X1)

SUMMARY OUTPUT								
<i>Regression Statistics</i>								
Multiple R	0,35525372							
R Square	0,12620521							
Adjusted R Square	0,07159303							
Standard Error	1,14485466							
Observations	18							
ANOVA								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	1	3,028925	3,028925	2,310935	0,147981			
Residual	16	20,97108	1,310692					
Total	17	24						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	41,6487329	22,79418	1,827166	0,086387	-6,67276	89,97023	-6,67276	89,97023
X Variable 1	-3,751E-05	2,47E-05	-1,52018	0,147981	-9E-05	1,48E-05	-9E-05	1,48E-05

b. Analisis regresi linear sederhana (X2)

SUMMARY OUTPUT	
<i>Regression Statistics</i>	
Multiple R	0,35583139
R Square	0,12661598
Adjusted R Square	0,07202948
Standard Error	1,14458553
Observations	18
ANOVA	

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	3,038784	3,038784	2,319547	0,147276
Residual	16	20,96122	1,310076		
Total	17	24			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	39,2002315	21,14427	1,853941	0,082276	-5,62362	84,02408	-5,62362	84,02408
X Variable 1	-0,0021394	0,001405	-1,52301	0,147276	-0,00512	0,000838	-0,00512	0,000838

c. Analisis regresi linear sederhana (X4)

<i>Regression Statistics</i>	
Multiple R	0,4899603
R Square	0,2400611
Adjusted R Square	0,1925649
Standard Error	1,0676649
Observations	18

<i>ANOVA</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	5,761466	5,761466	5,054324	0,039012
Residual	16	18,23853	1,139908		
Total	17	24			

	<i>Coefficient s</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	4,4009572	1,183137	3,71973 7	0,00186 3	1,89282	6,909095	1,89282	6,909095
X Variable 1	0,0003869 1	0,000172	2,24818 2	0,03901 2	2,21E-05	0,000752	2,21E-05	0,000752

d. Analisis regresi linear berganda (X1, X2)

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0,3562544 5
R Square	0,1269172 3
Adjusted R Square	0,0105062
Standard Error	1,1819189 6
Observations	18

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	3,046014	1,523007	1,090251	0,36134
Residual	15	20,95399	1,396932		
Total	17	24			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	40,2876645	26,55554	1,51711	0,15003	-16,3141	96,88945	-16,3141	96,88945
X Variable 1	-1,485E-05	0,000206	-0,07194	0,943599	-0,00045	0,000425	-0,00045	0,000425
X Variable 2	-0,0013002	0,011755	-0,1106	0,913398	-0,02636	0,023756	-0,02636	0,023756

e. Analisis regresi linear berganda (X1, X2, X4)

SUMMARY OUTPUT

Regression Statistics

Multiple R	0,57177999
R Square	0,32693236

Adjusted R Square	0,1827035
Standard Error	1,0741649
Observations	18

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3	7,846377	2,615459	2,266762	0,125593
Residual	14	16,15362	1,15383		
Total	17	24			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	36,7490957	24,19678	1,51876	0,151079	-15,1478	88,64602	-15,1478	88,64602
X Variable 1	-0,0001175	0,000194	-0,60487	0,554941	-0,00053	0,000299	-0,00053	0,000299
X Variable 2	0,00506798	0,01113	0,455327	0,655855	-0,0188	0,02894	-0,0188	0,02894
X Variable 3	0,00037318	0,000183	2,039699	0,060717	-1,9E-05	0,000766	-1,9E-05	0,000766

Lampiran 6. Dokumentasi penelitian







