General Linear Model

Between-Subjects Factors

		Value Label	N
Router Type | Protocol	1	ecmp-mptcp	140
	2	ps-mptcp	140
Juggler Enabled	1	false	140
	2	true	140

Descriptive Statistics

	Router Type | Protocol	Juggler Enabled	Mean	Std. Deviation
Goodput	ecmp-mptcp	false	309335.1853	62642.33135
		true	312189.9091	94032.96760
		Total	310762.5472	79619.47346
	ps-mptcp	false	319248.1130	49958.05184
		true	334333.9065	114823.2028
		Total	326791.0097	88549.35647
	Total	false	314291.6491	56670.84373
		true	323261.9078	105154.7540
		Total	318776.7785	84434.41253
Throughput	ecmp-mptcp	false	756729.7157	96954.55016
		true	715990.9140	91457.84029
		Total	736360.3148	96105.96377
	ps-mptcp	false	788454.4973	101992.7965
		true	771451.4705	98913.43586
		Total	779952.9839	100465.8246
	Total	false	772592.1065	100416.8836
		true	743721.1922	98911.17540
		Total	758156.6494	100533.6311
Flow Completion Time	ecmp-mptcp	false	87.077251	12.2116932
		true	88.556587	16.3269302
		Total	87.816919	14.3841160
	ps-mptcp	false	83.612153	9.9048116
		true	83.324580	15.2975920
		Total	83.468366	12.8408313

Descriptive Statistics

	Router Type | Protocol	Juggler Enabled	N
Goodput	ecmp-mptcp	false	70
		true	70
		Total	140
	ps-mptcp	false	70
		true	70
		Total	140
	Total	false	140
		true	140
		Total	280
Throughput	ecmp-mptcp	false	70
		true	70
		Total	140
	ps-mptcp	false	70
		true	70
		Total	140
	Total	false	140
		true	140
		Total	280
Flow Completion Time	ecmp-mptcp	false	70
		true	70
		Total	140
	ps-mptcp	false	70
		true	70
		Total	140

Descriptive Statistics

	Router Type | Protocol	Juggler Enabled	Mean	Std. Deviation
	Total	false	85.344702	11.2138029
		true	85.940584	15.9807549
		Total	85.642643	13.7830694
Mean Network Utilization	ecmp-mptcp	false	.7739697435	.1180108827
		true	.8010927030	.1202826252
		Total	.7875312232	.1195003666
	ps-mptcp	false	.9859751329	.0069904059
		true	.9889066784	.0070439215
		Total	.9874409057	.0071449979
	Total	false	.8799724382	.1351105314
		true	.8949996907	.1268404786
		Total	.8874860645	.1310221013

Descriptive Statistics

	Router Type | Protocol	Juggler Enabled	N
	Total	false	140
		true	140
		Total	280
Mean Network Utilization	ecmp-mptcp	false	70
		true	70
		Total	140
	ps-mptcp	false	70
		true	70
		Total	140
	Total	false	140
		true	140
		Total	280

Box's Test of Equality of Covariance Matrices[a]

Box's M	928.432
F	30.140
df1	30
df2	209438.549
Sig.	.000

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept + router_proto + juggler_enabled + router_proto * juggler_enabled

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df
Intercept	Pillai's Trace	.999	123425.309[b]	4.000	273.000
	Wilks' Lambda	.001	123425.309[b]	4.000	273.000
	Hotelling's Trace	1808.429	123425.309[b]	4.000	273.000
	Roy's Largest Root	1808.429	123425.309[b]	4.000	273.000
router_proto	Pillai's Trace	.624	113.129[b]	4.000	273.000
	Wilks' Lambda	.376	113.129[b]	4.000	273.000
	Hotelling's Trace	1.658	113.129[b]	4.000	273.000
	Roy's Largest Root	1.658	113.129[b]	4.000	273.000
juggler_enabled	Pillai's Trace	.054	3.889[b]	4.000	273.000
	Wilks' Lambda	.946	3.889[b]	4.000	273.000
	Hotelling's Trace	.057	3.889[b]	4.000	273.000
	Roy's Largest Root	.057	3.889[b]	4.000	273.000
router_proto * juggler_enabled	Pillai's Trace	.011	.746[b]	4.000	273.000
	Wilks' Lambda	.989	.746[b]	4.000	273.000
	Hotelling's Trace	.011	.746[b]	4.000	273.000
	Roy's Largest Root	.011	.746[b]	4.000	273.000

Multivariate Tests[a]

Effect		Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.000	.999
	Wilks' Lambda	.000	.999
	Hotelling's Trace	.000	.999
	Roy's Largest Root	.000	.999
router_proto	Pillai's Trace	.000	.624
	Wilks' Lambda	.000	.624
	Hotelling's Trace	.000	.624
	Roy's Largest Root	.000	.624
juggler_enabled	Pillai's Trace	.004	.054
	Wilks' Lambda	.004	.054
	Hotelling's Trace	.004	.054
	Roy's Largest Root	.004	.054
router_proto * juggler_enabled	Pillai's Trace	.561	.011
	Wilks' Lambda	.561	.011
	Hotelling's Trace	.561	.011
	Roy's Largest Root	.561	.011

a. Design: Intercept + router_proto + juggler_enabled + router_proto * juggler_enabled

b. Exact statistic

Levene's Test of Equality of Error Variances[a]

		Levene Statistic	df1	df2	Sig.
Goodput	Based on Mean	4.232	3	276	.006
	Based on Median	1.619	3	276	.185
	Based on Median and with adjusted df	1.619	3	191.518	.186
	Based on trimmed mean	2.125	3	276	.097
Throughput	Based on Mean	.030	3	276	.993
	Based on Median	.021	3	276	.996
	Based on Median and with adjusted df	.021	3	267.662	.996
	Based on trimmed mean	.019	3	276	.996
Flow Completion Time	Based on Mean	4.008	3	276	.008
	Based on Median	2.730	3	276	.044
	Based on Median and with adjusted df	2.730	3	238.638	.045
	Based on trimmed mean	3.199	3	276	.024
Mean Network Utilization	Based on Mean	92.154	3	276	.000
	Based on Median	90.314	3	276	.000
	Based on Median and with adjusted df	90.314	3	138.532	.000
	Based on trimmed mean	92.744	3	276	.000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + router_proto + juggler_enabled + router_proto * juggler_enabled

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square
Corrected Model	Goodput	2.623E+10[a]	3	8744794736
	Throughput	2.012E+11[b]	3	6.708E+10
	Flow Completion Time	1403.183[c]	3	467.728
	Mean Network Utilization	2.824[d]	3	.941
Intercept	Goodput	2.845E+13	1	2.845E+13
	Throughput	1.609E+14	1	1.609E+14
	Flow Completion Time	2053705.437	1	2053705.437
	Mean Network Utilization	220.537	1	220.537
router_proto	Goodput	1.798E+10	1	1.798E+10
	Throughput	1.330E+11	1	1.330E+11
	Flow Completion Time	1323.694	1	1323.694
	Mean Network Utilization	2.797	1	2.797
juggler_enabled	Goodput	5632587816	1	5632587816
	Throughput	5.835E+10	1	5.835E+10
	Flow Completion Time	24.855	1	24.855
	Mean Network Utilization	.016	1	.016
router_proto * juggler_enabled	Goodput	2617983651	1	2617983651
	Throughput	9859272666	1	9859272666
	Flow Completion Time	54.634	1	54.634
	Mean Network Utilization	.010	1	.010
Error	Goodput	1.963E+12	276	7111608882
	Throughput	2.619E+12	276	9487779919
	Flow Completion Time	51599.284	276	186.954
	Mean Network Utilization	1.966	276	.007
Total	Goodput	3.044E+13	280	
	Throughput	1.638E+14	280	
	Flow Completion Time	2106707.905	280	
	Mean Network Utilization	225.326	280	
Corrected Total	Goodput	1.989E+12	279	
	Throughput	2.820E+12	279	
	Flow Completion Time	53002.468	279	
	Mean Network Utilization	4.790	279	

Tests of Between-Subjects Effects

Source	Dependent Variable	F	Sig.	Partial Eta Squared
Corrected Model	Goodput	1.230	.299	.013
	Throughput	7.070	.000	.071
	Flow Completion Time	2.502	.060	.026
	Mean Network Utilization	132.127	.000	.590
Intercept	Goodput	4000.954	.000	.935
	Throughput	16963.338	.000	.984
	Flow Completion Time	10985.088	.000	.975
	Mean Network Utilization	30960.183	.000	.991
router_proto	Goodput	2.529	.113	.009
	Throughput	14.020	.000	.048
	Flow Completion Time	7.080	.008	.025
	Mean Network Utilization	392.725	.000	.587
juggler_enabled	Goodput	.792	.374	.003
	Throughput	6.150	.014	.022
	Flow Completion Time	.133	.716	.000
	Mean Network Utilization	2.219	.137	.008
router_proto * juggler_enabled	Goodput	.368	.545	.001
	Throughput	1.039	.309	.004
	Flow Completion Time	.292	.589	.001
	Mean Network Utilization	1.438	.232	.005
Error	Goodput			
	Throughput			
	Flow Completion Time			
	Mean Network Utilization			
Total	Goodput			
	Throughput			
	Flow Completion Time			
	Mean Network Utilization			
Corrected Total	Goodput			
	Throughput			
	Flow Completion Time			
	Mean Network Utilization			

a. R Squared = .013 (Adjusted R Squared = .002)

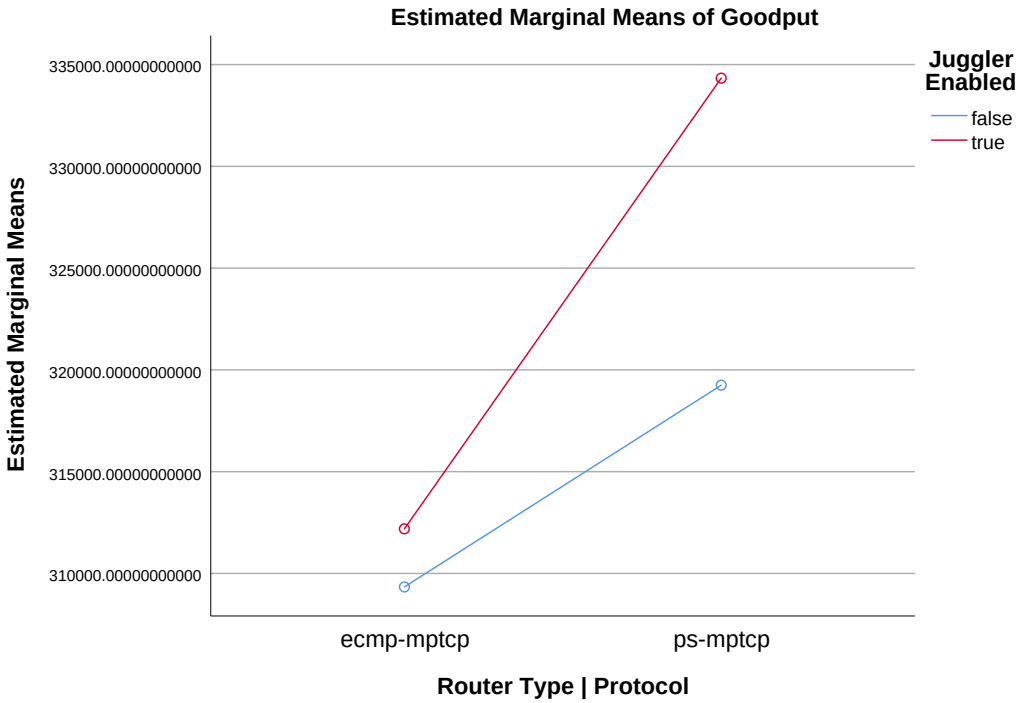
b. R Squared = .071 (Adjusted R Squared = .061)

c. R Squared = .026 (Adjusted R Squared = .016)

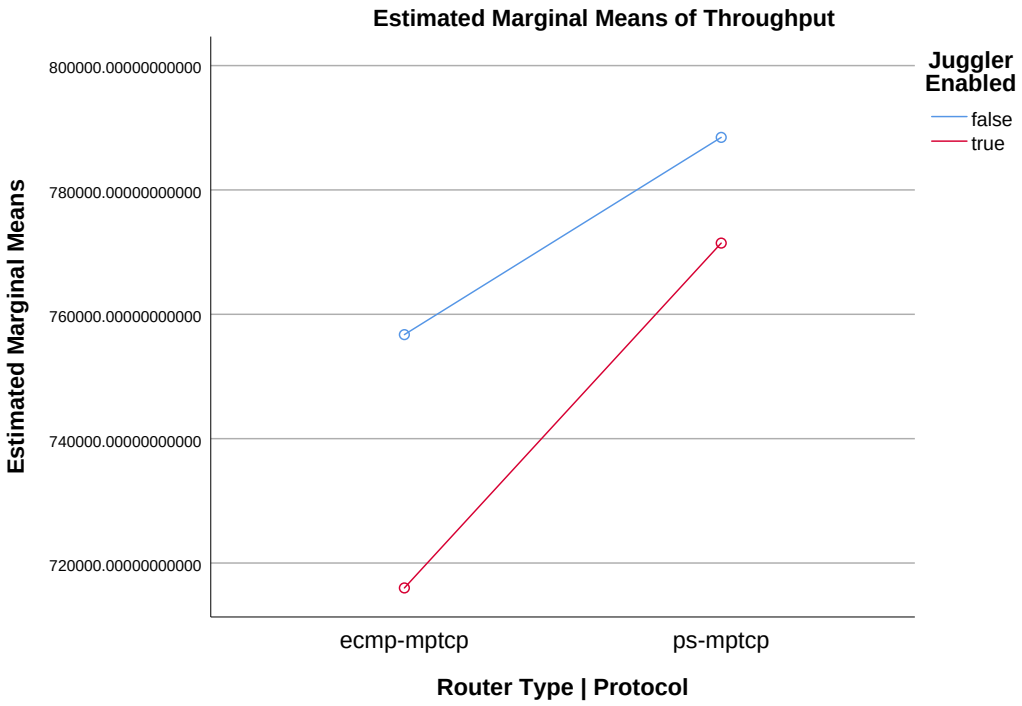
d. R Squared = .590 (Adjusted R Squared = .585)

Profile Plots

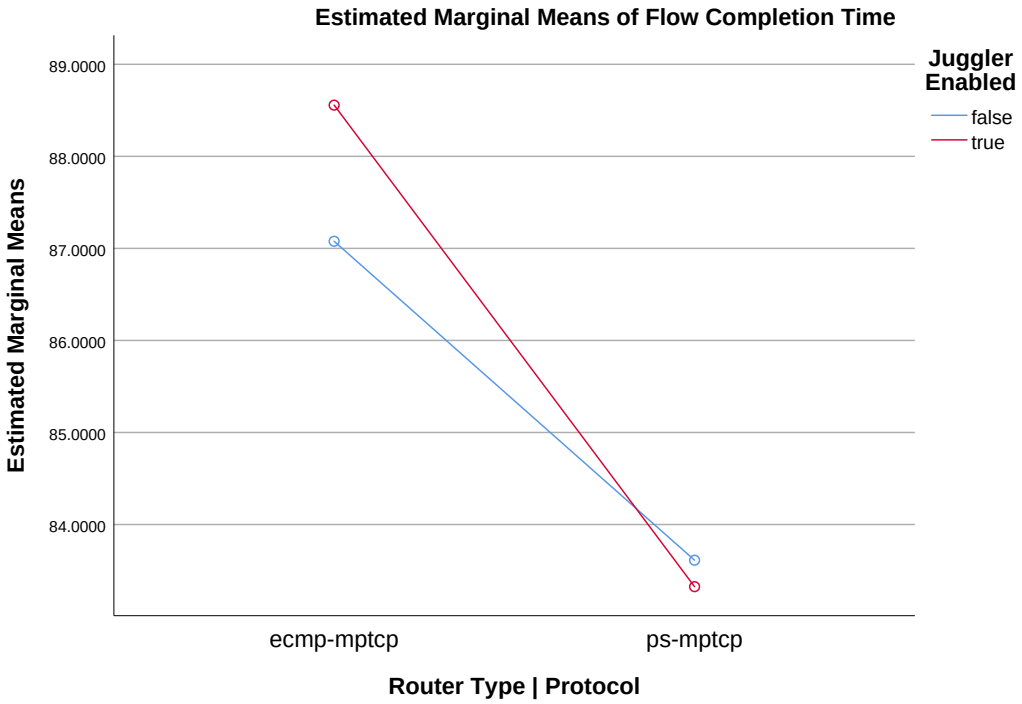
Goodput



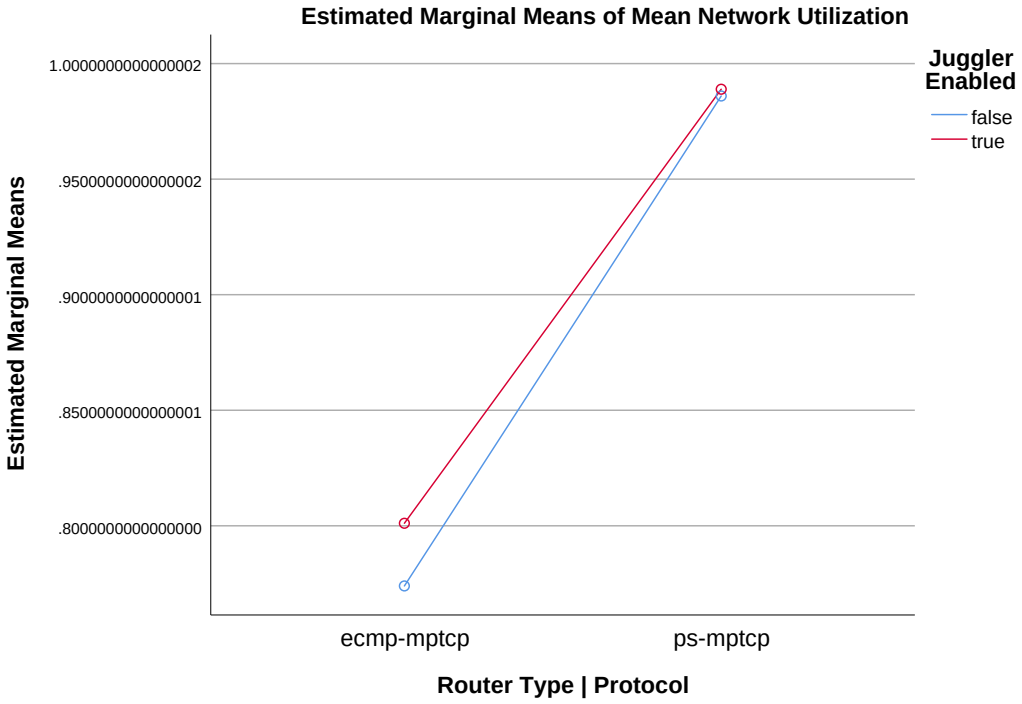
Throughput



Flow Completion Time



Mean Network Utilization


Estimated Marginal Means of Mean Network Utilization
Estimated Marginal Means
1.0000000000000002
.9500000000000002
.9000000000000001
.8500000000000001
.8000000000000000
ecmp-mptcp
ps-mptcp
Router Type | Protocol
Juggler Enabled
false
true