General Linear Model

Between-Subjects Factors

		Value Label	N
Router Type | Protocol	1	ecmp-mptcp	160
	2	ps-mptcp	160
Juggler Enabled	1	false	160
	2	true	160

Descriptive Statistics

	Router Type | Protocol	Juggler Enabled	Mean	Std. Deviation
Goodput	ecmp-mptcp	false	2025190.411	89072.37427
		true	1940790.770	198167.8902
		Total	1982990.591	158889.2185
	ps-mptcp	false	2090586.414	102010.4434
		true	1967948.508	183618.6979
		Total	2029267.461	160330.5709
	Total	false	2057888.412	100936.7117
		true	1954369.639	190916.7305
		Total	2006129.026	161037.3926
Throughput	ecmp-mptcp	false	2404914.233	322073.5556
		true	2468607.478	443296.8242
		Total	2436760.856	387554.0594
	ps-mptcp	false	2408021.824	141763.3309
		true	2511661.630	456341.2581
		Total	2459841.727	340816.9897
	Total	false	2406468.028	248046.6512
		true	2490134.554	448969.0527
		Total	2448301.291	364545.3340
Flow Completion Time	ecmp-mptcp	false	.253312	.0114504
		true	.268528	.0507983
		Total	.260920	.0374900
	ps-mptcp	false	.245550	.0133578
		true	.263003	.0312521
		Total	.254276	.0255060

Descriptive Statistics

	Router Type | Protocol	Juggler Enabled	N
Goodput	ecmp-mptcp	false	80
		true	80
		Total	160
	ps-mptcp	false	80
		true	80
		Total	160
	Total	false	160
		true	160
		Total	320
Throughput	ecmp-mptcp	false	80
		true	80
		Total	160
	ps-mptcp	false	80
		true	80
		Total	160
	Total	false	160
		true	160
		Total	320
Flow Completion Time	ecmp-mptcp	false	80
		true	80
		Total	160
	ps-mptcp	false	80
		true	80
		Total	160

Descriptive Statistics

	Router Type | Protocol	Juggler Enabled	Mean	Std. Deviation
	Total	false	.249431	.0129983
		true	.265765	.0421316
		Total	.257598	.0321850
Mean Network Utilization	ecmp-mptcp	false	.6885334953	.1460427221
		true	.7133390116	.1504395003
		Total	.7009362535	.1483132335
	ps-mptcp	false	.9196064353	.0442901377
		true	.9315820438	.0418299112
		Total	.9255942395	.0433599728
	Total	false	.8040699653	.1581279135
		true	.8224605277	.1552308453
		Total	.8132652465	.1567111468

Descriptive Statistics

	Router Type | Protocol	Juggler Enabled	N
	Total	false	160
		true	160
		Total	320
Mean Network Utilization	ecmp-mptcp	false	80
		true	80
		Total	160
	ps-mptcp	false	80
		true	80
		Total	160
	Total	false	160
		true	160
		Total	320

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

Box's M	1436.832
F	46.803
df1	30
df2	274544.420
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	1.000	251177.629[b]	4.000	313.000
	Wilks' Lambda	.000	251177.629[b]	4.000	313.000
	Hotelling's Trace	3209.938	251177.629[b]	4.000	313.000
	Roy's Largest Root	3209.938	251177.629[b]	4.000	313.000
router_proto	Pillai's Trace	.518	84.104[b]	4.000	313.000
	Wilks' Lambda	.482	84.104[b]	4.000	313.000
	Hotelling's Trace	1.075	84.104[b]	4.000	313.000
	Roy's Largest Root	1.075	84.104[b]	4.000	313.000
juggler_enabled	Pillai's Trace	.145	13.288[b]	4.000	313.000
	Wilks' Lambda	.855	13.288[b]	4.000	313.000
	Hotelling's Trace	.170	13.288[b]	4.000	313.000
	Roy's Largest Root	.170	13.288[b]	4.000	313.000
router_proto * juggler_enabled	Pillai's Trace	.015	1.173[b]	4.000	313.000
	Wilks' Lambda	.985	1.173[b]	4.000	313.000
	Hotelling's Trace	.015	1.173[b]	4.000	313.000
	Roy's Largest Root	.015	1.173[b]	4.000	313.000

Multivariate Tests[a]

Effect		Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.000	1.000
	Wilks' Lambda	.000	1.000
	Hotelling's Trace	.000	1.000
	Roy's Largest Root	.000	1.000
router_proto	Pillai's Trace	.000	.518
	Wilks' Lambda	.000	.518
	Hotelling's Trace	.000	.518
	Roy's Largest Root	.000	.518
juggler_enabled	Pillai's Trace	.000	.145
	Wilks' Lambda	.000	.145
	Hotelling's Trace	.000	.145
	Roy's Largest Root	.000	.145
router_proto * juggler_enabled	Pillai's Trace	.323	.015
	Wilks' Lambda	.323	.015
	Hotelling's Trace	.323	.015
	Roy's Largest Root	.323	.015

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	6.122	3	316	.000
	Based on Median	6.135	3	316	.000
	Based on Median and with adjusted df	6.135	3	223.718	.001
	Based on trimmed mean	5.947	3	316	.001
Throughput	Based on Mean	11.868	3	316	.000
	Based on Median	6.277	3	316	.000
	Based on Median and with adjusted df	6.277	3	237.787	.000
	Based on trimmed mean	8.750	3	316	.000
Flow Completion Time	Based on Mean	4.709	3	316	.003
	Based on Median	4.057	3	316	.008
	Based on Median and with adjusted df	4.057	3	144.499	.008
	Based on trimmed mean	3.977	3	316	.008
Mean Network Utilization	Based on Mean	37.524	3	316	.000
	Based on Median	37.522	3	316	.000
	Based on Median and with adjusted df	37.522	3	184.554	.000
	Based on trimmed mean	37.519	3	316	.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	1.058E+12[a]	3	3.526E+11
	Throughput	6.345E+11[b]	3	2.115E+11
	Flow Completion Time	.025[c]	3	.008
	Mean Network Utilization	4.068[d]	3	1.356
Intercept	Goodput	1.288E+15	1	1.288E+15
	Throughput	1.918E+15	1	1.918E+15
	Flow Completion Time	21.234	1	21.234
	Mean Network Utilization	211.648	1	211.648
router_proto	Goodput	1.713E+11	1	1.713E+11
	Throughput	4.262E+10	1	4.262E+10
	Flow Completion Time	.004	1	.004
	Mean Network Utilization	4.038	1	4.038
juggler_enabled	Goodput	8.573E+11	1	8.573E+11
	Throughput	5.600E+11	1	5.600E+11
	Flow Completion Time	.021	1	.021
	Mean Network Utilization	.027	1	.027
router_proto * juggler_enabled	Goodput	2.924E+10	1	2.924E+10
	Throughput	3.191E+10	1	3.191E+10
	Flow Completion Time	.000	1	.000
	Mean Network Utilization	.003	1	.003
Error	Goodput	7.215E+12	316	2.283E+10
	Throughput	4.176E+13	316	1.321E+11
	Flow Completion Time	.305	316	.001
	Mean Network Utilization	3.766	316	.012
Total	Goodput	1.296E+15	320	
	Throughput	1.961E+15	320	
	Flow Completion Time	21.565	320	
	Mean Network Utilization	219.482	320	
Corrected Total	Goodput	8.273E+12	319	
	Throughput	4.239E+13	319	
	Flow Completion Time	.330	319	
	Mean Network Utilization	7.834	319	

Tests of Between-Subjects Effects

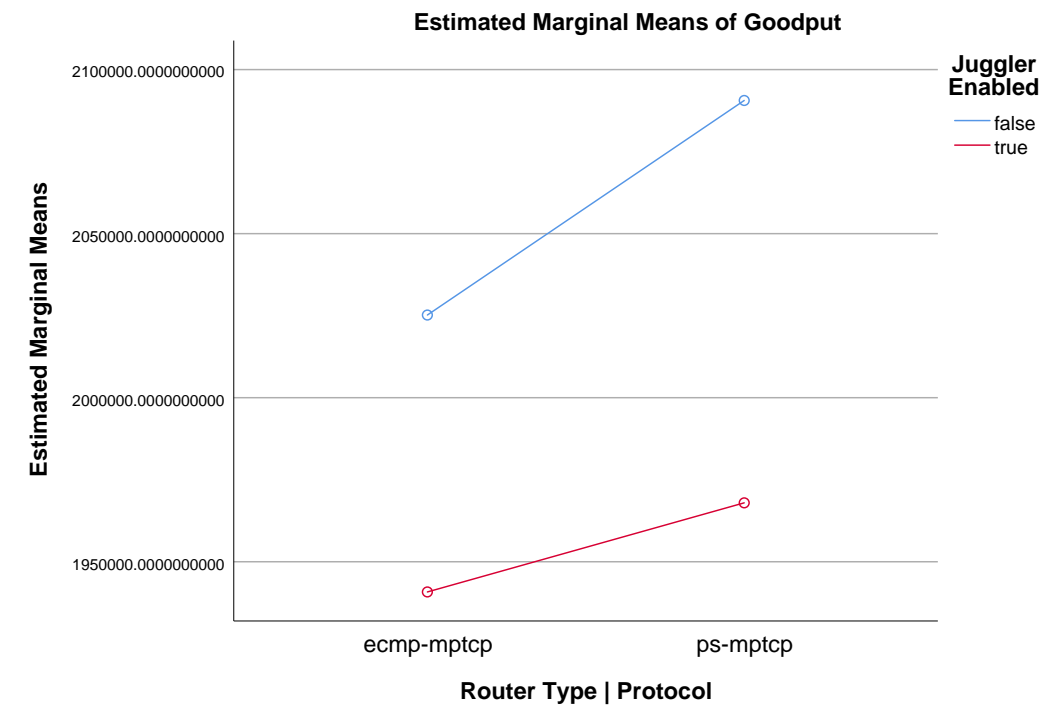| Source	Dependent Variable	F	Sig.	Partial Eta Squared
Corrected Model	Goodput	15.444	.000	.128
	Throughput	1.601	.189	.015
	Flow Completion Time	8.612	.000	.076
	Mean Network Utilization	113.779	.000	.519
Intercept	Goodput	56406.812	.000	.994
	Throughput	14515.189	.000	.979
	Flow Completion Time	21966.167	.000	.986
	Mean Network Utilization	17758.740	.000	.983
router_proto	Goodput	7.504	.007	.023
	Throughput	.323	.571	.001
	Flow Completion Time	3.653	.057	.011
	Mean Network Utilization	338.791	.000	.517
juggler_enabled	Goodput	37.548	.000	.106
	Throughput	4.238	.040	.013
	Flow Completion Time	22.079	.000	.065
	Mean Network Utilization	2.270	.133	.007
router_proto * juggler_enabled	Goodput	1.281	.259	.004
	Throughput	.242	.623	.001
	Flow Completion Time	.104	.748	.000
	Mean Network Utilization	.276	.600	.001
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 = .128 (Adjusted R Squared = .120)
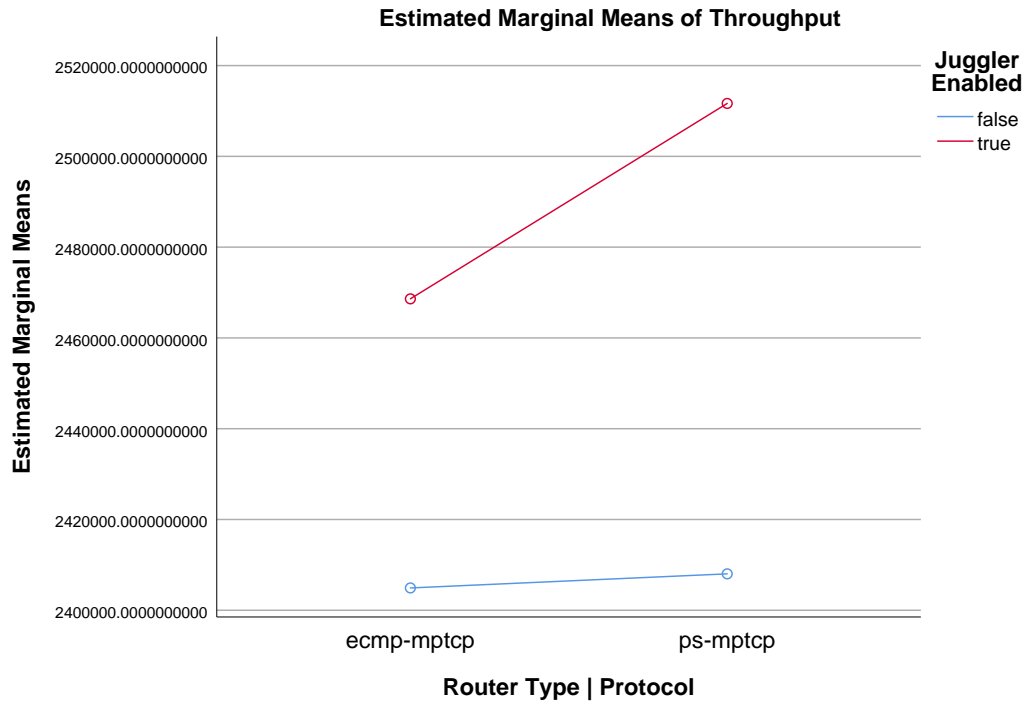
b. R Squared = .015 (Adjusted R Squared = .006)

c. R Squared = .076 (Adjusted R Squared = .067)

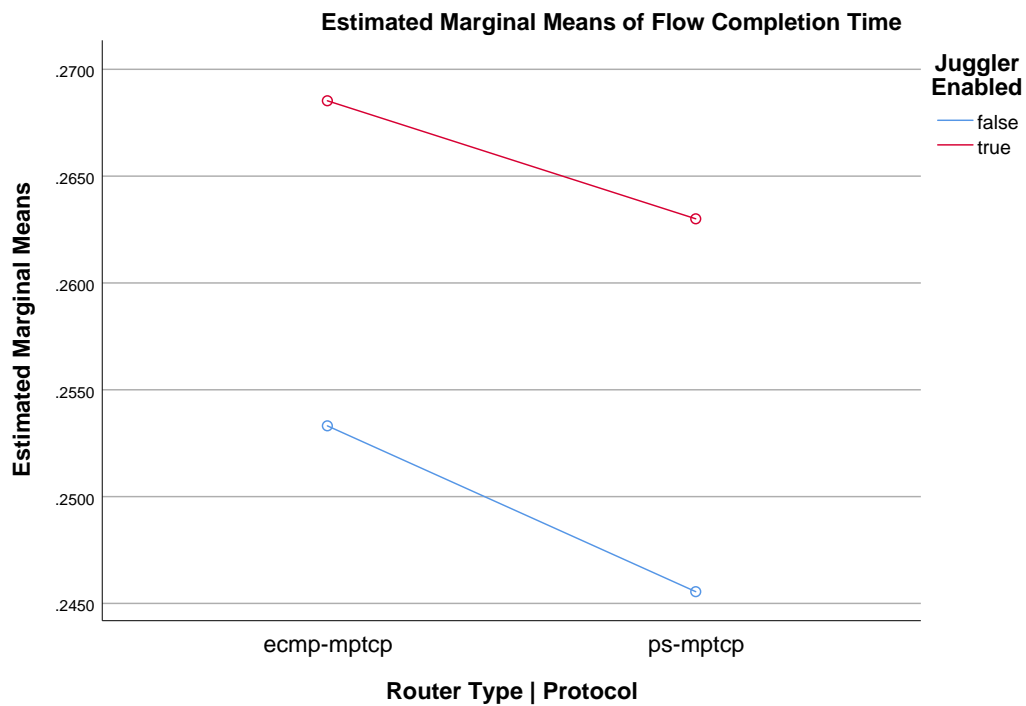d. R Squared = .519 (Adjusted R Squared = .515)

Profile Plots

Goodput

Estimated Marginal Means of Goodput

Throughput

Estimated Marginal Means of Throughput

Flow Completion Time

Estimated Marginal Means of Flow Completion Time

Mean Network Utilization

Estimated Marginal Means of Mean Network Utilization