

Table [1] The number and percentage of schools that answers how many months have passed since the previous Quality Assurance Officer visit

School year	Number of Months	Month	Freq.	Percent	Cum.	School term	
Year 2012	1	March	13	0.31	0.31	Term 1	
	2	February	974	23	23.31		
	3	January	662	15.64	38.95		
Year 2011	4	December	10	0.24	39.18	Term 3	
	5	November	219	5.17	44.36		
	6	October	207	4.89	49.24		
	7	September	182	4.3	53.54		
	8	August	18	0.43	53.97		
	9	July	62	1.46	55.43	Term 2	
	10	June	87	2.05	57.49		
	11	May	64	1.51	59		
	12	April	12	0.28	59.28		
	13	March	54	1.28	60.56		
	Year 2010	14	February	82	1.94	62.49	Term 1
		15	January	153	3.61	66.11	
		17	November	7	0.17	66.27	Term 3
		18	October	19	0.45	66.72	
		19	September	15	0.35	67.08	
Year 2009		20	August	2	0.05	67.12	Term 2
		21	July	11	0.26	67.38	
		22	June	5	0.12	67.5	
		23	May	6	0.14	67.64	
		25	March	5	0.12	67.76	Term 1
	26	February	10	0.24	68		
	27	January	30	0.71	68.71		
	Year 2009			30	0.71	69.41	
Year 2008			29	0.68	70.1		
	Missing		1,266	29.9	100		
	Total		4,234	100			

Table [2] The UWEZO Kenya national assessment scale

Annual Assessment	Round 1	Round 2	Round 3
Survey Period	October 2009	February to March 2011	February to March 2012
Districts reached (of census 158)	70	124	156
Households reached	40,386	72,106	90,820
Children assessed	68,945	134,243	153,900
Schools reached	2,030	3,574	4,543

Source: UWEZO Kenya (2009), (2010), (2012)

Table [3.1] Descriptive statistics for school, village, and pupil characteristics before imposing the common support condition

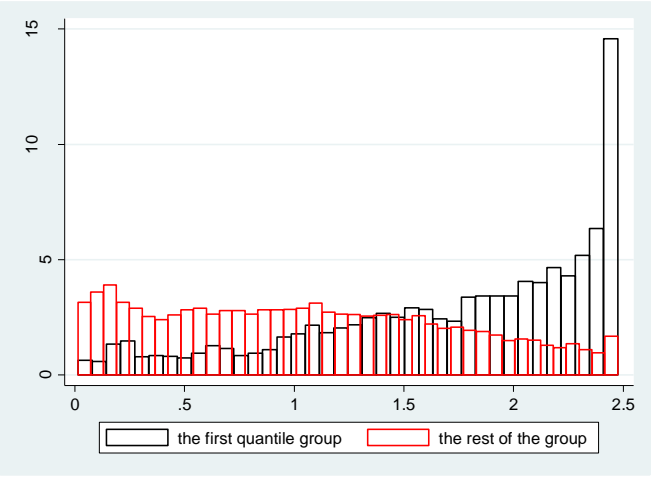
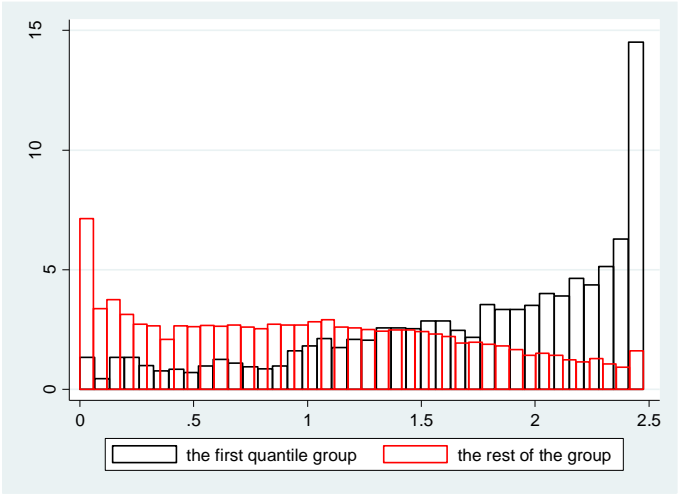
	Grade 2					Grade 3					Grade 4				
	Obs	Mean	Std. Dev	Min	Max	Obs	Mean	Std. Dev	Min	Max	Obs	Mean	Std. Dev	Min	Max
<u>Outcome variable</u>															
Numeracy	26,398	4.66	2.06	1	8	25,313	5.87	1.96	1	8	26,170	6.84	1.57	1	8
English	26,398	2.87	1.09	1	5	25,313	3.47	1.15	1	5	26,170	4.14	1.03	1	5
Swahili	26,398	2.91	1.20	1	5	25,313	3.57	1.22	1	5	26,170	4.24	1.05	1	5
<u>Treatment variable</u>															
PTA teacher ratio	26,398	0.22	0.22	0	1	25,313	0.22	0.22	0	1	26,170	0.22	0.21	0	1
<u>Household variable</u>															
Male household head	26,398	0.68	0.47	0	1	25,313	0.68	0.47	0	1	26,170	0.68	0.46	0	1
Number of meals that pupils take in a day	26,398	2.70	0.54	1	3	25,313	2.70	0.54	1	3	26,170	2.71	0.53	1	3
Asset (phone)	26,398	0.61	0.49	0	1	25,313	0.61	0.49	0	1	26,170	0.62	0.49	0	1
Quality of house wall (1 if material is Polythene)	26,398	0.01	0.08	0	1	25,313	0.01	0.08	0	1	26,170	0.01	0.08	0	1
Quality of house wall (1 if material is Iron sheet)	26,398	0.07	0.26	0	1	25,313	0.07	0.26	0	1	26,170	0.07	0.26	0	1
Quality of house wall (1 if material is Timber)	26,398	0.09	0.29	0	1	25,313	0.09	0.29	0	1	26,170	0.10	0.30	0	1
Quality of house wall (1 if material is Stone/bricks)	26,398	0.19	0.39	0	1	25,313	0.20	0.40	0	1	26,170	0.21	0.40	0	1
Number of household members	26,398	6.58	2.52	1	47	25,313	6.66	2.53	1	47	26,170	6.71	2.56	1	40
Payment to school extra tuition	26,398	0.29	0.46	0	1	25,313	0.32	0.47	0	1	26,170	0.41	0.49	0	1
<u>School variable</u>															
Log of pupil teacher ratio	26,398	3.49	0.56	0.69	6.86	25,313	3.50	0.56	0.69	6.86	26,170	3.49	0.56	0.69	6.86
Log of classsize	26,398	3.59	0.48	0.66	6.58	25,313	3.60	0.48	0.66	6.58	26,170	3.59	0.48	0.66	6.58
School fenced dummy (1 if school is fenced and 0 otherwise)	26,398	0.68	0.47	0	1	25,313	0.68	0.47	0	1	26,170	0.69	0.46	0	1
Electricity dummy (1 if there is an electricity infrastructure in the village and 0 otherwise)	26,398	0.46	0.50	0	1	25,313	0.46	0.50	0	1	26,170	0.46	0.50	0	1
Tarmac road dummy (1 if there is a tarmac road and 0 otherwise)	26,398	0.17	0.37	0	1	25,313	0.17	0.37	0	1	26,170	0.16	0.37	0	1
Year dummy	26,398	0.55	0.50	0	1	25,313	0.55	0.50	0	1	26,170	0.55	0.50	0	1

Table [3.2] Observations before (top) the common support condition is imposed and after (bottom).

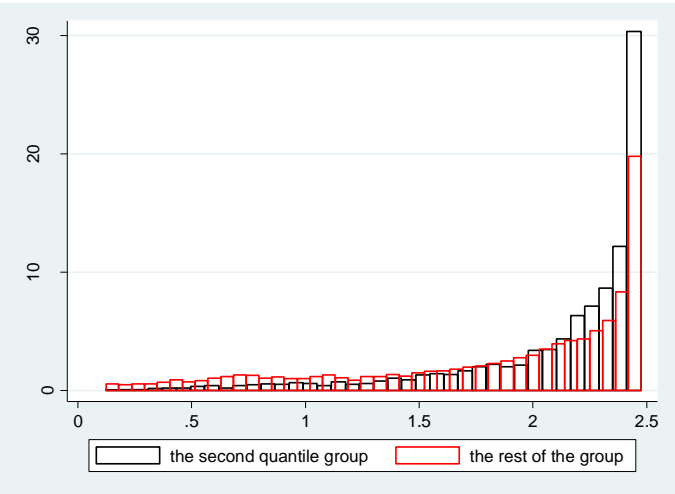
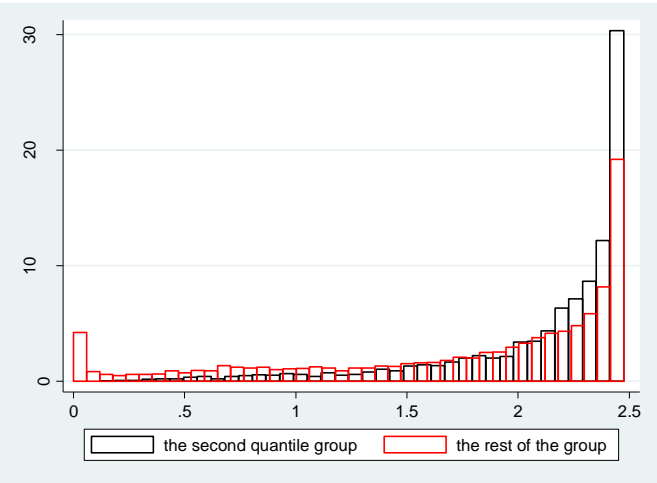
	<u>Observation</u>	<u>medium</u>	<u>mean</u>	<u>min</u>	<u>max</u>
1st quantile	6,696	0.0000	0.0082	0.0000	0.0714
2nd quantile	6,629	0.1250	0.1304	0.0741	0.1818
3rd quantile	6,241	0.2308	0.2339	0.1842	0.2941
4th quantile	6,832	0.4000	0.5093	0.3000	1.0000
Total	26,398				

	<u>Observation</u>	<u>medium</u>	<u>mean</u>	<u>min</u>	<u>max</u>
1st quantile	6,643	0.0000	0.0083	0.0000	0.0714
2nd quantile	6,629	0.1250	0.1304	0.0741	0.1818
3rd quantile	6,237	0.2308	0.2339	0.1842	0.2941
4th quantile	5,875	0.3846	0.4425	0.3000	1.0000
Total	25,384				

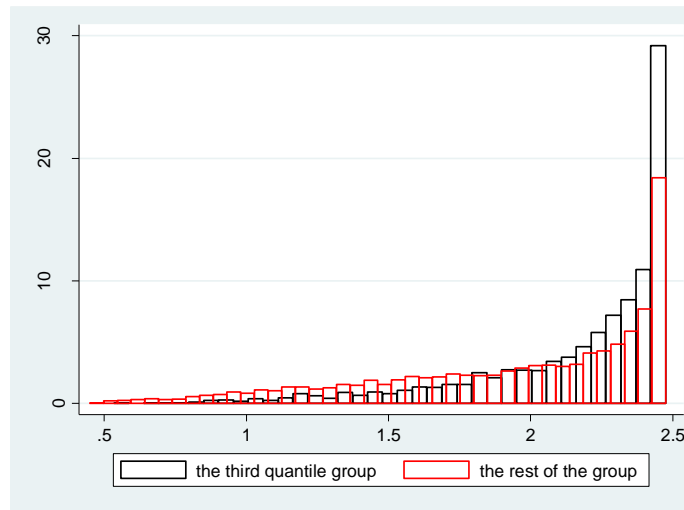
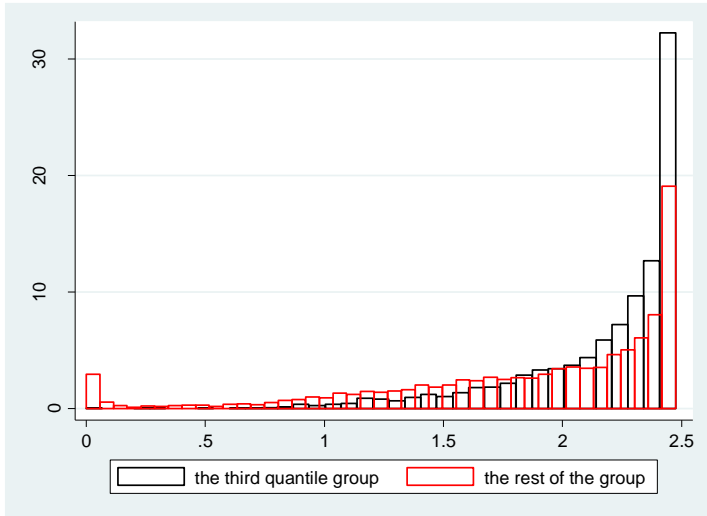
Figure [1] Histogram of the generalized propensity score for the grade 2 sample before (right) and after (left) imposing the common support condition [1st quantile group]



[2nd quantile group]



[3rd quantile group]



[4th quantile group]

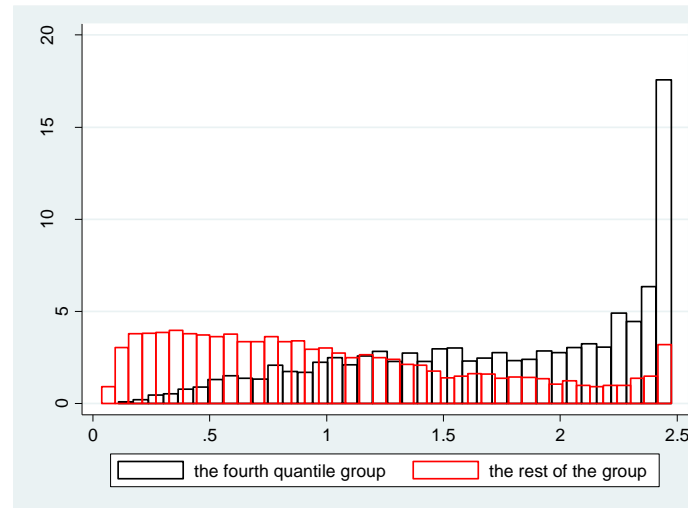
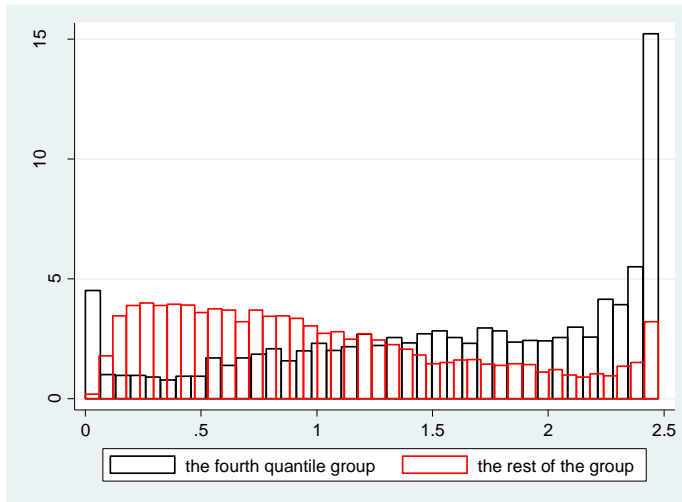


Table [4] Balancing property after imposing the common support

<u>variable</u>	<u>Adjusted</u>		<u>Not Adjusted</u>		<u>Adjusted</u>		<u>Not Adjusted</u>		<u>Adjusted</u>		<u>Not Adjusted</u>	
	<u>Mean</u>	<u>T stat</u>	<u>Mean</u>	<u>T stat</u>	<u>Mean</u>	<u>T stat</u>	<u>Mean</u>	<u>T stat</u>	<u>Mean</u>	<u>T stat</u>	<u>Mean</u>	<u>T stat</u>
Male household head	0.007	0.44	-0.005	0.65	-0.009	0.66	-0.016	2.31	0.013	0.65	0.021	3.00
Number of meals that pupils take in a day	-0.003	0.16	-0.046	5.71	-0.017	1.21	-0.035	4.21	0.059	2.84	0.083	10.10
Year dummy	0.061	3.30	0.000	0.04	0.001	0.09	-0.005	0.66	-0.048	2.69	0.005	0.62
Asset (phone)	-0.037	2.02	-0.110	15.05	0.002	0.14	-0.015	2.07	0.054	3.20	0.130	17.47
Quality of house wall (1 if material is Polythene)	-0.002	0.70	0.004	2.95	0.001	0.38	0.003	2.75	-0.003	0.82	-0.007	5.79
Quality of house wall (1 if material is Iron sheet)	-0.012	1.00	-0.014	3.56	0.018	2.00	0.018	4.62	-0.015	1.34	-0.004	1.04
Quality of house wall (1 if material is Timber)	-0.010	0.96	-0.038	8.87	0.005	0.50	0.002	0.42	0.023	1.28	0.037	8.61
Quality of house wall (1 if material is Stone/bricks)	-0.028	2.43	-0.083	14.64	0.009	0.86	-0.005	0.91	0.039	2.75	0.091	15.85
Number of household members	0.048	0.59	0.177	4.65	0.003	0.05	0.013	0.33	-0.140	1.15	-0.197	5.08
Payment to school extra tuition	-0.003	0.15	-0.044	6.45	0.009	0.54	-0.002	0.31	0.012	0.61	0.048	6.88
Log of pupil teacher ratio	-0.025	1.63	0.059	9.44	-0.060	3.77	-0.039	6.17	0.054	3.72	-0.021	3.35
Log of classsize	0.019	1.17	0.039	5.47	-0.028	1.51	-0.019	2.71	-0.020	0.44	-0.020	2.82
School fenced dummy (1 if school is fenced and 0 otherwise)	0.032	2.05	-0.053	7.49	-0.023	1.64	-0.044	6.18	0.031	1.83	0.099	13.93
Electricity dummy (1 if there is an electricity infrastructure in the village and 0 otherwise)	-0.073	4.68	-0.206	28.28	0.016	0.89	-0.007	1	0.076	5.21	0.221	29.91
Tarmac road dummy (1 if there is a tarmac road and 0 otherwise)	-0.035	2.79	-0.083	15.82	0.014	1.16	0.010	1.83	0.044	2.89	0.076	14.23
Log of pupil teacher ratio (Quadratic)	-0.239	2.31	0.367	8.72	-0.394	3.56	-0.235	5.53	0.391	3.97	-0.141	3.27
Log of classsize (Quadratic)	0.107	0.83	0.241	4.50	-0.149	0.99	-0.076	1.41	-0.198	0.74	-0.172	3.16
Log of pupil teacher ratio (Cubic)	-1.554	2.96	1.741	7.95	-1.984	3.33	-1.081	4.9	2.152	4.19	-0.699	3.13
Log of classsize (Cubic)	0.369	0.46	1.057	3.29	-0.472	0.45	-0.024	0.07	-1.380	0.96	-1.072	3.28

Table [5] Balancing property after imposing the common support

Dependent Variable	Grade 2		Grade 3		Grade 4	
	PTA teacher ratio	PTA teacher ratio	PTA teacher ratio	PTA teacher ratio	PTA teacher ratio	PTA teacher ratio
Male household head	-0.000466	0.00266	-0.000308	0.000726	-0.000969	-0.00105
	-0.00248	-0.00226	-0.00244	-0.00223	-0.0024	-0.00217
Number of meals that pupils take in a day	0.0014	-0.000594	0.00192	0.00332	-0.000697	0.000235
	-0.00217	-0.00213	-0.00215	-0.0021	-0.00213	-0.00205
Year dummy	-0.0114***	-0.0105***	-0.00462*	-0.00438*	-0.0105***	-0.00906***
	-0.00245	-0.00233	-0.00241	-0.00231	-0.00235	-0.00222
Asset (phone)	-0.0167***	-0.0139***	-0.0146***	-0.0109***	-0.0148***	-0.0111***
	-0.00248	-0.00225	-0.00245	-0.00223	-0.00238	-0.00215
Quality of house wall (1 if material is Polythene)	0.0400***	0.0262**	-0.0424***	-0.0314**	-0.0218	0.00586
	-0.0136	-0.0127	-0.0136	-0.0125	-0.0139	-0.0127
Quality of house wall (1 if material is Iron sheet)	-0.0198***	-0.0137***	-0.0163***	-0.00756*	-0.0218***	-0.00456
	-0.00443	-0.00411	-0.00446	-0.00414	-0.00427	-0.00393
Quality of house wall (1 if material is Timber)	-0.0368***	-0.0195***	-0.0360***	-0.0205***	-0.0400***	-0.0177***
	-0.00411	-0.00445	-0.00404	-0.0044	-0.0039	-0.00418
Quality of house wall (1 if material is Stone/bricks)	-0.0486***	-0.0251***	-0.0493***	-0.0304***	-0.0474***	-0.0243***
	-0.00314	-0.00329	-0.00308	-0.00319	-0.00293	-0.00303
Number of household members	0.000986**	0.00027	0.00109**	0.000840**	0.000985**	0.000532
	-0.000459	-0.000419	-0.000452	-0.000412	-0.000436	-0.000395
Payment to school extra tuition	0.00223	-0.000483	0.00802***	0.00132	0.0120***	-0.000847
	-0.00257	-0.00238	-0.00249	-0.00231	-0.00229	-0.00216
Log of pupil teacher ratio	-1.666***	-1.626***	-1.656***	-1.573***	-1.391***	-1.342***
	-0.0801	-0.0726	-0.078	-0.0708	-0.074	-0.0664
Log of classsize	1.663***	1.485***	1.643***	1.436***	1.691***	1.447***
	-0.0889	-0.0815	-0.0819	-0.0742	-0.0871	-0.0784
School fenced dummy (1 if school is fenced and 0 otherwise)	-0.0148***	-0.0303***	-0.00623**	-0.0233***	-0.00752***	-0.0287***
	-0.00254	-0.00253	-0.00252	-0.0025	-0.00244	-0.0024
Electricity dummy (1 if there is an electricity infrastructure in the village and 0 otherwise)	-0.0675***	-0.0434***	-0.0630***	-0.0402***	-0.0593***	-0.0347***
	-0.00252	-0.00242	-0.00247	-0.00235	-0.00239	-0.00228
Tarmac road dummy (1 if there is a tarmac road and 0 otherwise)	-0.0346***	-0.0210***	-0.0323***	-0.0200***	-0.0346***	-0.0252***
	-0.0032	-0.00296	-0.00315	-0.00292	-0.00308	-0.00281
Log of pupil teacher ratio (Quadratic)	0.358***	0.351***	0.364***	0.347***	0.301***	0.292***
	-0.0195	-0.0177	-0.0191	-0.0174	-0.0182	-0.0163
Log of classsize (Quadratic)	-0.408***	-0.368***	-0.413***	-0.366***	-0.431***	-0.371***
	-0.0217	-0.0199	-0.0201	-0.0182	-0.0214	-0.0192
Log of pupil teacher ratio (Cubic)	-0.0203***	-0.0200***	-0.0212***	-0.0201***	-0.0165***	-0.0161***
	-0.00155	-0.0014	-0.00152	-0.00138	-0.00144	-0.00129
Log of classsize (Cubic)	0.0319***	0.0292***	0.0328***	0.0295***	0.0345***	0.0300***
	-0.00174	-0.00159	-0.00162	-0.00147	-0.00172	-0.00155
Constant	0.392***	0.614***	0.404***	0.588***	0.0261	0.314***
	-0.0772	-0.0743	-0.0738	-0.0697	-0.0819	-0.0762
District Dummy	No	Yes	No	Yes	No	Yes
Number of observation	26,398	26,398	25,313	25,313	26,170	26,170

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Figure [2] Dose-response function of the PTA teacher ratio (for Swahili, English and Numeracy)

The three Figures in the top row belong to Grade 2, those in the middle row belong to Grade 3, and the last three Figures in the bottom row belong to Grade 4. Subjects are Swahili (left), English (middle) and Numeracy (right). The confidence interval shows the upper and lower bound of the 95th percent significance level estimated by 3,000 times replication of the bootstrap method for the entire process.

X axes indicate the PTA teacher ratio and Y axes indicate the test score of each subject

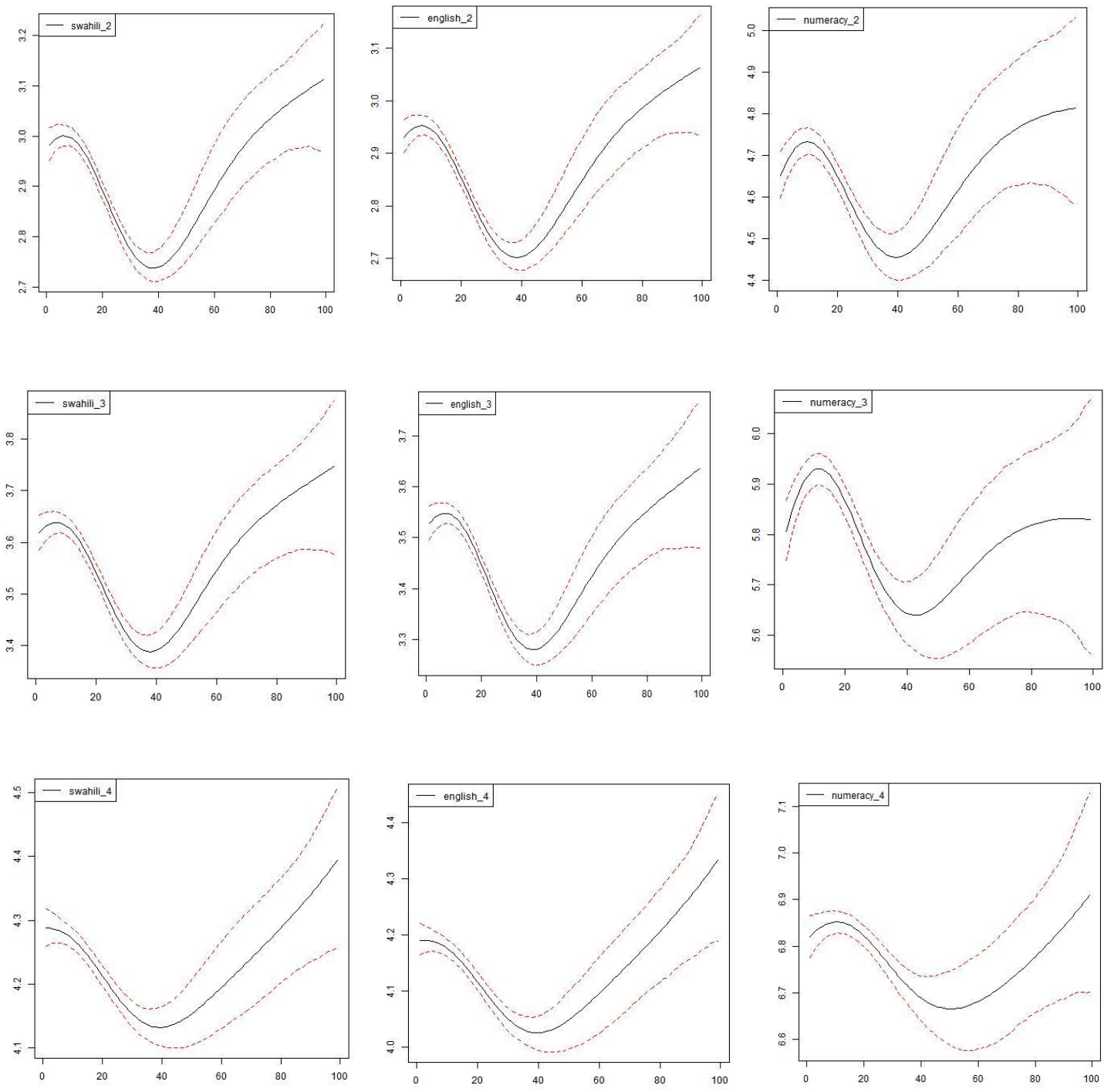


Table [6] Average test score at each PTA teacher ratio

The confidence interval of the selected level of the PTA teacher ratio. It shows the upper and lower bound of the 95th percent significance level estimated by 3000 times replication of the bootstrap method for the entire process. Due to the limited number of observations where the PTA teacher ratio reaches 100 percent, the confidence interval widens.

	Grade 2			Grade 3			Grade 4		
	Numeracy	English	Swahili	Numeracy	English	Swahili	Numeracy	English	Swahili
lower	4.57	2.89	2.94	5.72	3.48	3.57	6.77	4.16	4.26
upper	4.69	2.96	3.01	5.85	3.55	3.65	6.87	4.22	4.32
Standard error	0.03	0.02	0.02	0.03	0.02	0.02	0.03	0.02	0.02
0%	4.63	2.92	2.97	5.78	3.52	3.61	6.81	4.19	4.29
lower	4.63	2.85	2.89	5.85	3.44	3.53	6.80	4.11	4.20
upper	4.69	2.88	2.92	5.91	3.48	3.57	6.85	4.14	4.23
Standard error	0.02	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01
20%	4.66	2.87	2.91	5.88	3.46	3.55	6.83	4.12	4.22
lower	4.41	2.68	2.71	5.59	3.25	3.36	6.65	4.00	4.10
upper	4.51	2.73	2.77	5.70	3.31	3.42	6.74	4.05	4.16
Standard error	0.03	0.01	0.02	0.03	0.02	0.02	0.02	0.02	0.02
40%	4.46	2.70	2.74	5.65	3.28	3.39	6.69	4.03	4.13
lower	4.49	2.78	2.82	5.59	3.35	3.46	6.58	4.03	4.13
upper	4.75	2.91	2.97	5.85	3.49	3.61	6.78	4.16	4.26
Standard error	0.07	0.04	0.04	0.07	0.04	0.04	0.05	0.03	0.03
60%	4.61	2.84	2.88	5.72	3.42	3.54	6.68	4.09	4.19
lower	4.63	2.91	2.95	5.65	3.46	3.57	6.65	4.12	4.20
upper	4.92	3.06	3.12	5.96	3.63	3.74	6.90	4.27	4.36
Standard error	0.08	0.04	0.04	0.08	0.04	0.05	0.06	0.04	0.04
80%	4.76	2.98	3.03	5.82	3.55	3.67	6.77	4.20	4.28
lower	4.59	2.93	2.97	5.55	3.48	3.57	6.72	4.20	4.26
upper	5.06	3.17	3.23	6.05	3.77	3.88	7.14	4.46	4.52
Standard error	0.12	0.06	0.07	0.13	0.07	0.08	0.11	0.07	0.07
100%	4.82	3.07	3.12	5.83	3.64	3.75	6.92	4.34	4.40
Difference <i>u100-u0 (100% mean and 0% mean)</i>	0.18	0.14	0.14	0.05	0.12	0.14	0.10	0.15	0.11
Test statistics for the mean difference u100-u0	1.20	1.83	1.67	0.29	1.30	1.43	0.77	1.81	1.33
Difference <i>u100-u40 (100% mean and 40% mean)</i>	0.36	0.36	0.38	0.18	0.36	0.36	0.22	0.31	0.27
Test statistics for the mean difference u100-u0	2.39	4.85	4.63	1.14	3.98	3.83	1.69	3.82	3.20

Figure [3] Dose-response function of the PTA teacher ratio (Grade 2: Numeracy, Swahili and English) The three figures on the left are the dose-response functions from a restricted sample with a pupil teacher ratio less than or equal to the 33rd percentile. The three figures in the middle are from a sample with a pupil teacher ratio above the 33rd and less than or equal to the 66th percentile, and the figures on the right are from a sample with a pupil teacher ratio above the 66th percentile.

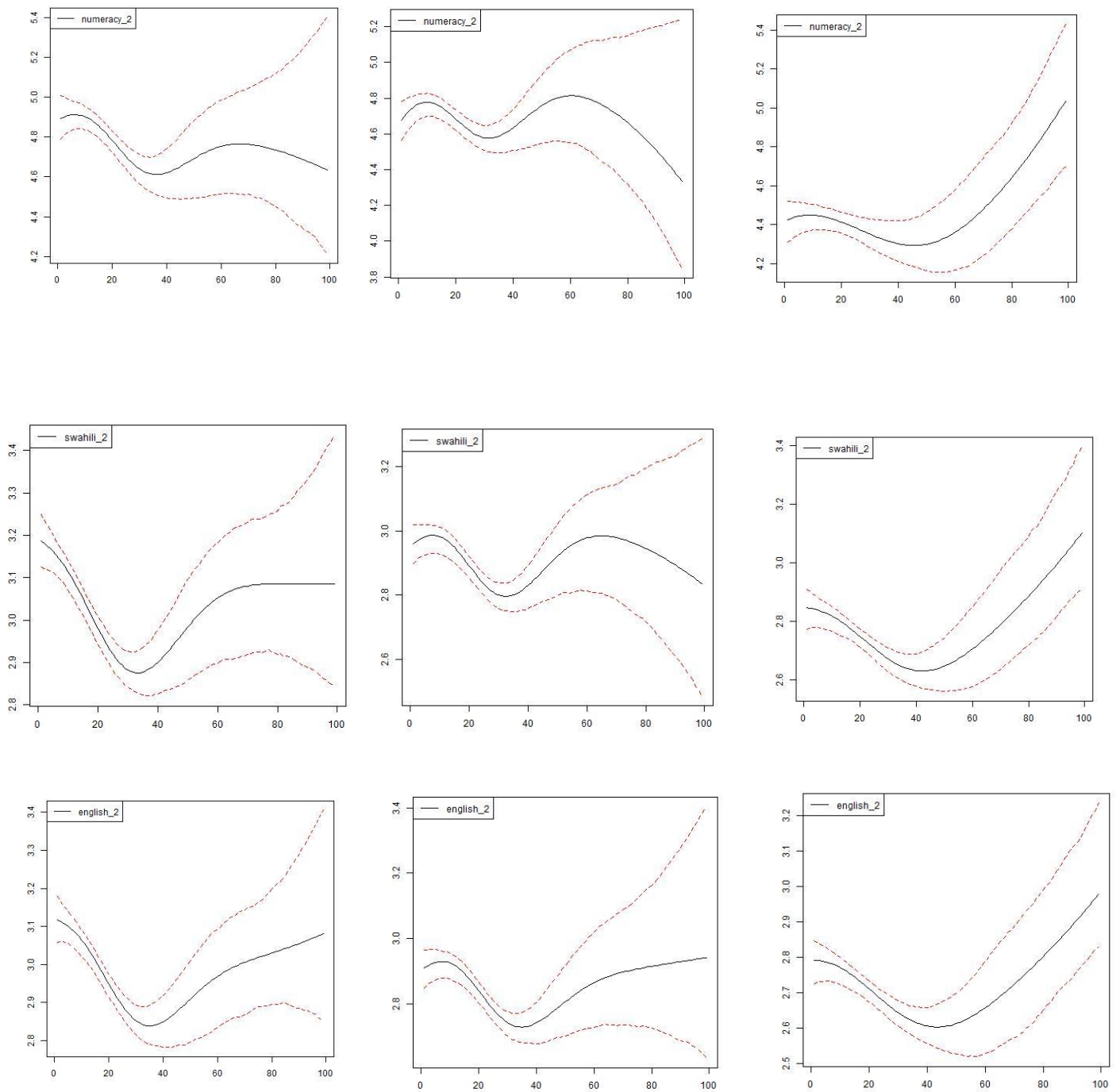


Table [7] The three tables are the dose-response functions for Numeracy (left), English (middle) and Swahili (right) for the low and high PTR groups. The mean test comparison between the minimum and each percent point from 0 to 100. The tables also indicate the statistical significance for the mean difference.

	Grade 2						Grade 3						Grade 4					
	Numeracy		English		Swahili		Numeracy		English		Swahili		Numeracy		English		Swahili	
	high	low	high	low	high	low	high	low	high	low	high	low	high	low	high	low	high	low
lower	4.29	4.76	2.72	3.05	2.77	3.12	5.42	5.92	3.24	3.67	3.33	3.75	6.57	6.99	3.99	4.30	4.08	4.39
upper	4.53	5.01	2.85	3.18	2.91	3.26	5.65	6.16	3.37	3.81	3.46	3.90	6.77	7.15	4.11	4.41	4.21	4.49
Standard error	0.06	0.06	0.03	0.03	0.04	0.04	0.04	0.06	0.06	0.04	0.04	0.04	0.05	0.04	0.03	0.03	0.03	0.03
0 percent	4.42	4.88	2.79	3.12	2.85	3.19	5.54	6.05	3.31	3.75	3.40	3.83	6.66	7.07	4.05	4.36	4.14	4.44
lower	4.36	4.74	2.68	2.93	2.72	2.96	5.57	6.01	3.28	3.50	3.35	3.60	6.66	6.87	3.96	4.17	4.06	4.27
upper	4.47	4.85	2.74	2.99	2.78	3.02	5.68	6.11	3.34	3.56	3.42	3.67	6.74	6.96	4.02	4.23	4.12	4.32
Standard error	0.03	0.03	0.01	0.02	0.02	0.02	0.02	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.01
20 percent	4.42	4.80	2.72	2.96	2.76	2.99	5.63	6.06	3.31	3.53	3.39	3.64	6.70	6.92	3.98	4.20	4.09	4.30
lower	4.22	4.50	2.56	2.78	2.58	2.83	5.45	5.79	3.15	3.34	3.23	3.51	6.55	6.77	3.85	4.14	3.95	4.23
upper	4.42	4.73	2.66	2.91	2.69	2.96	5.64	6.02	3.27	3.49	3.35	3.66	6.71	6.95	3.96	4.25	4.07	4.34
Standard error	0.05	0.06	0.03	0.03	0.03	0.03	0.04	0.06	0.07	0.04	0.04	0.04	0.04	0.05	0.03	0.03	0.03	0.03
40 percent	4.31	4.62	2.61	2.85	2.63	2.89	5.53	5.91	3.21	3.41	3.29	3.58	6.63	6.87	3.90	4.20	4.01	4.29
lower	4.16	4.50	2.53	2.83	2.58	2.90	5.37	5.69	3.15	3.40	3.22	3.60	6.43	6.66	3.80	4.18	3.94	4.25
upper	4.57	4.99	2.78	3.09	2.84	3.17	5.80	6.14	3.39	3.67	3.48	3.89	6.81	7.00	4.06	4.40	4.22	4.46
Standard error	0.11	0.14	0.07	0.08	0.07	0.08	0.07	0.12	0.14	0.07	0.08	0.07	0.10	0.09	0.07	0.05	0.07	0.06
60 percent	4.35	4.75	2.65	2.96	2.70	3.05	5.58	5.93	3.29	3.55	3.36	3.76	6.65	6.84	3.93	4.30	4.09	4.37
lower	4.36	4.48	2.65	2.89	2.72	2.93	5.46	5.41	3.25	3.45	3.36	3.58	6.52	6.51	3.93	4.11	4.08	4.18
upper	4.90	5.10	2.98	3.19	3.08	3.26	6.01	6.07	3.54	3.81	3.67	3.95	6.99	6.98	4.26	4.39	4.41	4.48
Standard error	0.14	0.21	0.09	0.11	0.09	0.12	0.10	0.17	0.18	0.09	0.11	0.10	0.12	0.12	0.09	0.07	0.09	0.08
80 percent	4.62	4.74	2.79	3.03	2.88	3.09	5.77	5.77	3.41	3.65	3.54	3.79	6.77	6.74	4.10	4.24	4.25	4.33
lower	4.68	4.19	2.82	2.85	2.90	2.83	5.51	4.76	3.27	3.42	3.49	3.39	6.62	6.19	4.15	3.89	4.26	4.00
upper	5.44	5.37	3.25	3.41	3.40	3.44	6.30	6.07	3.71	4.13	3.94	4.11	7.36	7.11	4.65	4.43	4.77	4.56
Standard error	0.19	0.36	0.11	0.19	0.13	0.21	0.17	0.33	0.31	0.18	0.19	0.18	0.19	0.23	0.12	0.14	0.13	0.14
100 percent	5.06	4.63	2.99	3.08	3.11	3.09	6.00	5.45	3.50	3.81	3.76	3.79	6.95	6.61	4.39	4.13	4.49	4.25
Difference $u_{100}-u_0$ (100% mean and 0% mean)	0.64	-0.26	0.20	-0.04	0.27	-0.10	0.46	-0.60	0.19	0.06	0.36	-0.04	0.29	-0.46	0.34	-0.23	0.35	-0.19
Test statistics for the mean difference $u_{100}-u_0$	2.54	-0.61	1.35	-0.16	1.65	-0.43	2.23	-1.54	0.50	0.30	1.58	-0.17	1.21	-1.69	2.19	-1.42	2.24	-1.12
Difference $u_{100}-u_{40}$ (100% mean and 40% mean)	0.75	0.01	0.38	0.24	0.48	0.19	0.48	-0.46	0.29	0.40	0.48	0.21	0.32	-0.26	0.48	-0.07	0.49	-0.04
Test statistics for the mean difference $u_{100}-u_0$	3.07	0.03	2.76	1.07	3.10	0.79	2.31	-1.17	0.78	1.85	2.09	0.95	1.35	-0.93	3.16	-0.43	3.11	-0.21

Figure [4] Dose-response function of the PTA teacher ratio (Grade 3: Numeracy, Swahili, and English) The three figures on the left are the dose-response functions from a restricted sample with a pupil teacher ratio less than or equal to the 33rd percentile. The three figures in the middle are from a sample with a pupil teacher ratio above the 33rd and less than or equal to the 66th percentile, and the figures on the right are from a sample with a pupil teacher ratio above the 66th percentile.

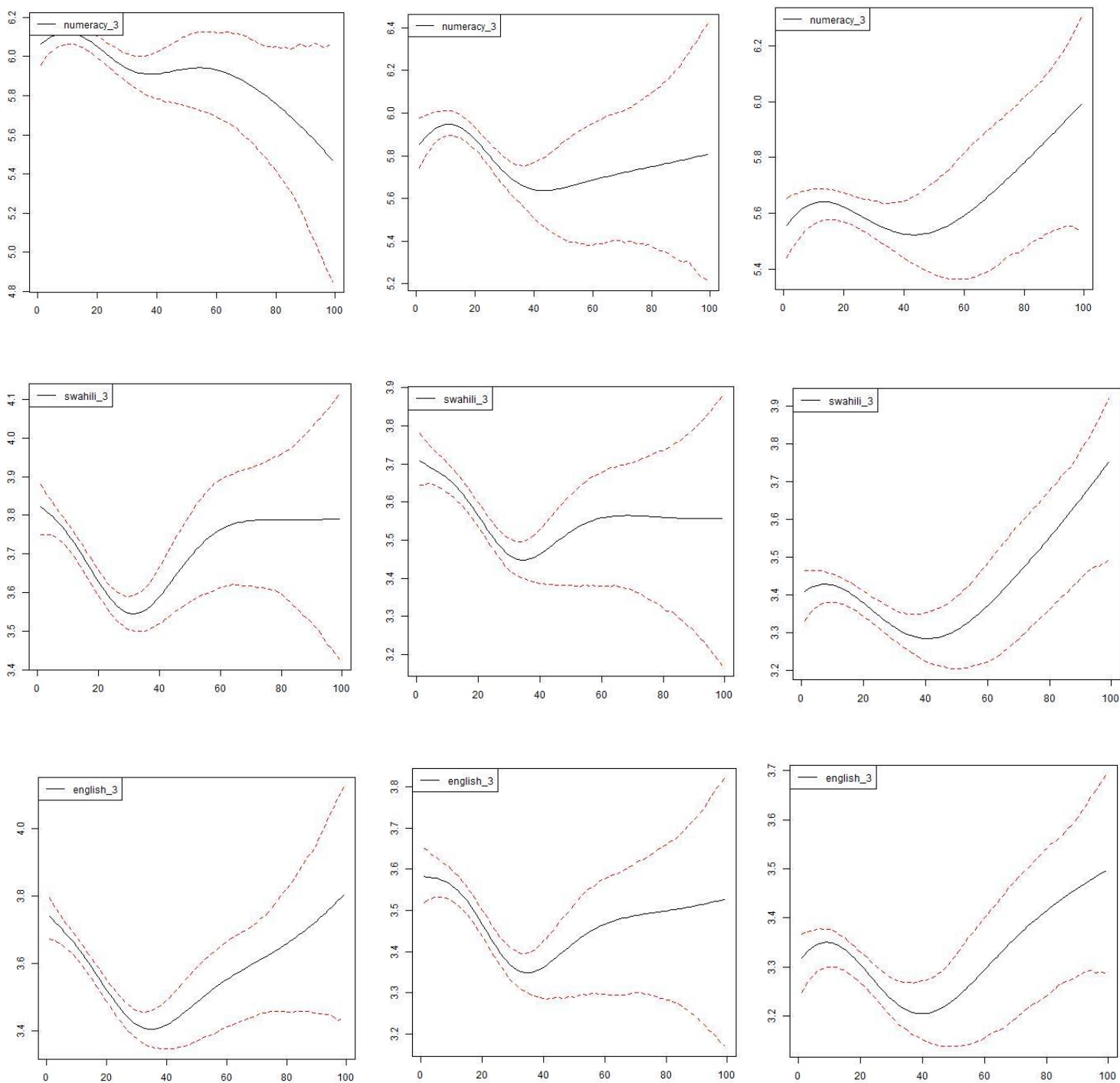


Figure [5] Dose-response Function of the PTA teacher ratio (Grade 4 : Numeracy, Swahili, and English) The three figures in the left are dose-response functions from a restricted sample with a pupil teacher ratio less than or equal to the 33rd percentile. The three figures in the middle are from a sample with a pupil teacher ratio above the 33rd and less than or equal to the 66th percentile, and the figures on the right are from a sample with a pupil teacher ratio above the 66th percentile

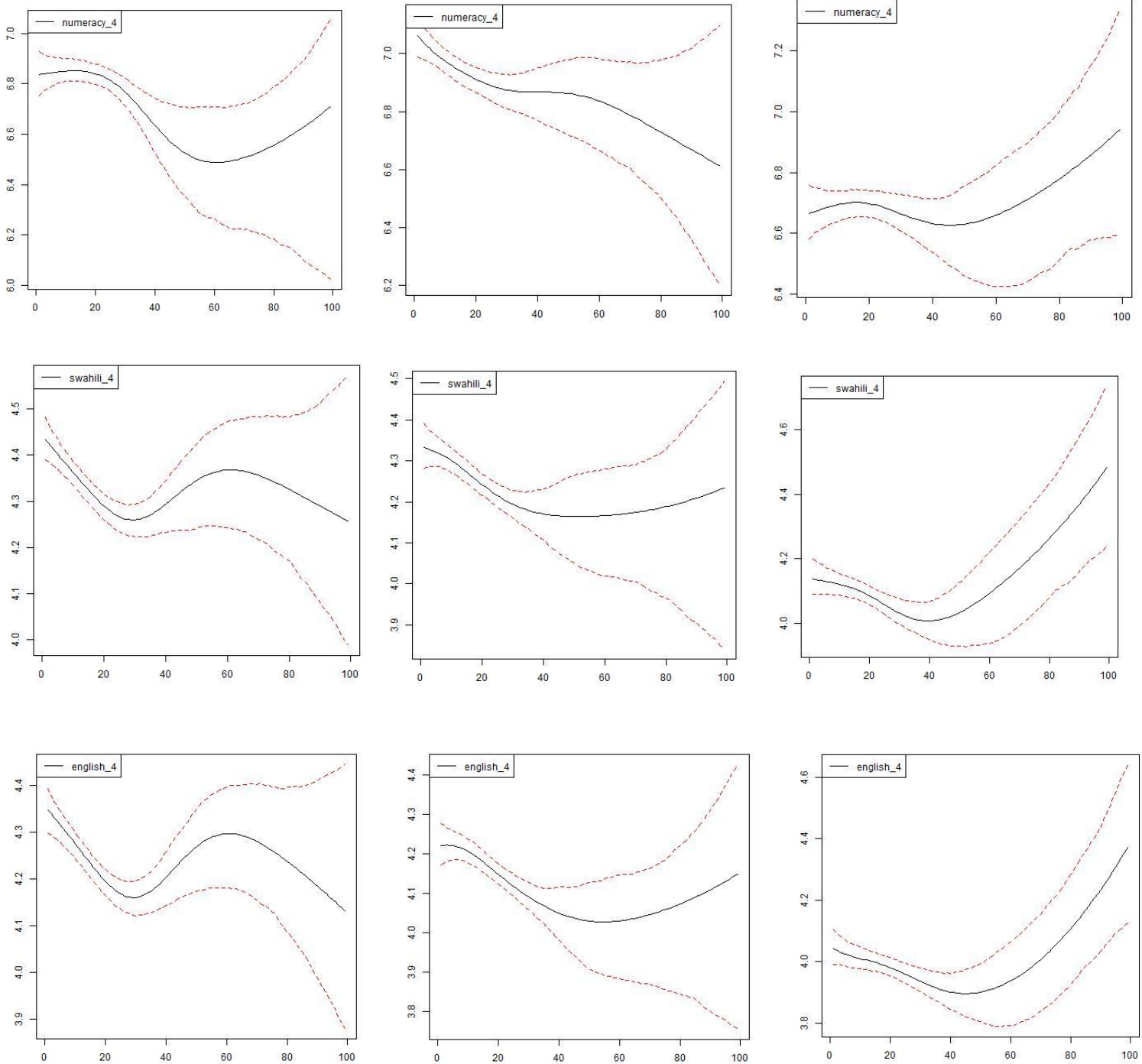


Table [8] The three tables are the dose-response functions for Numeracy (left), English (middle) and Swahili (right) for the low and high PTR groups. The mean test comparison is between the minimum and each percent point from 0 to 100. The tables also indicate the statistical significance for the mean difference.

	<u>Grade 2</u>									<u>Grade 3</u>									<u>Grade 4</u>								
	Numeracy			English			Swahili			Numeracy			English			Swahili			Numeracy			English			Swahili		
Education Committee	with	w/out		with	w/out		with	w/out		with	w/out		with	w/out		with	w/out		with	w/out		with	w/out		with	w/out	
0 percent	4.62	4.66	-0.04	2.93	2.93	-0.01	2.95	3.00	-0.05	5.73	5.86	-0.12	3.48	3.56	-0.07	3.55	3.66	-0.11	6.80	6.82	-0.02	4.20	4.20	0.00	4.29	4.31	-0.02
Standard error	0.06	0.04	-0.44	0.03	0.02	-0.13	0.03	0.02	-0.84	0.06	0.04	-1.19	0.03	0.02	-1.28	0.04	0.02	-1.82	0.05	0.03	-0.27	0.03	0.02	0.00	0.03	0.02	-0.36
20 percent	4.61	4.66	-0.05	2.87	2.85	0.03	2.89	2.89	0.00	5.87	5.87	-0.01	3.48	3.44	0.04	3.55	3.54	0.01	6.85	6.82	0.04	4.14	4.12	0.02	4.21	4.22	-0.01
Standard error	0.03	0.02	-0.96	0.02	0.01	1.03	0.02	0.01	0.04	0.03	0.02	-0.13	0.02	0.01	1.56	0.02	0.01	0.19	0.02	0.01	0.95	0.01	0.01	0.82	0.02	0.01	-0.23
40 percent	4.49	4.42	0.07	2.76	2.67	0.09	2.76	2.71	0.06	5.78	5.57	0.21	3.37	3.24	0.13	3.45	3.34	0.11	6.79	6.65	0.14	4.06	4.03	0.04	4.17	4.13	0.04
Standard error	0.05	0.04	0.80	0.03	0.02	<u>1.83</u>	0.03	0.02	1.09	0.05	0.04	<u>2.34</u>	0.03	0.02	<u>2.53</u>	0.03	0.02	<u>2.04</u>	0.04	0.03	<u>1.90</u>	0.03	0.02	0.77	0.03	0.02	0.84
60 percent	4.72	4.44	0.28	2.96	2.71	0.25	2.93	2.75	0.18	6.14	5.56	0.58	3.61	3.36	0.25	3.69	3.46	0.23	6.92	6.63	0.29	4.22	4.10	0.12	4.35	4.19	0.16
Standard error	0.12	0.09	1.33	0.06	0.05	<u>2.17</u>	0.07	0.06	1.43	0.11	0.09	<u>2.91</u>	0.06	0.05	<u>2.21</u>	0.07	0.05	<u>1.95</u>	0.09	0.07	<u>1.84</u>	0.06	0.04	1.20	0.06	0.04	1.53
80 percent	4.89	4.59	0.31	3.07	2.85	0.22	3.05	2.89	0.16	6.23	5.63	0.60	3.73	3.46	0.26	3.82	3.56	0.25	7.00	6.72	0.28	4.37	4.16	0.21	4.52	4.22	0.30
Standard error	0.14	0.10	1.31	0.07	0.06	<u>1.74</u>	0.08	0.06	1.16	0.13	0.11	<u>2.48</u>	0.08	0.06	<u>1.93</u>	0.08	0.06	<u>1.77</u>	0.11	0.09	1.41	0.07	0.06	<u>1.70</u>	0.07	0.06	<u>2.38</u>
100 percent	4.93	4.75	0.18	3.01	3.04	-0.03	3.05	3.08	-0.03	5.99	5.70	0.28	3.68	3.55	0.13	3.79	3.64	0.14	7.02	6.87	0.15	4.52	4.22	0.30	4.70	4.23	0.47
Standard error	0.20	0.15	0.53	0.10	0.07	-0.18	0.11	0.08	-0.14	0.21	0.19	0.71	0.12	0.10	0.59	0.13	0.11	0.61	0.19	0.15	0.44	0.12	0.09	1.39	0.12	0.10	<u>2.17</u>

