

Trends in Ethiopian National Learning Assessments

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1. Purpose of the study

The main purpose of this study was to analyze the trends of students' achievement in the core academic subject areas by region, sex and location for the second, third and fourth National Learning Assessments (NLAs). The data used in this analysis were compiled from the reports of the NLAs available at the website (<http://www.nae.gov.et/Public/MiscellaneousDownloads.aspx>) of the National Educational Assessment and Examination Agency (NEAEA).

NB. No actual database was obtained and they are very confidential to be accessible to researchers.

The specific objectives of this study were to:

- present relevant data on Ethiopian primary education
- compare the NLA trends of grades 4 and 8 students achievement in the core subjects by sex, location and region.
- identify the major variables that contributed to the students achievement in Ethiopian NLAs.
- comment on the statistical reports of the Grade 4 and 8 Ethiopia NLAs.

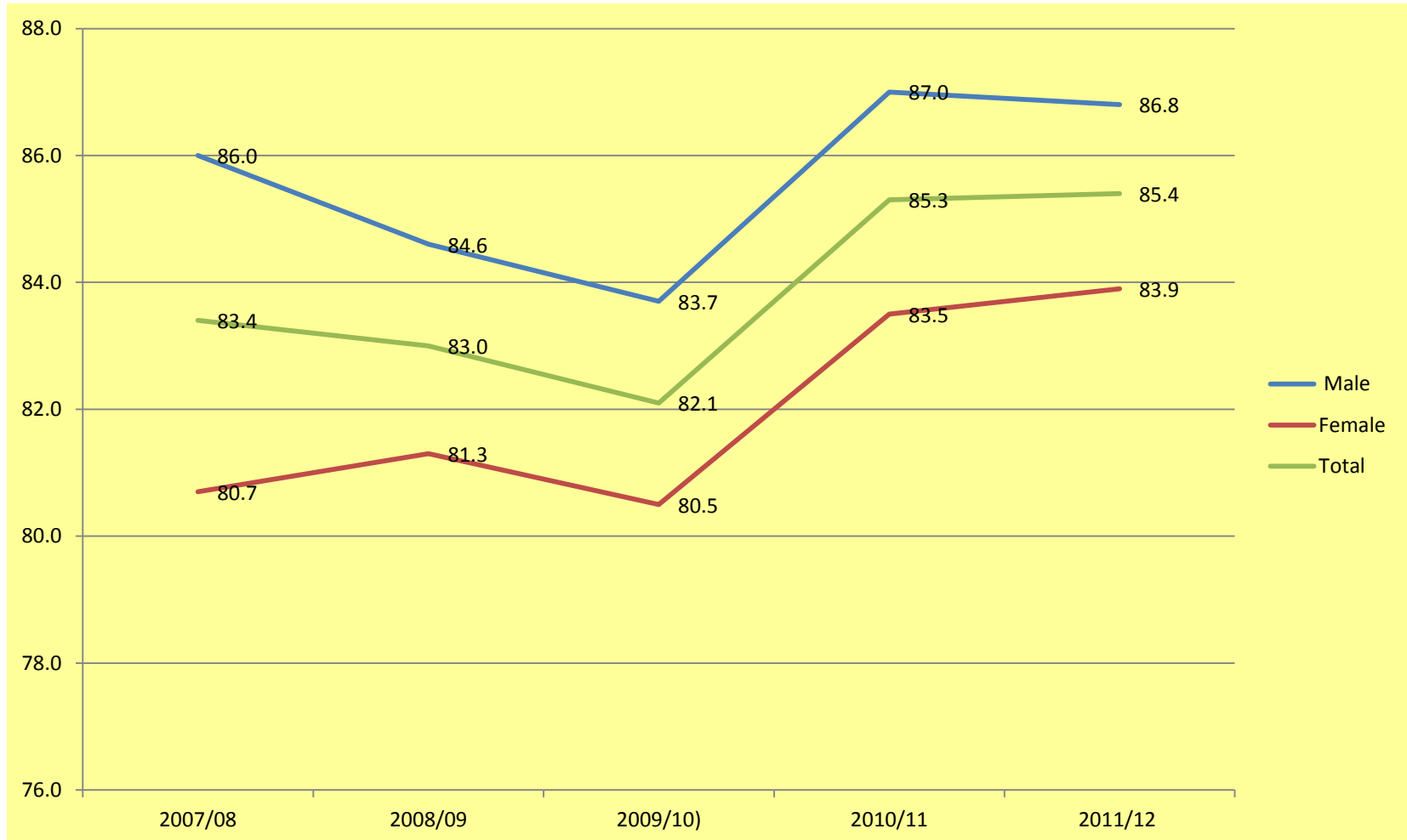
2. The Ethiopian Education System and some data on Primary Education

The Ethiopian Education System

Level	Sub-level	Grade	Age	Description	National examinations
Kindergarten	-	-	4-6	Covers only about 4.5%	-
Primary	First cycle	1-4	7-10	Provides 8 years primary education	NLA at the end of grade 4
	Second cycle	5-8	11-14		NLA at the end of grade 8
Secondary	First cycle	9-10	15 and 16	Provides general secondary education	Ethiopian General School Leaving Certificate Examination (EGSLCE)
	Second cycle	11-12	17 and 18	Provides preparatory education	Ethiopian University Entrance Examination (EUEE)
TVET	-	-	17-19	Provides 3 years technical and vocational education in agriculture, teacher training, engineering and technology, health and commerce.	Certificate of Competence (COC) is awarded after examination
Higher Education	Undergraduate Program		19-25	3 years for social sciences	BA/BSc. degree
				5 years for Law and Engineering	LLB (Bachelors of Law) and BSc in Engineering
				6 years for medical sciences	MD in Medicine
	MA Graduate Program		Age varies	2 years program	MA/Med/ MSc./LLM degrees
	PhD Graduate Program		Age varies	4 Years Program	PhD and Specialty Certificates in Medicine

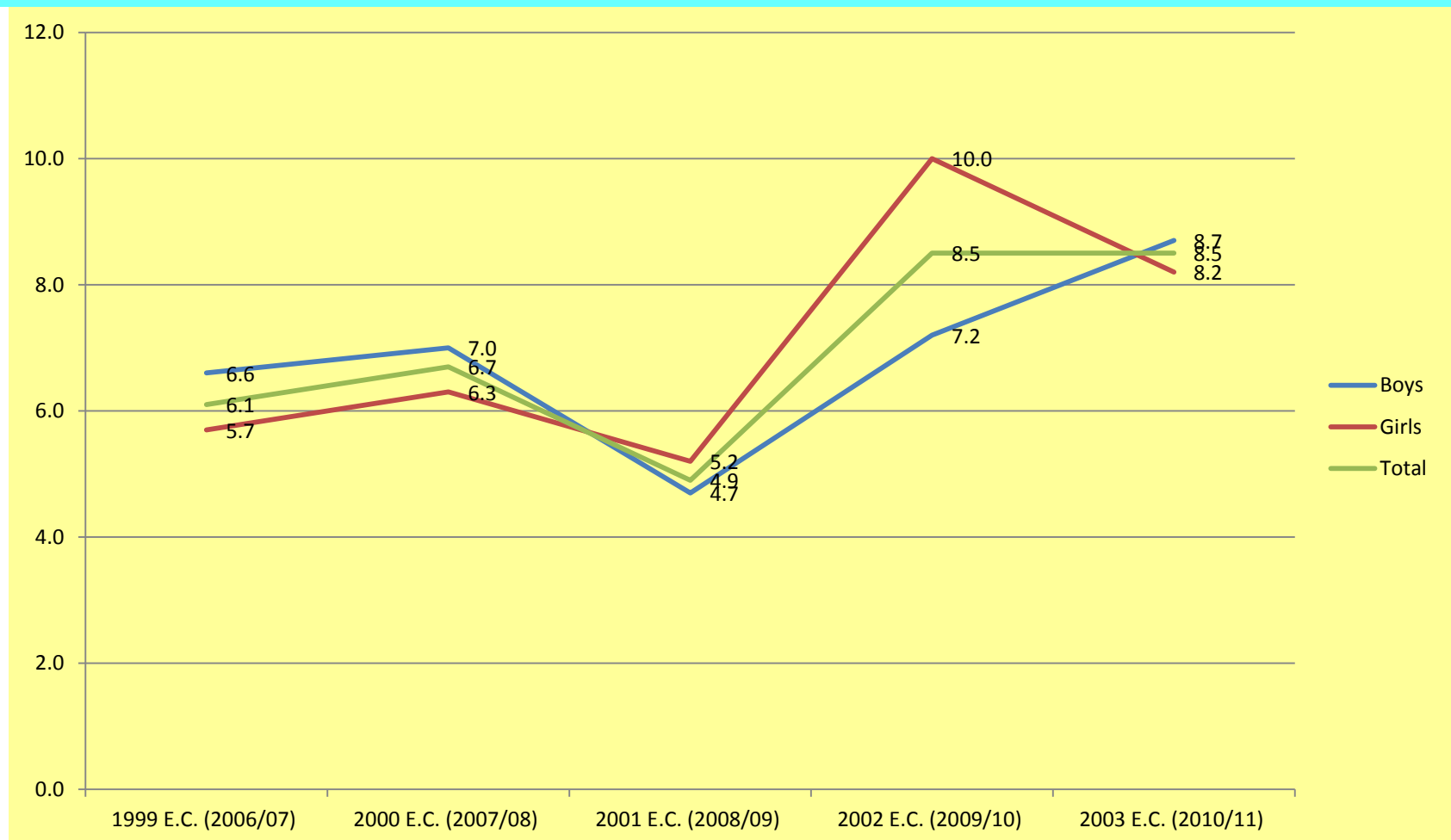
Primary education data

Net enrolment ratio primary grade 1-8 (2008/09-2011/12)



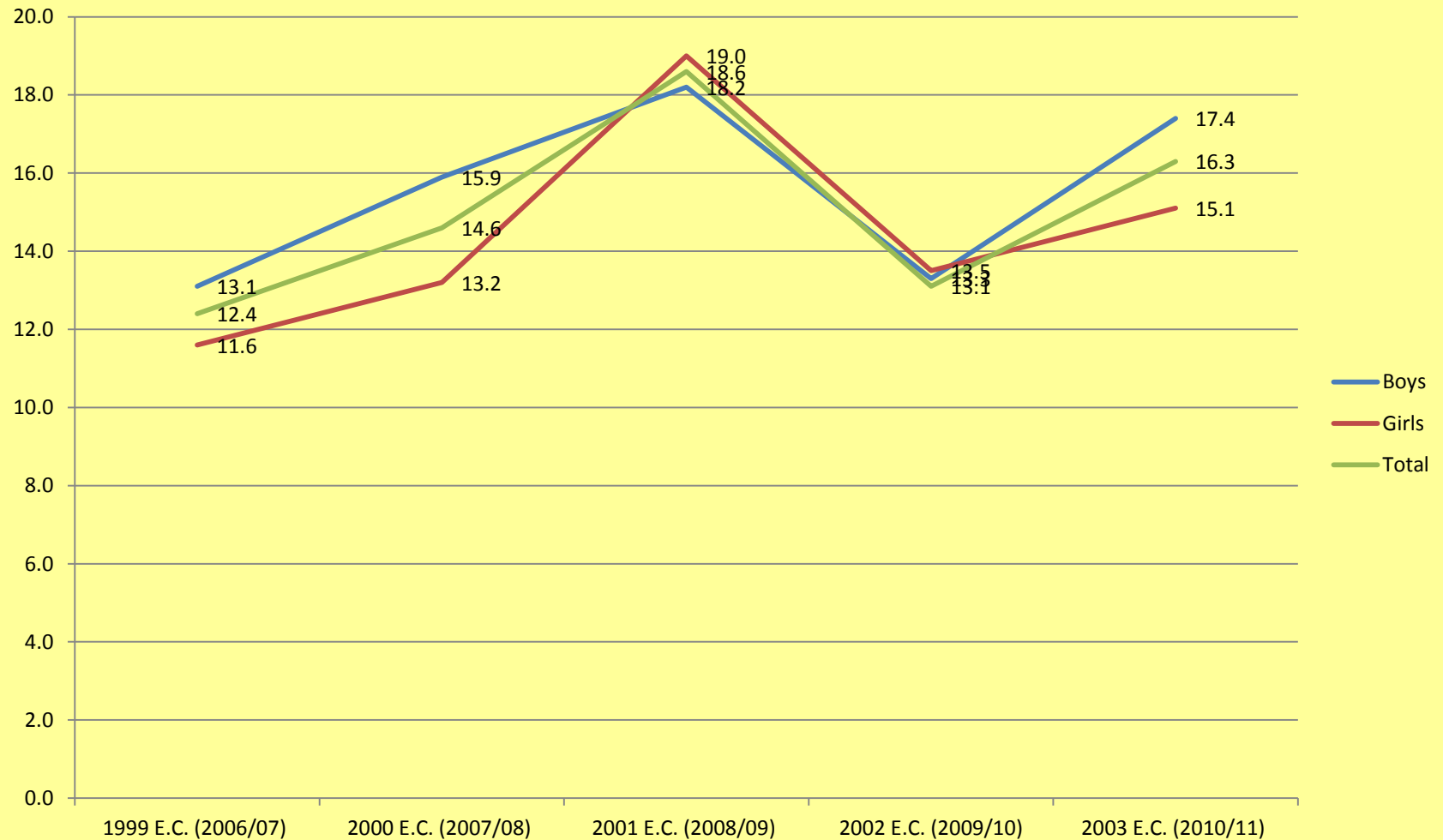
Primary education data ...

Primary Repetition Rate by Gender (Grades 1-8)



Primary and secondary education data ...

Primary (Grades 1-8) Drop out Rate



3. Trends in Ethiopian NLA

- The Ethiopian National Learning Assessment (ENLA) is a periodic assessment of student progress conducted by the Ministry of Education and coordinated by the National Educational Assessment and Examination Agency (NEAEA).
- The assessment covers four core subject areas at grade 4: Reading, English, mathematics, and Env. Sciences and five subject areas at grade 8: English, Mathematics, Biology, Chemistry and Physics.
- The NLA is Conducted every four years beginning from 2000.
- In 2010 the grade 10 and 12 NLA were introduced which is not treated in this presentation.
- The Next graphs presents the trends of the 4th and 8th grades for the second, third and fourth NLAs conducted in 2004, 2008 and 2012 respectively by core subject areas, sex, location and region.

Trend of grade 4 students achievement by core subjects in NLA

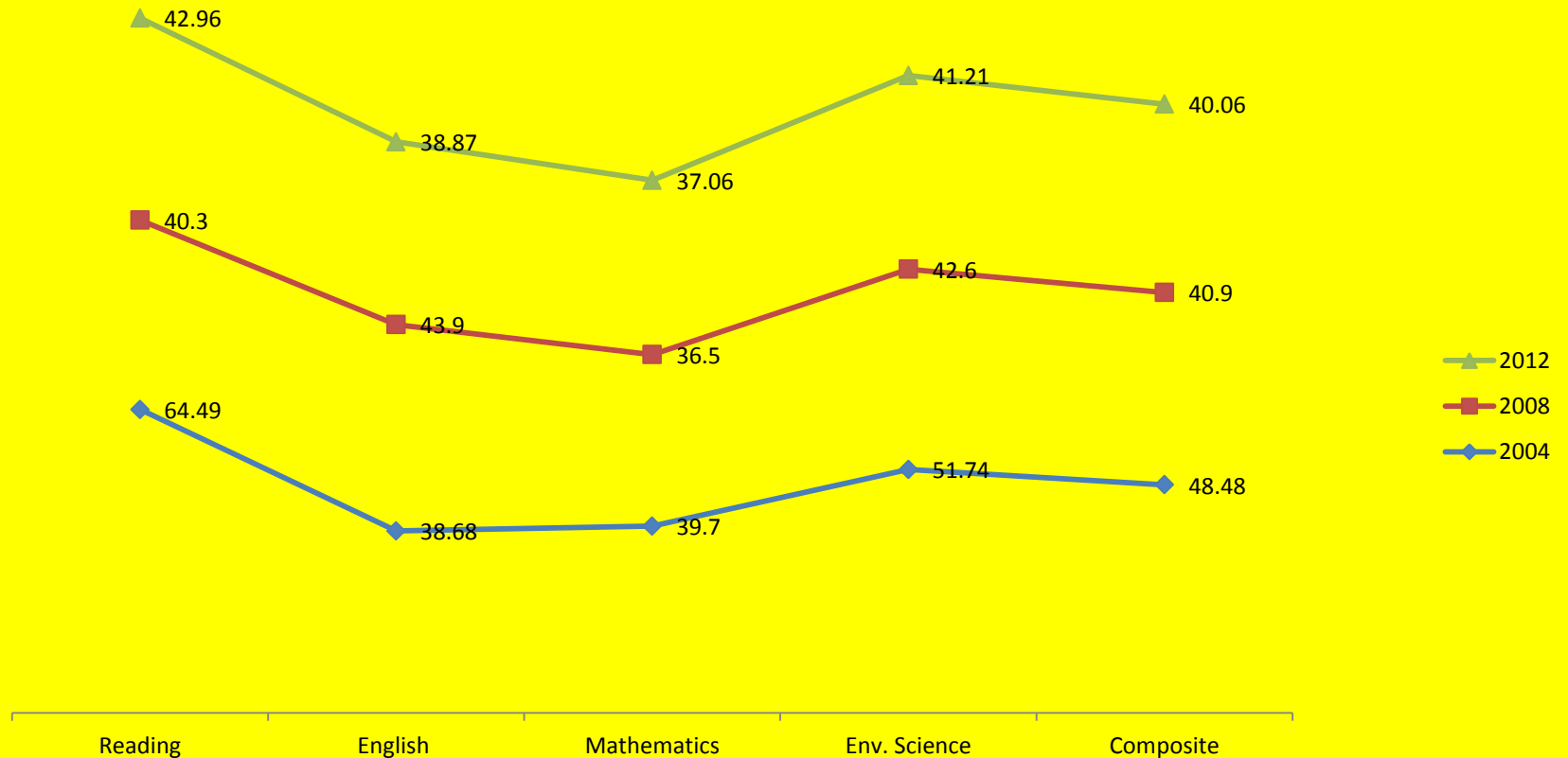


Table 1: percent increase/decrease in grade 4 students' achievement in core subjects in NLA

subjects	Year		Diff.	% + (-)
	2004	2012		
Reading	64.49	42.96	-21.53	33.39
English	38.68	38.87	0.19	0.49
Mathematics	39.70	37.06	-2.64	6.65
Env. Science	51.74	41.21	-10.53	0.35
Composite	48.48	40.06	-8.42	17.37

Trends in 4 students achievement in NLA by sex

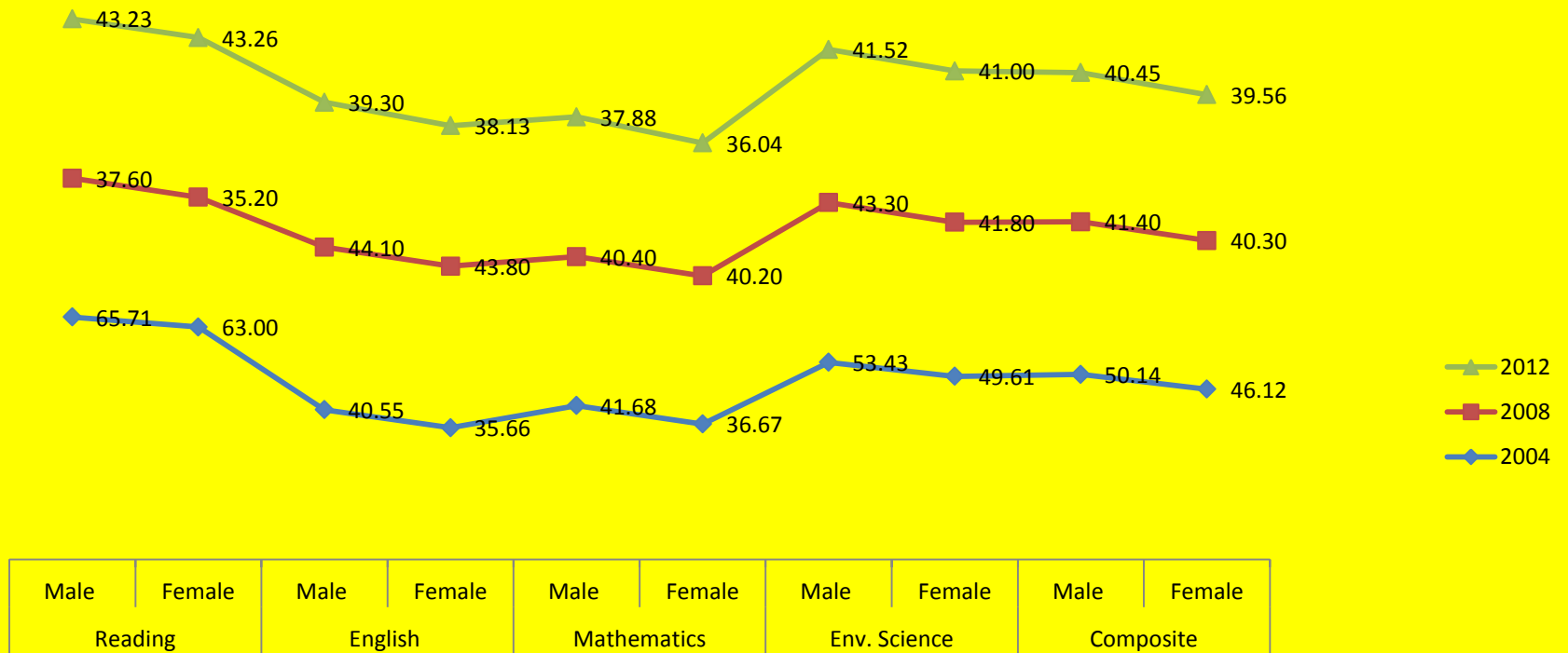


Table 2: *percent increase/decrease in grade 4 students' achievement in core subjects in NLA by*

Subjects	Sex	Year		Diff.	% + (-)
		2004	2012		
Reading	Male	65.71	43.23	-22.48	34.21
	Female	63.00	43.26	-19.74	31.33
English	Male	40.55	39.30	-1.25	3.08
	Female	35.66	38.13	2.47	6.93
Mathematics	Male	41.68	37.88	-3.80	9.12
	Female	36.67	36.04	-0.63	1.72
Env. Science	Male	53.43	41.52	-11.91	22.29
	Female	49.61	41.00	-8.61	17.36
Composite	Male	50.14	40.45	-9.69	19.33
	Female	46.12	39.56	-6.56	14.22

Trends in 4 students achievement in NLA by location

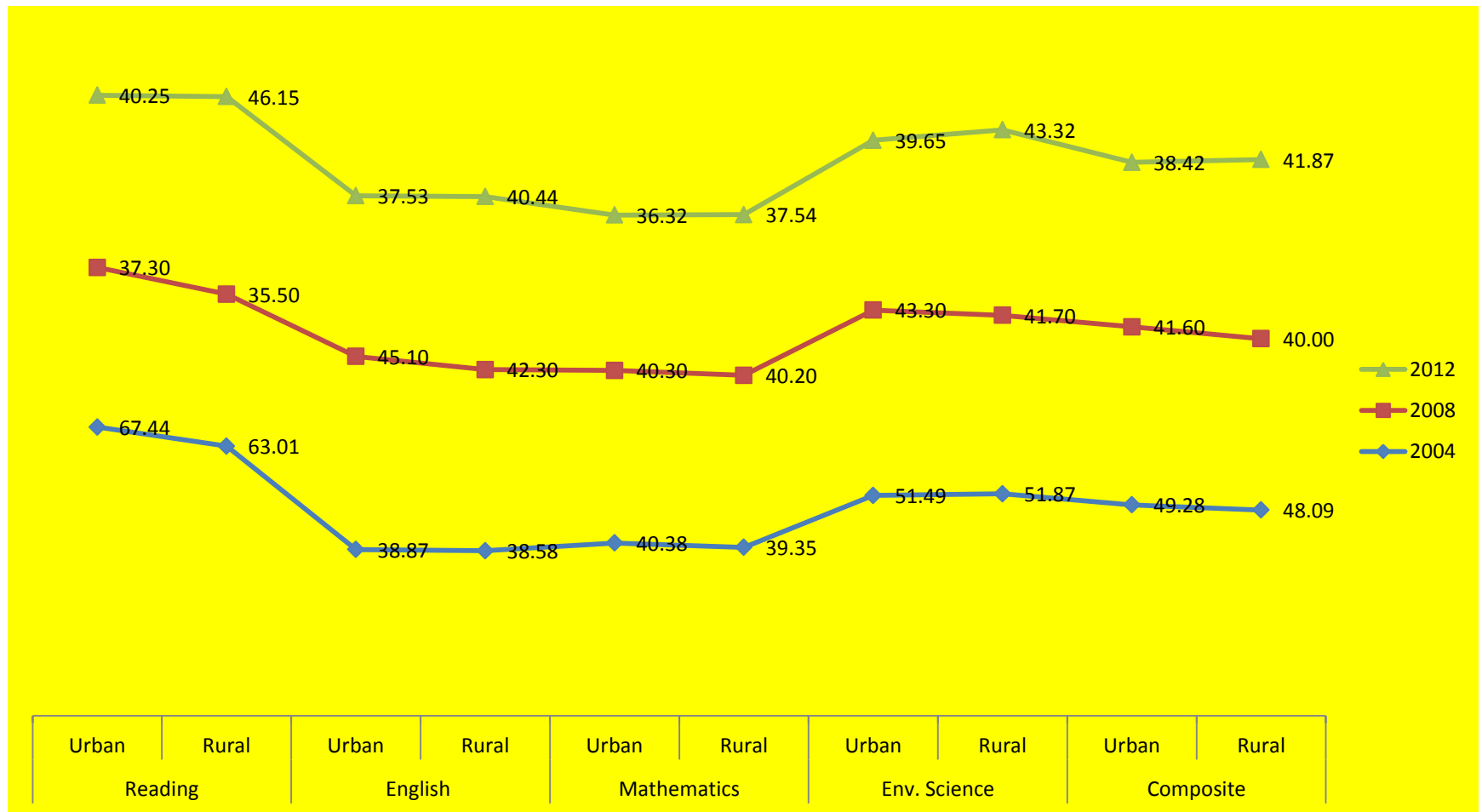


Table 3: percent increase/decrease in grade 4 students' achievement in core subjects in NLA by

subjects	Sex	Year		Diff.	% + (-)
		2004	2012		
Reading	Urban	67.44	40.25	-22.48	40.32
	Rural	63.01	46.15	-19.74	26.76
English	Urban	38.87	37.53	-1.25	3.45
	Rural	38.58	40.44	2.47	4.82
Mathematics	Urban	40.38	36.32	-3.80	10.05
	Rural	39.35	37.54	-0.63	4.60
Env. Science	Urban	51.49	39.65	-11.91	22.99
	Rural	51.87	43.32	-8.61	16.48
Composite	Urban	49.28	38.42	-9.69	22.04
	Rural	48.09	41.87	-6.56	12.93

Trends in grade 4 students achievement in NLA by region

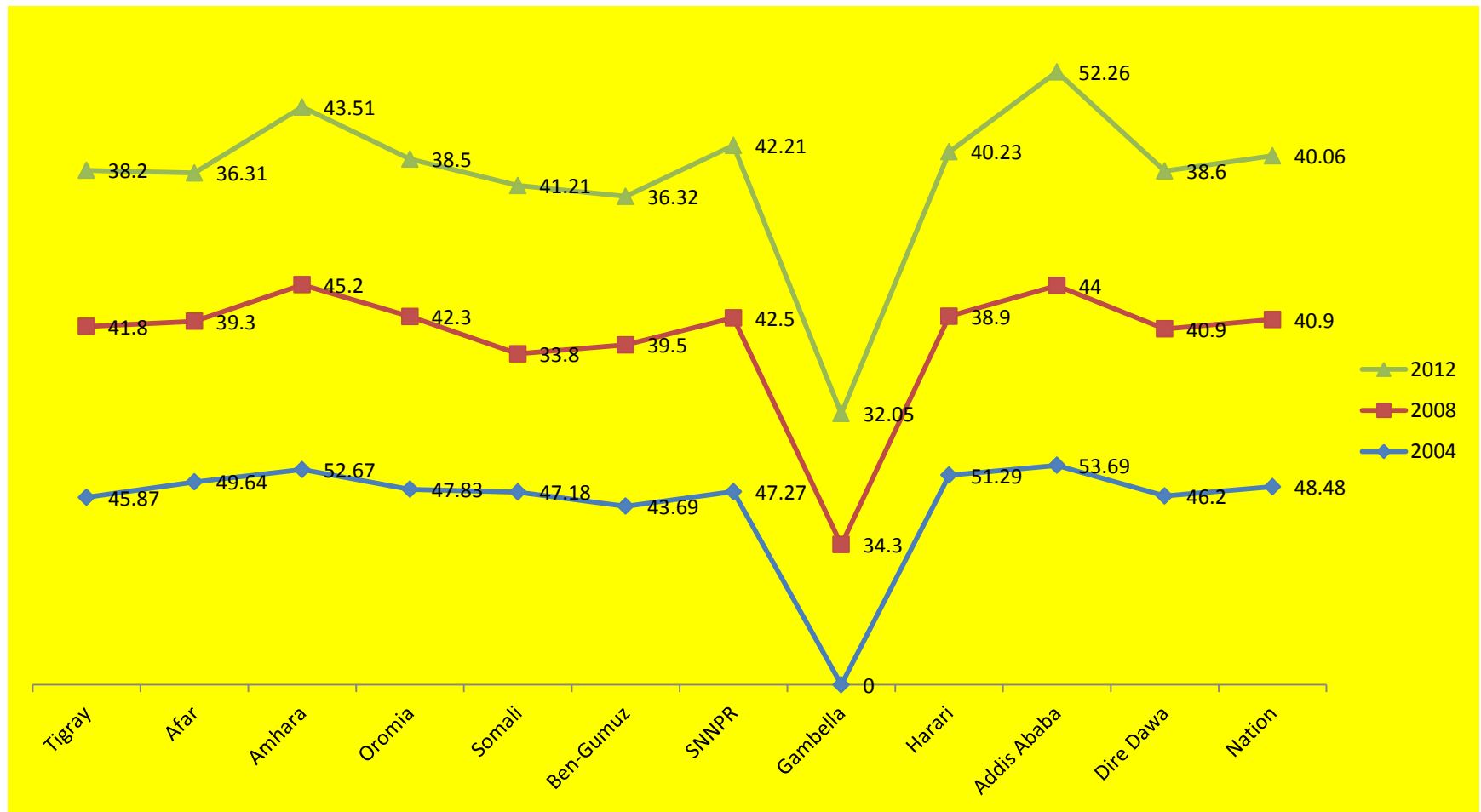


Table 4: percent increase/decrease in grade 4 students' achievement in core subjects in NLA by Region

Region	2004	2012	Diff.	% + (-)
Tigray	45.87	38.20	-7.67	16.72
Afar	49.64	36.31	-13.33	26.85
Amhara	52.67	43.51	-9.16	17.39
Oromia	47.83	38.50	-9.33	19.51
Somali	47.18	41.21	-5.97	12.65
Ben-Gumuz	43.69	36.32	-7.37	16.87
SNNPR	47.27	42.21	-5.06	10.70
Gambella*	34.30	32.05	-2.25	6.56
Harari	51.29	40.23	-11.06	21.56
Addis Ababa	53.69	52.26	-1.43	2.66
Dire Dawa	46.20	38.60	-7.60	16.45
Nation	48.48	40.06	-8.42	17.37

Trend of grade 8 students achievement by core subjects in NLA

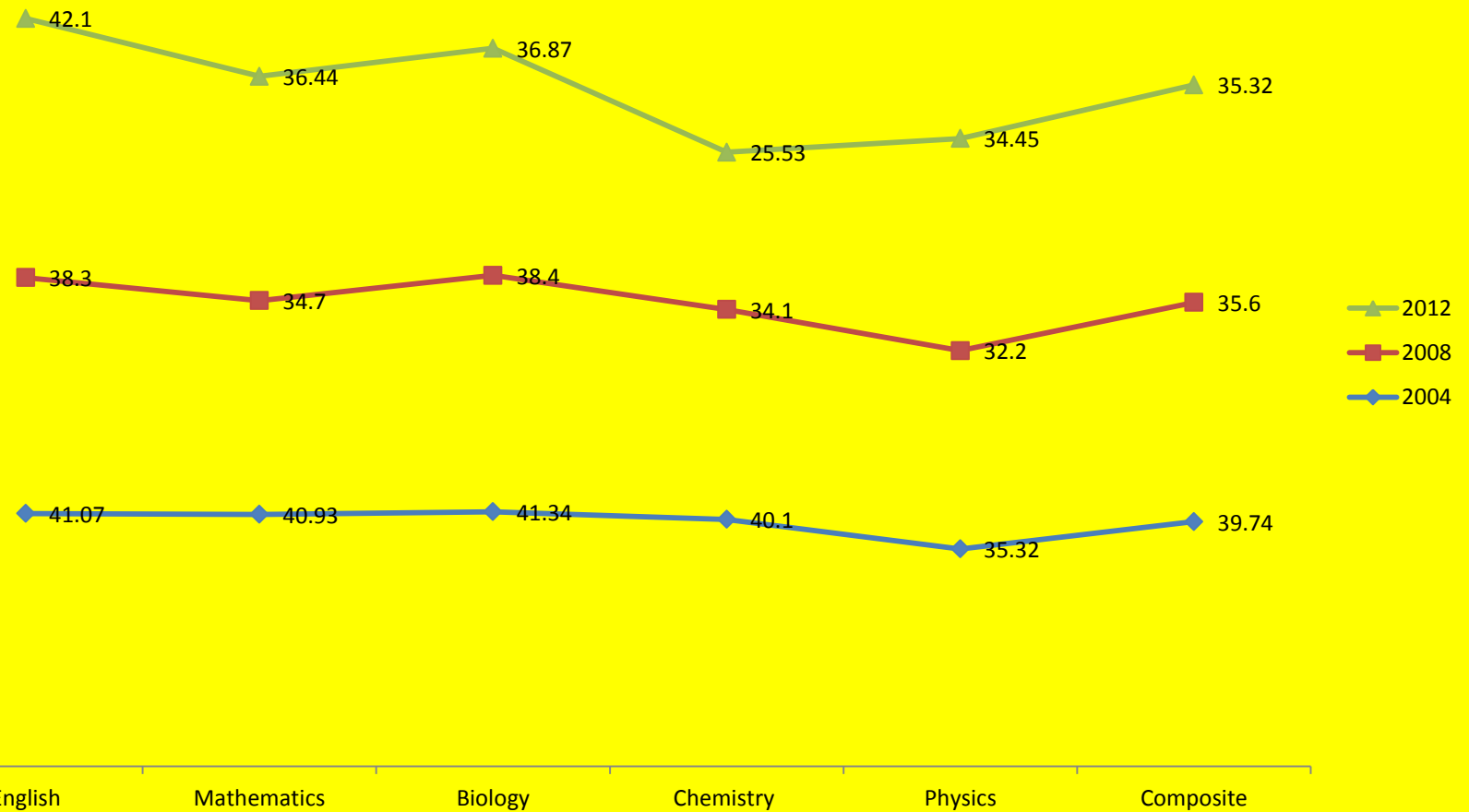


Table 5: *percent increase/decrease in grade 8 students' achievement in core subjects in NLA by Region*

subjects	Year		Diff.	% + (-)
	2004	2012		
English	41.07	42.10	1.03	2.51
Mathematics	40.93	36.44	-4.49	10.97
Biology	41.34	36.87	-4.47	10.81
Chemistry	40.10	25.53	-14.57	36.33
Physics	35.32	34.45	-0.87	2.46
Composite	39.74	35.32	-4.42	11.12

Trends in 8 students achievement in NLA by gender

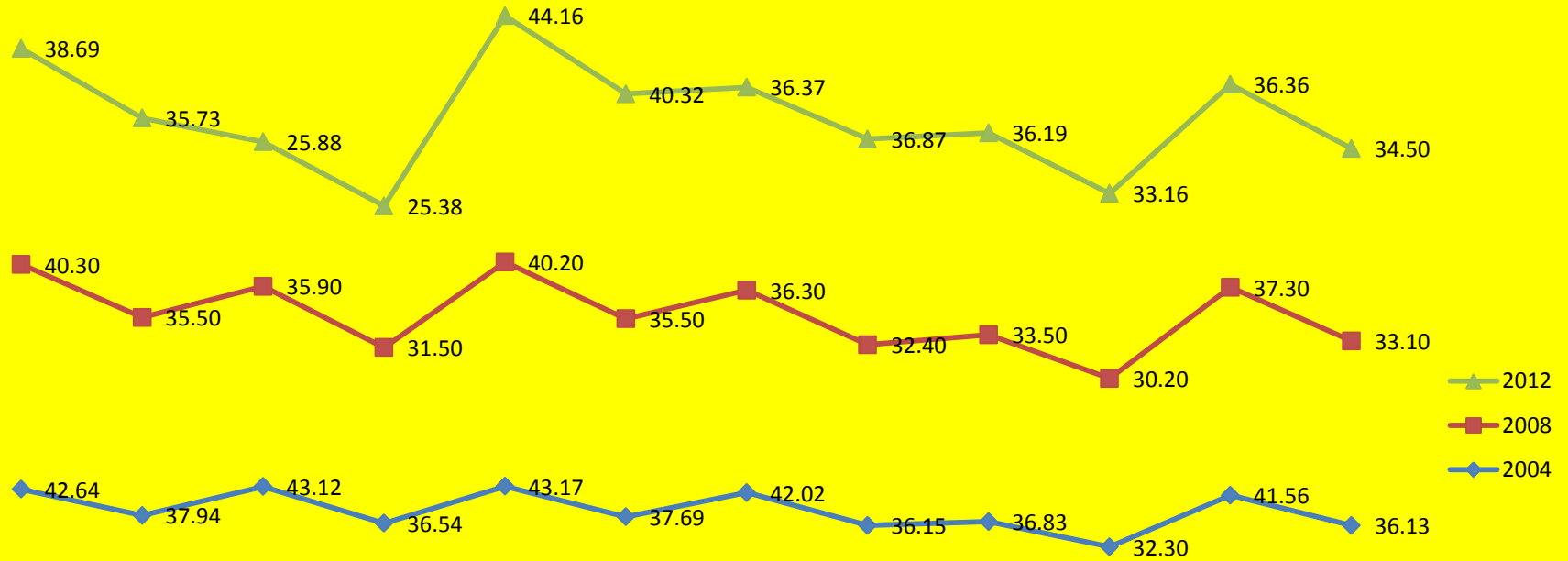


Table 6: percent increase/decrease in grade 8 students' achievement in core subjects in NLA by sex

subjects	Sex	Year		Diff.	% + (-)
		2004	2012		
English	Male	42.64	38.69	-3.95	9.26
	Female	37.94	35.73	-2.21	5.82
Mathematics	Male	43.12	25.88	-17.24	39.98
	Female	36.54	25.38	-11.16	30.54
Biology	Male	43.17	44.16	0.99	2.29
	Female	37.69	40.32	2.63	6.98
Chemistry	Male	42.02	36.37	-5.65	13.45
	Female	36.15	36.87	0.72	1.99
Physics	Male	36.83	36.19	-0.64	1.74
	Female	32.3	33.16	0.86	2.66
Composite	Male	41.56	36.36	-5.20	12.51
	Female	36.13	34.5	-1.63	4.51

Trends in 8 students achievement in NLA by location

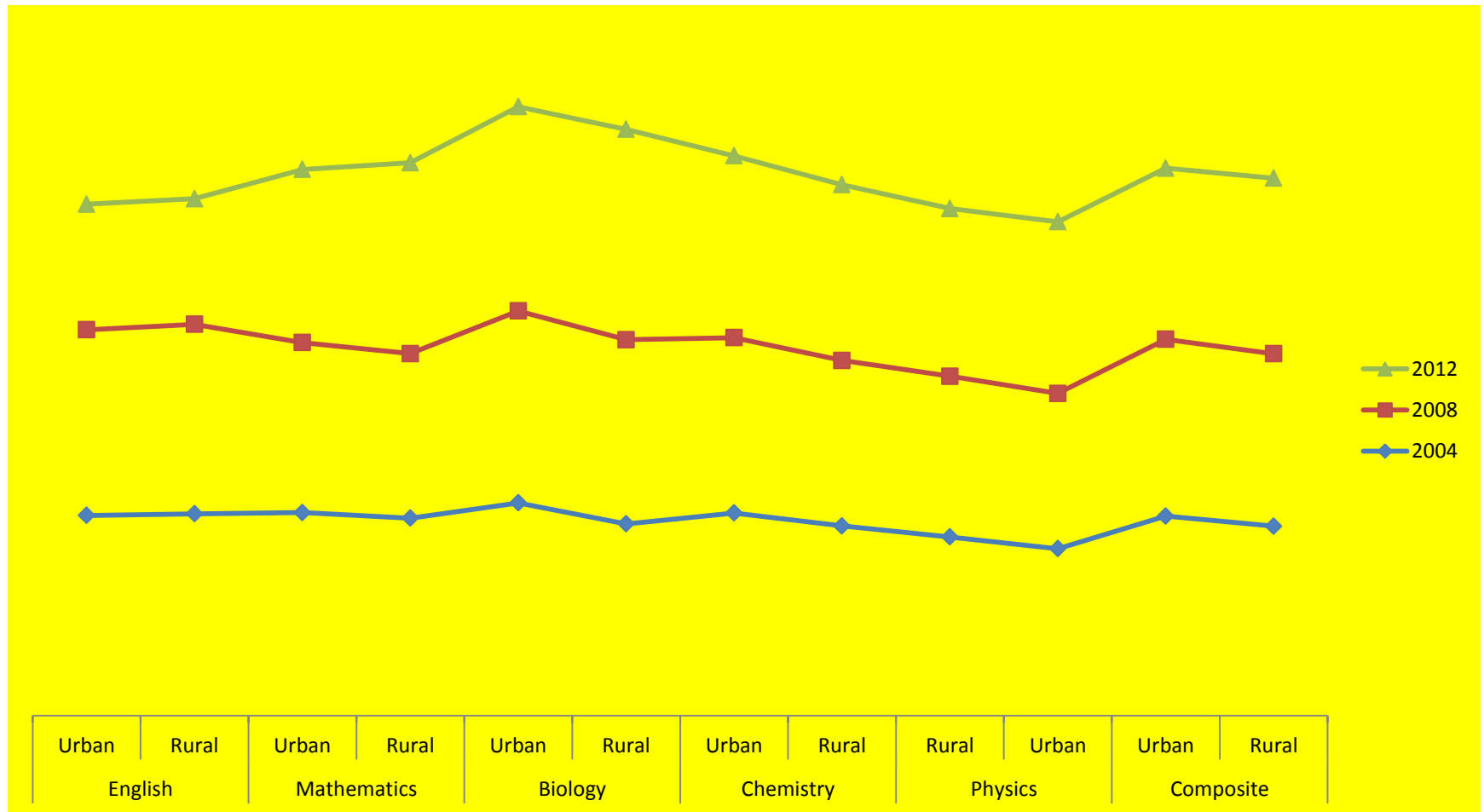


Table 7: percent increase/decrease in grade 8 students' achievement in core subjects in NLA by Location

subjects	Sex	Year		Diff.	% + (-)
		2004	2012		
English	Urban	40.91	35.35	-5.56	13.59
	Rural	41.24	38.95	-2.29	5.55
Mathematics	Urban	41.49	25.63	-15.86	38.23
	Rural	40.35	25.63	-14.72	36.48
Biology	Urban	43.46	41.68	-1.78	4.10
	Rural	39.18	42.95	3.77	9.62
Chemistry	Urban	41.41	37.12	-4.29	10.36
	Rural	38.76	35.87	-2.89	7.46
Physics	Rural	36.51	34.26	-2.25	6.16
	Urban	34.1	35.06	0.96	2.82
Composite	Urban	40.76	34.95	-5.81	14.25
	Rural	38.71	35.85	-2.86	7.39

Trends in grade 8 students achievement in NLA by region

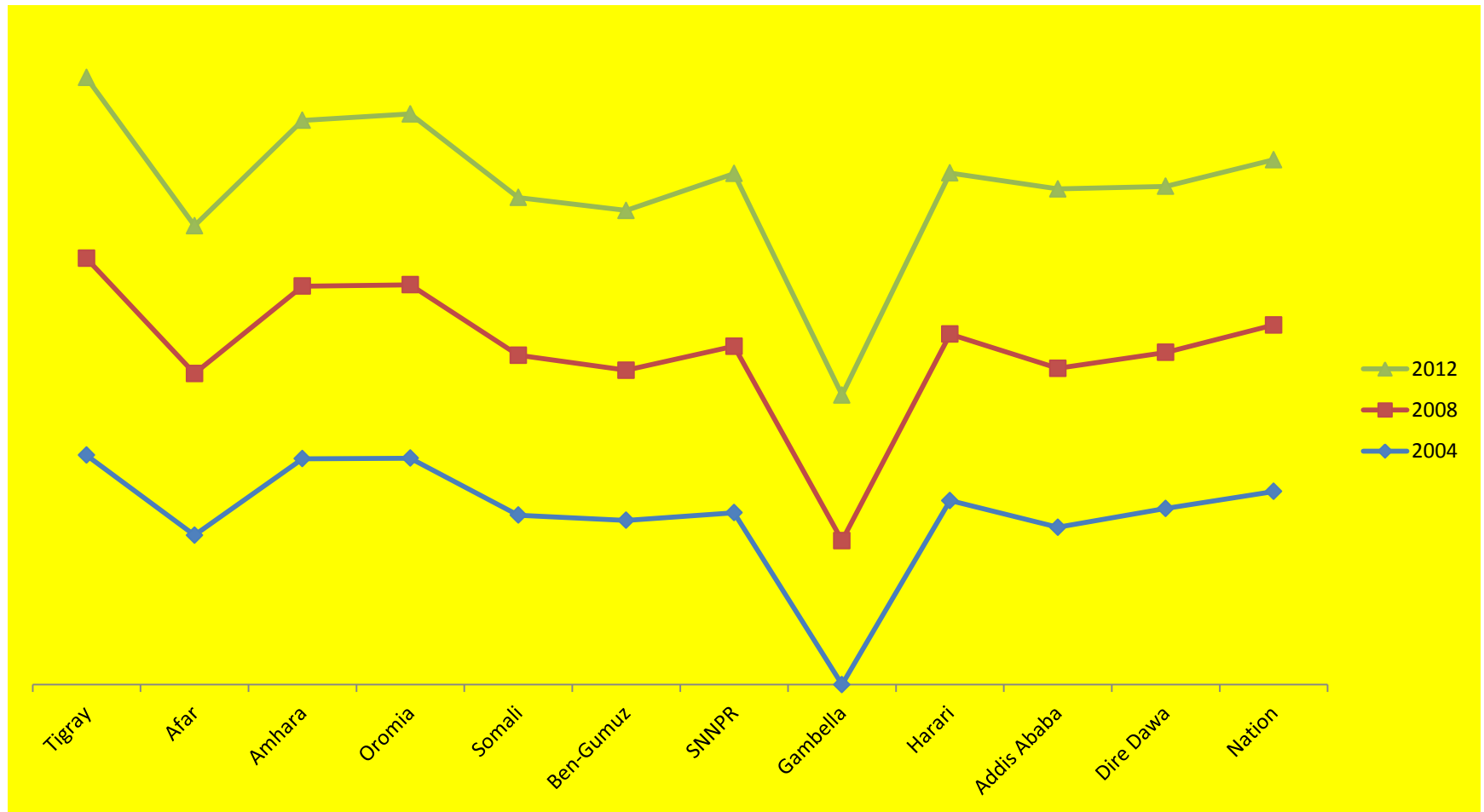


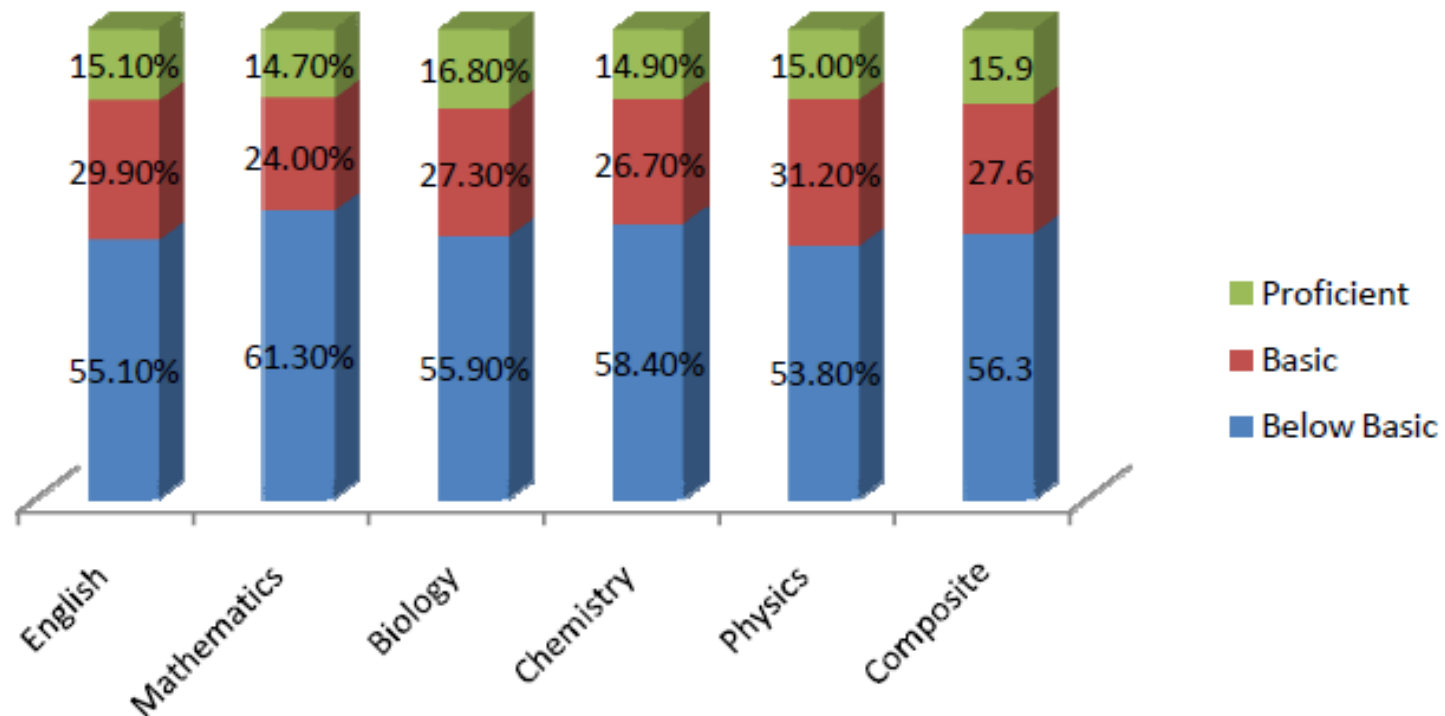
Table 8: percent increase/decrease in grade 8 students' achievement in core subjects in NLA by Location

Region	2004	2008	Diff.	% + (-)
Tigray	43.10	38.67	-4.43	10.28
Afar	31.56	31.60	0.04	0.13
Amhara	43.00	35.47	-7.53	17.51
Oromia	43.22	36.54	-6.68	15.46
Somali	38.63	33.74	-4.89	12.66
Ben-Gumuz	33.65	34.16	0.51	1.52
SNNPR	37.37	36.93	-0.44	1.18
Gambella	0.00	31.15	-4.45	14.45
Harari	41.60	34.46	-7.14	17.16
Addis Ababa	36.65	38.36	1.71	4.67
Dire Dawa	38.38	35.51	-2.87	7.48
Nation	39.74	35.33	-4.41	11.10

4. NLA Proficiency standards

- Three levels of proficiency standards were used to report the NLA: Below basic, basic and proficient.
- The proficiency levels categorization was made in reference to standard z – distributions.
- The below basic category includes those students who fall at or below a z standard score of zero; the basic category is within a z standard score of zero and one standard deviation above the mean; and proficient category includes those students who fall above a z standard score of one standard deviation above the mean.
- For a perfectly normally distributed data the percentage of below basic, basic and proficient is 50.00%, 34.13% and 15.86 % respectively.
- The next graph presents the proficiency level for grade 8 on the 2012 NLA.

Proficiency Standards in Ethiopian NLA of Grade 8 (2012)



5. Factors affecting students achievement in Ethiopian NLA

- A number of factors affecting students' achievement were considered in Ethiopian NLAs.
- Although little variations in the factors treated by Ethiopian NLAs observed, there is variations in the statistical analysis from one NLA to the other.
- This variation in the analysis makes difficult to analyze trends those factors affecting students achievement.
- Generally the factors were categorized under student background, teacher, student attitudes, parents and school related factors.
- A snapshot from the grade 4 NLA to show the factors treated by NLA is presented here under (General Educational Quality Assurance and Examinations Agency, 2008, p. 65),

Table 9: Factors affecting students achievement in Ethiopian NLA (...

Table 35. Multiple regression results organized by separate blocks of variables

		Stand. Coefficients Beta	R ²	Adj. R ²	F	df
	Curriculum Materials		.072	.064	8.409***	2,216
1	Mother tongue Teacher's Guide availability	.158				
2	Mathematics Teacher's Guide availability	.152				
	Home Background		.231	.214	13.968***	5,233
1	Parents ability to afford school materials	.112				
2	Chore at home	.321				
3	Books other than textbooks at home	.098				
4	Radio at home	.180				
5	Television at home	-.250				
	Students Characteristics		.184	.173	17.719***	3,236
1	Interest in school	.177				
2	Absenteeism	-.031				
3	Class repetition	-.336				
	School Management		.064	.056	7.856**	2,231
1	School income	.123				
2	Students disciplinary problems	-.205				
	Instructional Support and Teachers Variables		.145	.129	9.366***	4,221
1	Pedagogical center use	.139				
2	Supervision	.198				
3	On job training	.159				
4	Distance from teacher's home to school	-.208				

6. Implications of the NLAs for quality of education

- The study indicated that the mean scores of students achievement both in grade 4 and 8 were decreased from during the period covered by NLAs. This requires strong justification on the side of the NEAEA.
- The NEAEA should not change from one NLA to the other the tests used to measure students achievements in core subjects, since the level of difficulty of the items profoundly affects the mean scores on NLA.
- The procedures for the categorization of the proficiency standards should be changed from the use of standard deviations method to the standards of achievement that show the levels of students achievement and are determined by experts .
- There should not be variations in the factors considered affecting students achievement and the same appropriate and meaningful analysis should be conducted from one NLA to the other NLA.
- More appropriate statistics such as effect size analysis should be included where there are significant statistical results were obtained, as effect size shows the degree of their effect or differences.

Arigatou gozaimashita!



Thank you!

Questions or comments?