

HSRC RESEARCH CONFERENCE

The QLP (Quality Learning Project): Impact of teaching and learning improvement interventions

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27 & 28 July 2005



Background

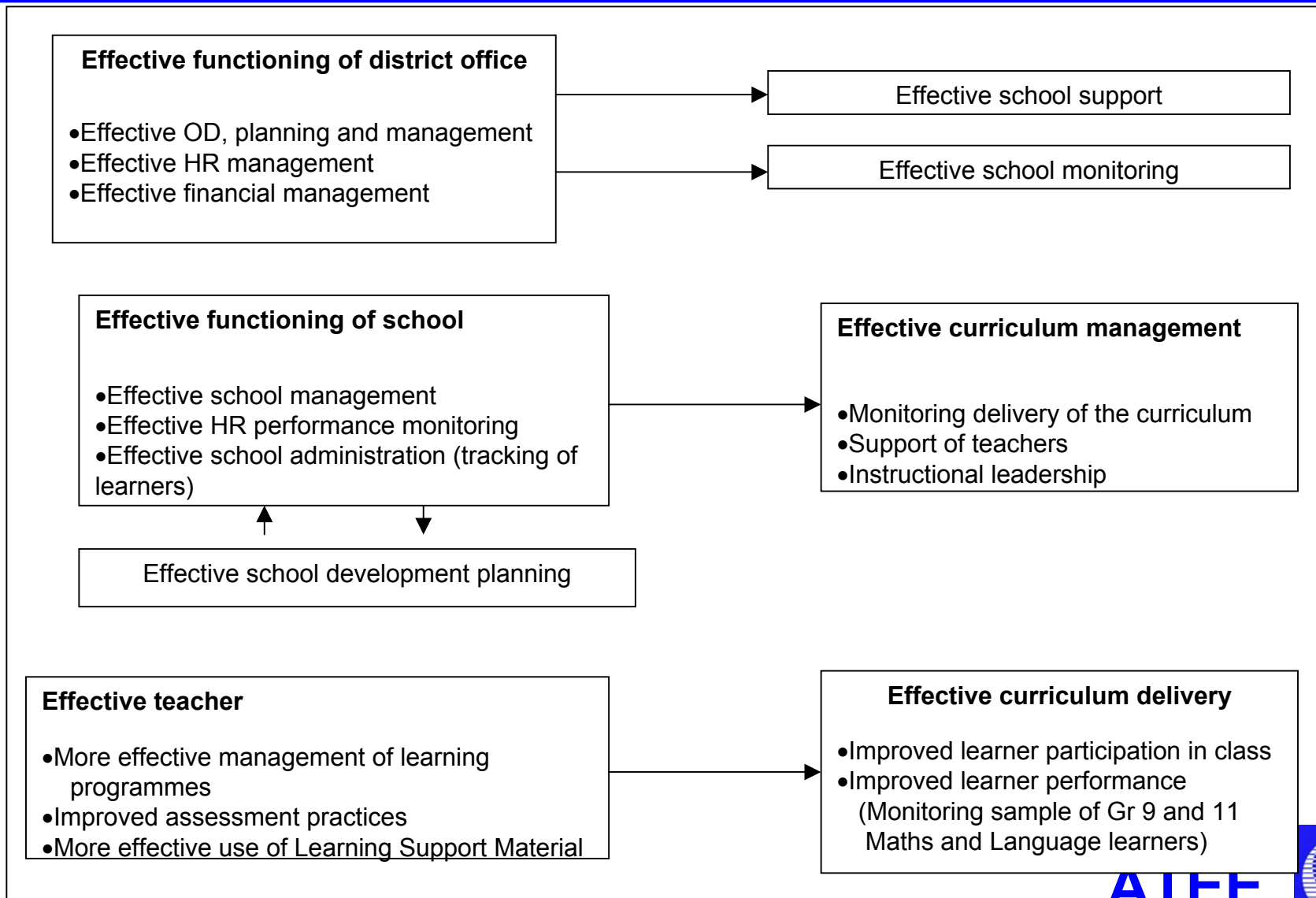
- Final data collection was completed in Oct 2004
- The evaluation covers the effect of education improvement interventions from July 2001 to July 2004 on district, school and classroom functioning, and learner performance
- The QLP data comprises: questionnaire, site-visit, & learner performance information; from a 14% sample (70) of 524 schools from all 9 provinces
- There were 16 control schools
- At stake are trends covering baseline (2000) → formative (2002) → summative (2004) phases



Background (cont.)

- Multi-level interventions: Covering: districts, schools and classrooms / teachers
- Multi-institutional design: Funded by the Business Trust; conceptualised in conjunction with the DoE; managed by JET Education Services; interventions by 10+ service providers; independent evaluation by the HSRC (with its own data-collection, -capture and other sub-contractors)
- Current dissemination update:
 - Pre-final technical report was presented to the funder
 - Final technical report is being completed
 - Funder-oriented Executive Summary and integrated Conclusions / Recommendations version is virtually ready
 - Follow-up projects and publications are in advanced stages of conceptualisation: include policy-booklets (6-8); academic and technical journal articles on findings and analysis models (5-8); and manual-like lessons-learnt products (on M&E, etc)

Background to QLP (continued): Project Model



Analysis options and models

- Indicator and index based: In adherence to the project model / logic, and to reduce information (variables are too many for the sample size)
- Trend descriptions:
 - Functionality: at levels of district, school, classroom/teacher
 - Learner (context and) performance: * Gr 9 & 11 - Maths & Reading/Writing; * Gr 12 - overall, Maths (SG), Eng (HG 2nd language) – pass rates and pass numbers
- Modelling:
 - SEM?
 - HLM?
 - Path Analysis (see later)
- Findings: Selected, illustrative aspects are presented below – full perspective not possible in time available

Path analysis decisions

- Level:
 - School level, as the only level with enough continuity in terms of its units of analysis
 - With aggregation of learner- and class-level information
 - And disaggregation of district information
- Components / variables:
 - Indices (highly aggregated, but only after testing for consistency of sub-indices patterns)
 - Experimental schools, as the only sub-group described fully i.t.o. functionality, performance and intervention data
- Models:
 - Latent path (1st or 2nd order); direct path observations

Findings – generic statements

- Interventions quickly led to improved functionality:
 - Examples of approach are provided below
- Functionality / functioning at various levels can in many ways be related to learner performance:
 - Examples are provided below
- Learner performance
 - 5 years are too short for significant improvements
 - Selected interesting and meaningful findings are portrayed graphically in rest of the presentation (also to illustrate the evaluation approach)



Main evaluation outcomes in terms of original Grade 12 criteria

(See separate table on hand-out)

- Quantity - quality - efficiency
- Absolute pass numbers* - matric with endorsement / exemption, or Maths HG @ SG - overall pass rate

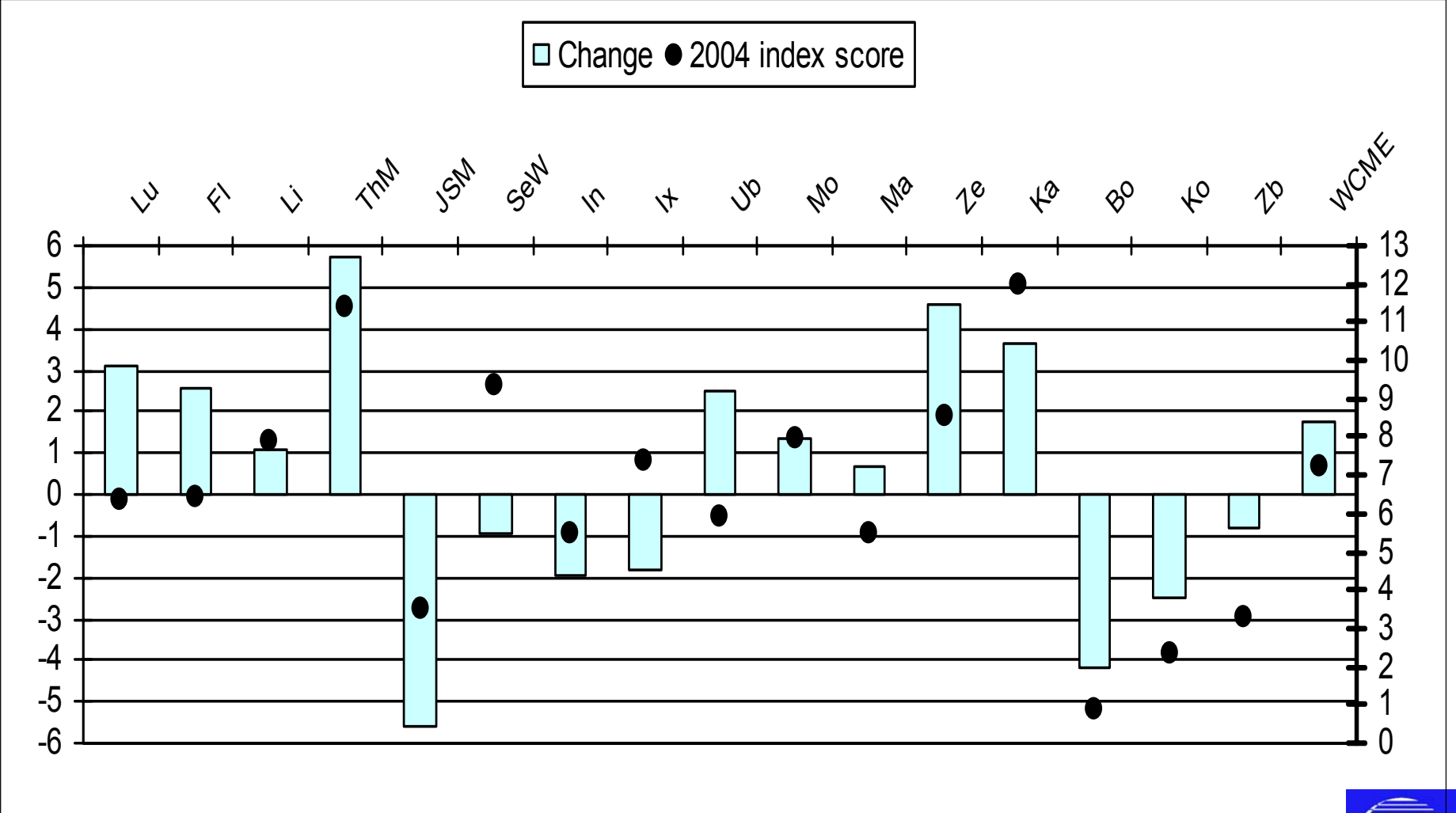
* Including Eng HG 2nd language

District functionality index scores/trends (p.51)

LOW (0 - 4)	MODERATE (5 - 8)	HIGH (9 - 13)
Jhb South Mega (9.1) <u>3.5</u> [- -]	Zeerust (3.9) <u>8.5</u> [+ +] Moretele (6.6) <u>8.0</u> [+ +] Libode (6.8) <u>7.9</u> [+ +]	Karoo (8.3) <u>12.0</u> [+ +]
Zebediela (4.1) <u>3.3</u> [- -]	Ixopo (9.2) <u>7.4</u> [- -] WC Metro East (5.5) <u>7.2</u> [+ +]	Th Mofutsanyana (5.7) <u>11.4</u> [+ +]
Konekwena (4.9) <u>2.4</u> [- -]	OVERALL (6.0) <u>6.6</u> [+]	Sedibeng-West (10.3) <u>9.4</u> [-]
Bolobedu (5.1) <u>0.9</u> [- -]	Flagstaff (3.9) <u>6.4</u> [+ +] Lusikisiki (3.3) <u>6.3</u> [+ +] Ubombo (3.4) <u>5.9</u> [+ +] Inanda (7.5) <u>5.5</u> [- -] Mafikeng (4.8) <u>5.5</u> [+ +]	

2002 figures in brackets

District functionality - graphically ■



School functioning index scores/trends (p.83)

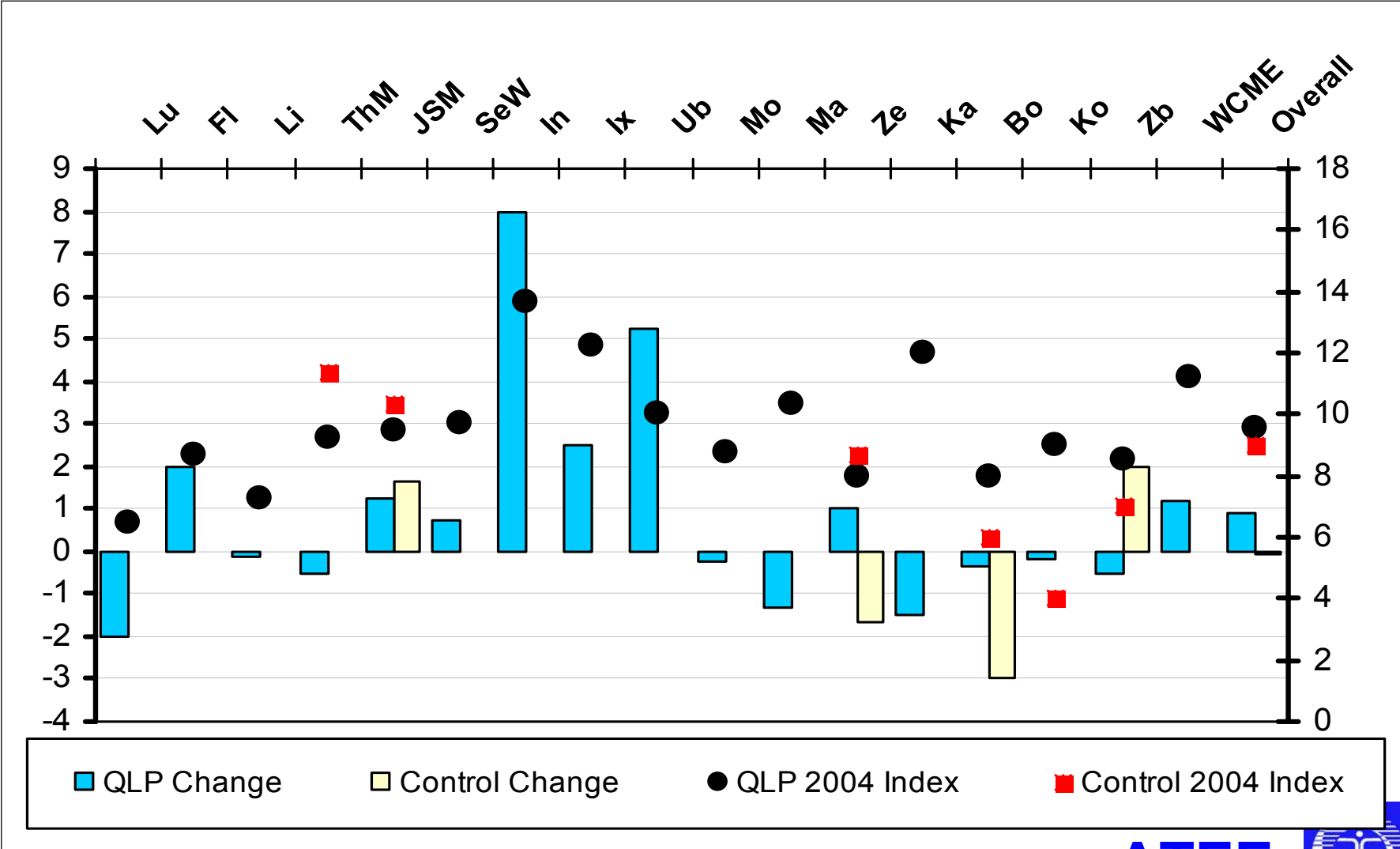
HIGH (13 - 18): Inanda (5.7) 13.7 [+ +]

MODERATE (7 - 12): Ixopo (9.8) 12.3 [+ +]; Karoo (13.5) 12.0 [- -];
{Thabo Mofutsanyana (11.3) 11.3 [o]}; WC Metro East (10.0) 11.2 [+ +];
Mafikeng (11.7) 10.3 [- -]; {Jhb South Mega (8.7) 10.3 [+ +]}; Ubombo (4.8) 10.0 [+ +];
Sedibeng-West (9.0) 9.8 [+]; **OVERALL (8.7) 9.6 [+ +]**; Jhb South Mega (8.3) 9.5 [+ +];
Thabo Mofutsanyana (9.8) 9.3 [-]; Konekwena (9.2) 9.0 [o]; **{OVERALL (9.1) 9.0 [o]}**;
Moretele (9.0) 8.8 [o]; Flagstaff (6.7) 8.7 [+ +]; {Zeerust (10.3) 8.7 [- -]};
Zebediela (9.0) 8.5 [-]; Zeerust (7.0) 8.0 [+ +]; Bolobedu (8.3) 8.0 [o];
Libode (7.4) 7.3 [o]; {Zebediela (5.0) 7.0 [+ +]}

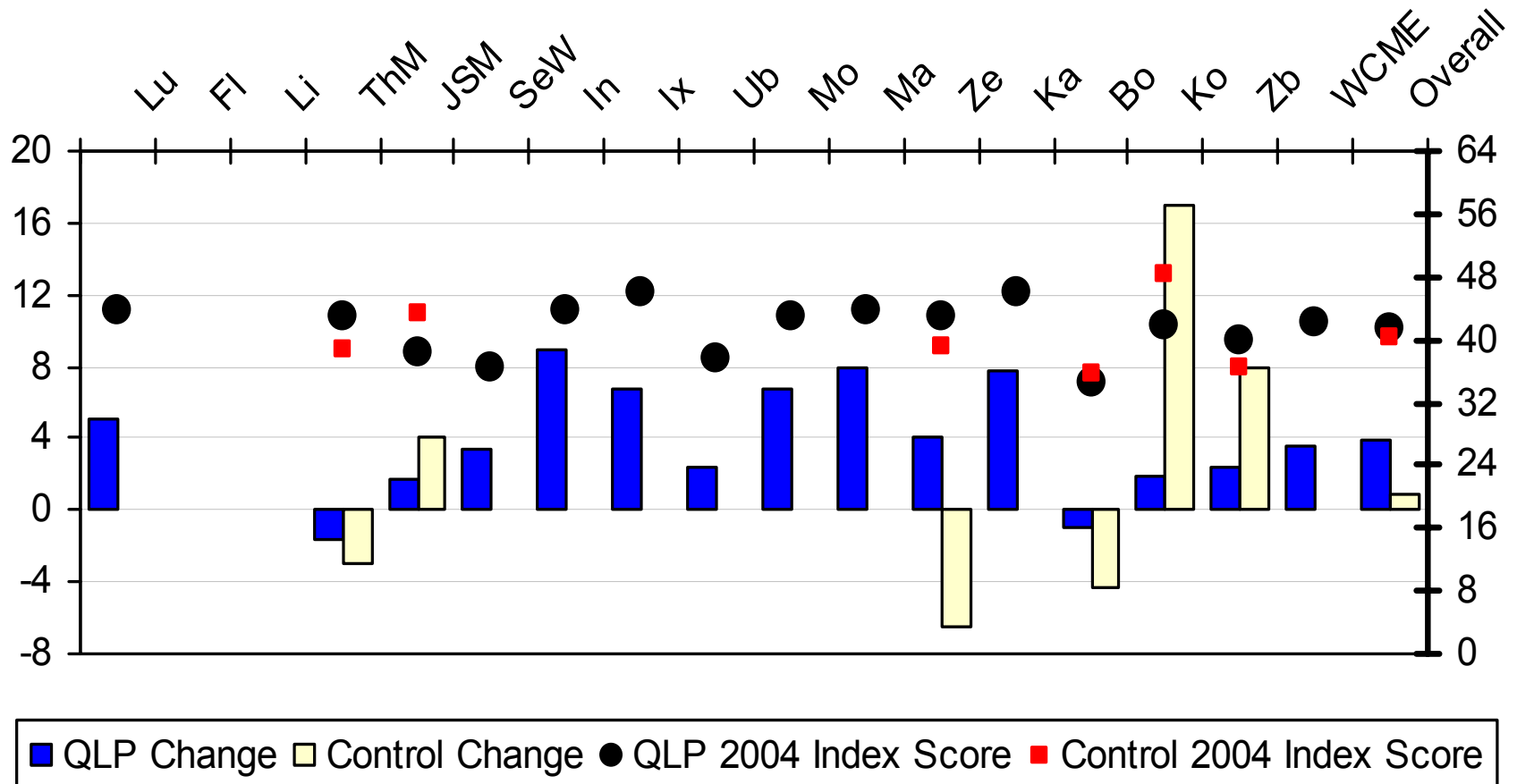
LOW (0 - 6): Lusikisiki (8.5) 6.5 [- -]; {Bolobedu (9.0) 6.0 [- -]};
{Konekwena (4.0) 4.0 [o]}

2002 figures in brackets. Control school figures in "{ }" brackets

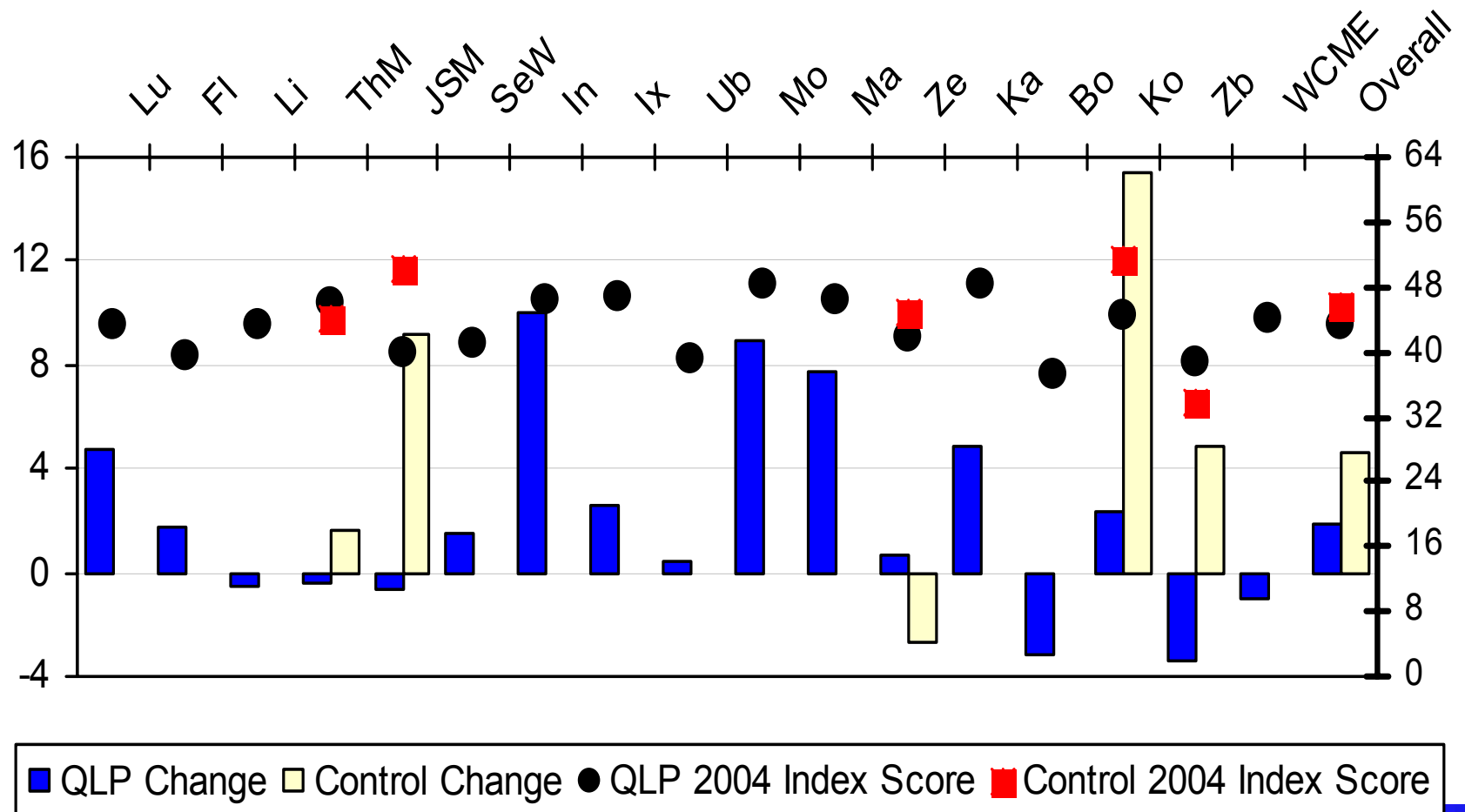
School functioning index by district



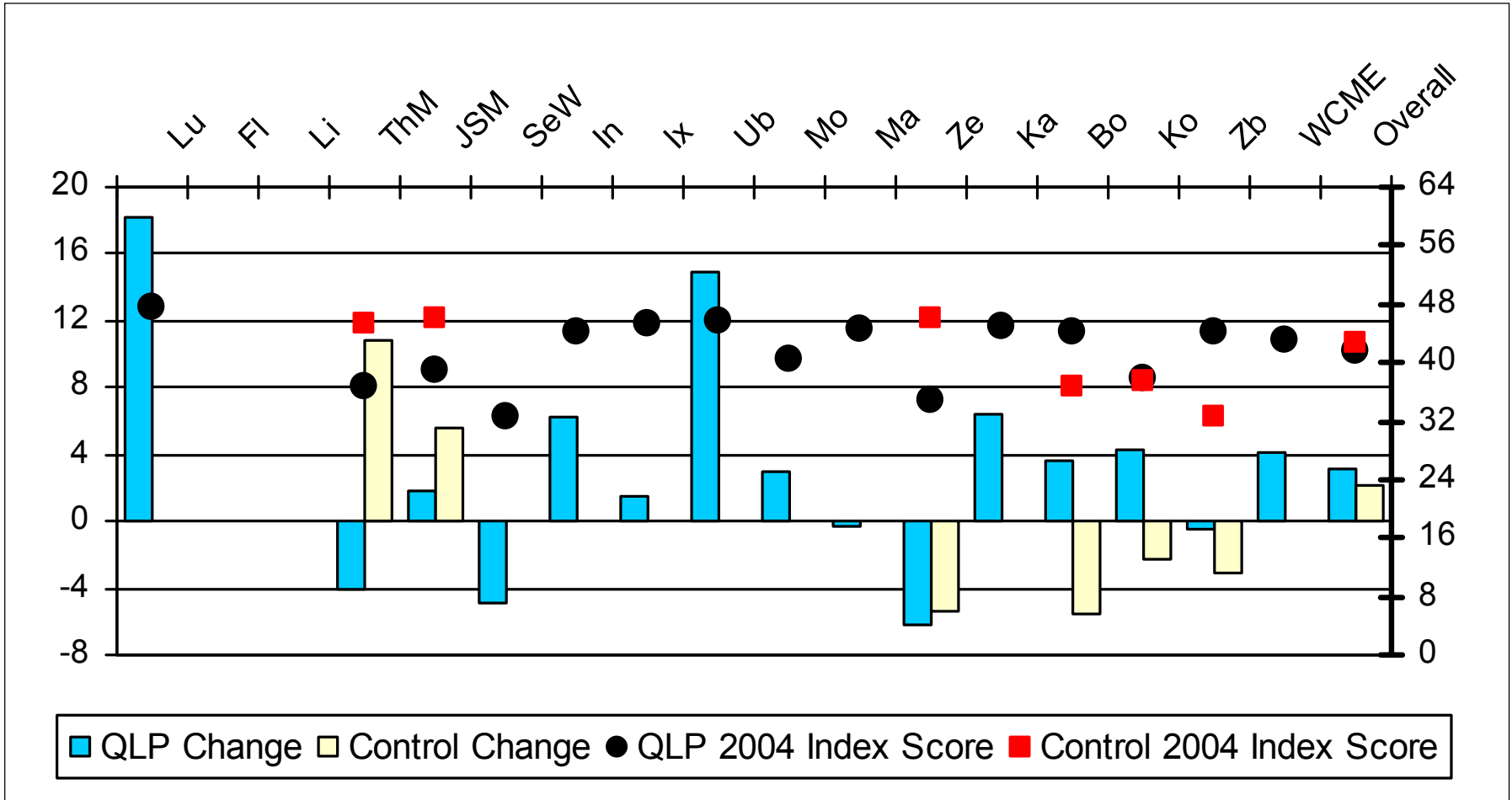
Grade 9 mathematics classroom functionality



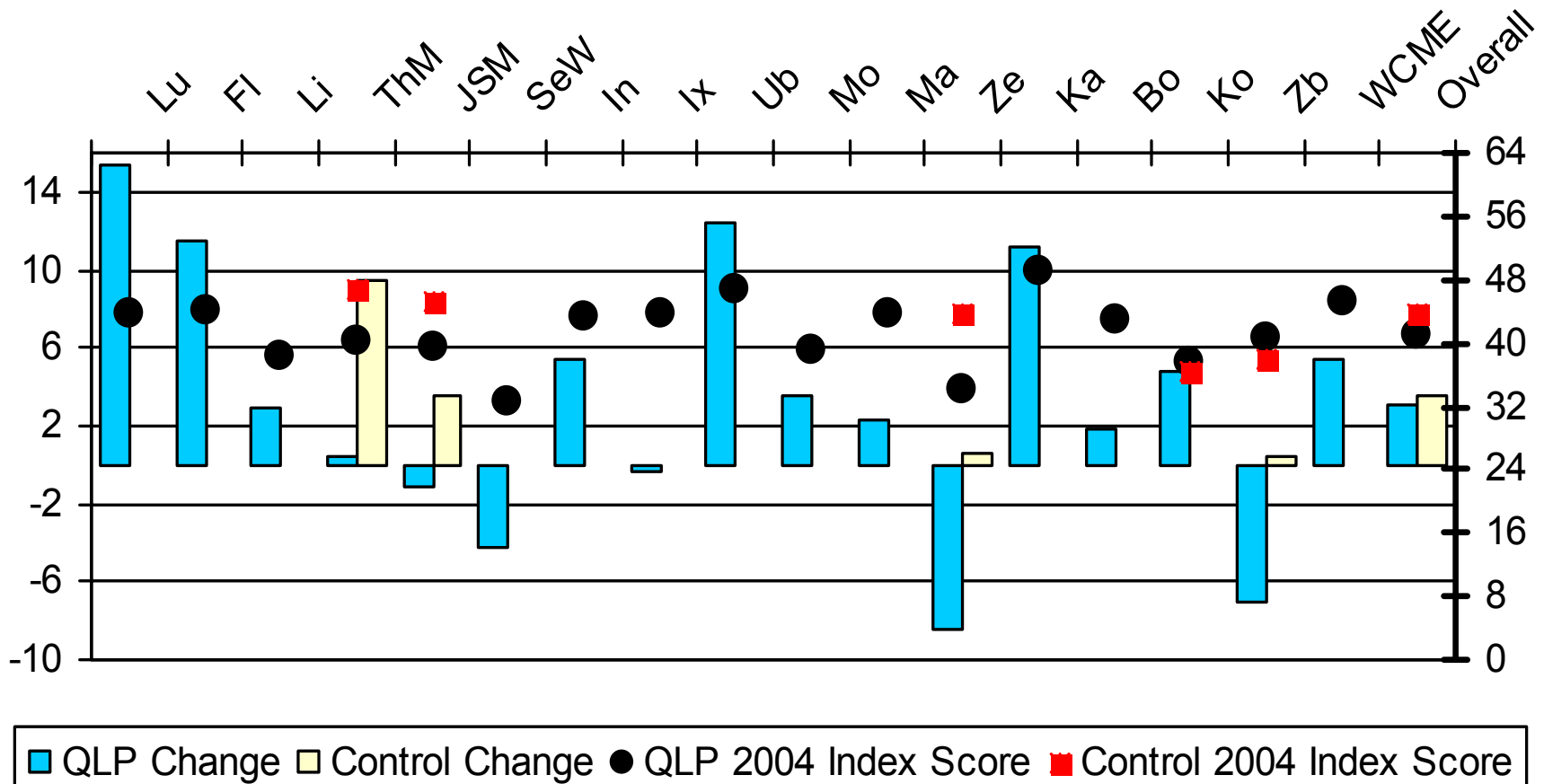
Grade 11 mathematics classroom functionality



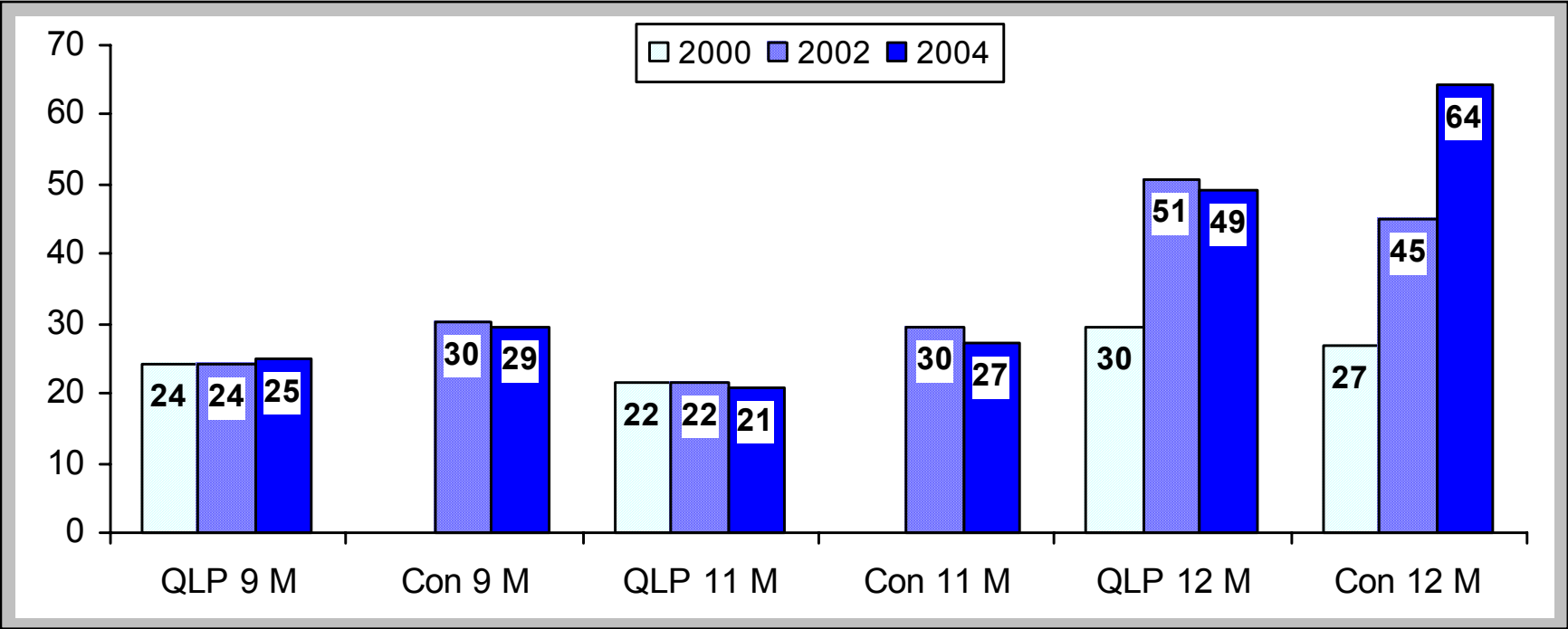
Grade 9 Language classroom functionality



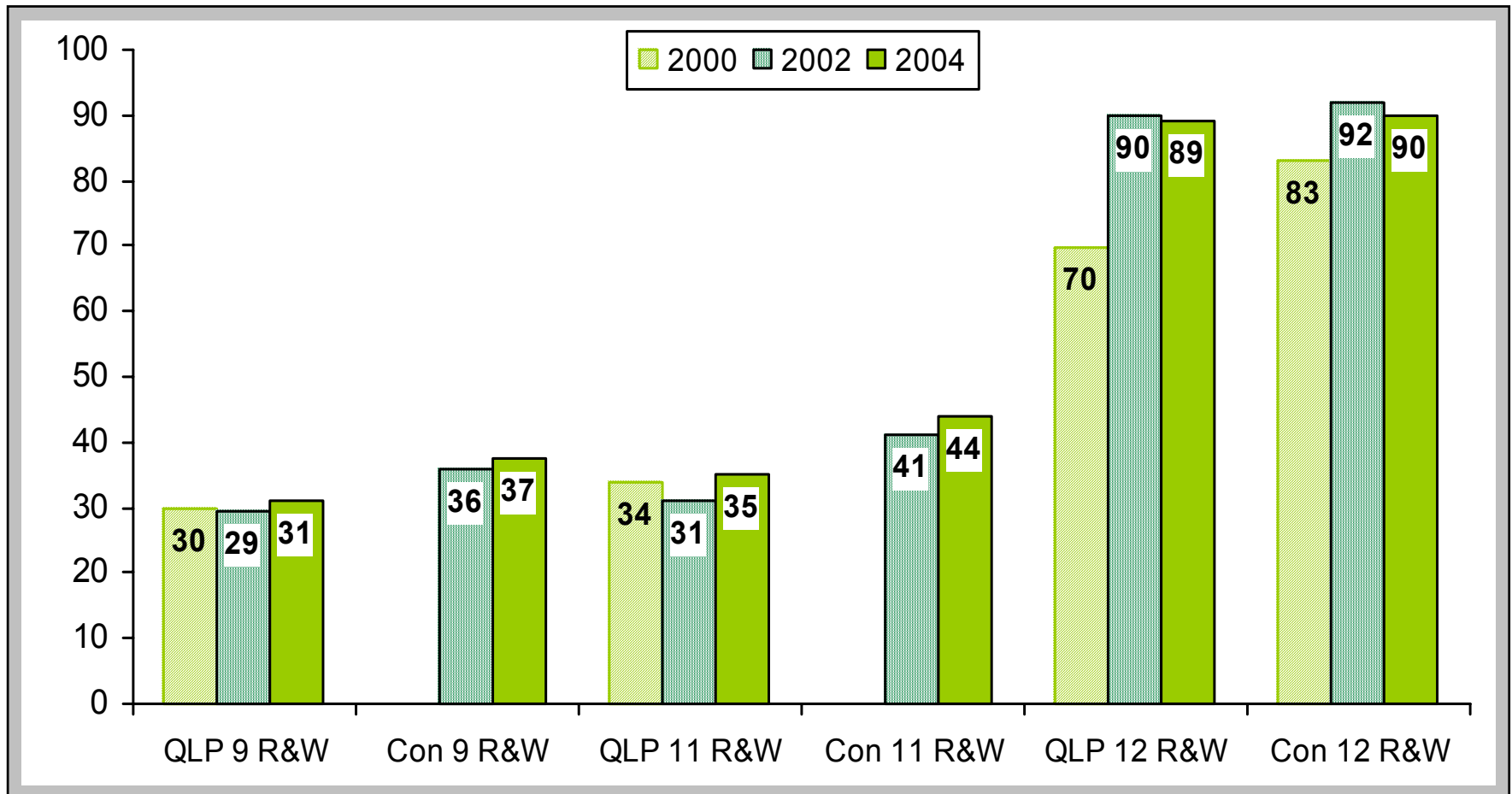
Grade 11 Language classroom functionality



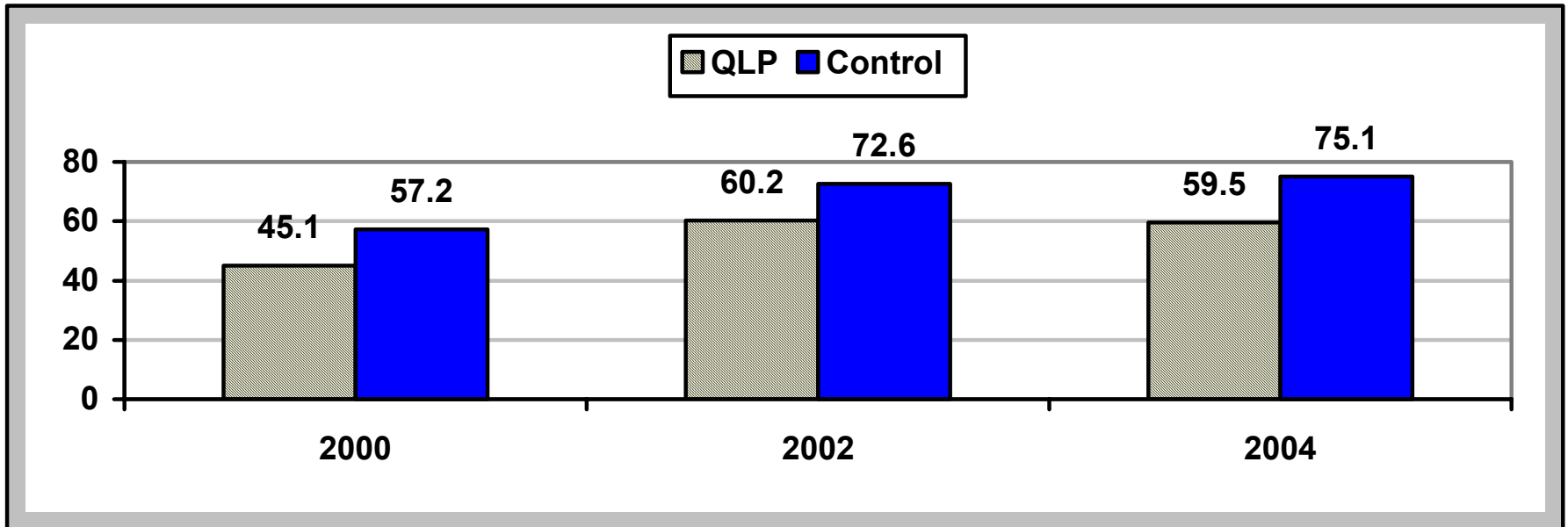
Maths scores for QLP and Control schools by Year and Grade



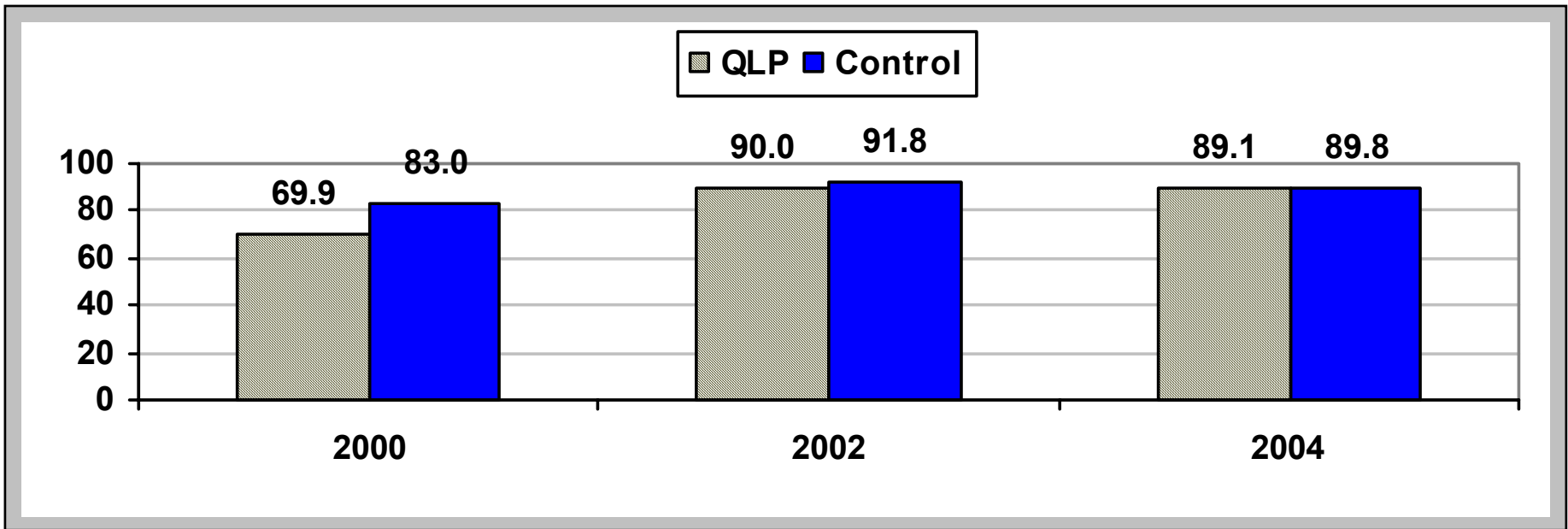
Language scores for QLP and Control schools by Year & Grade



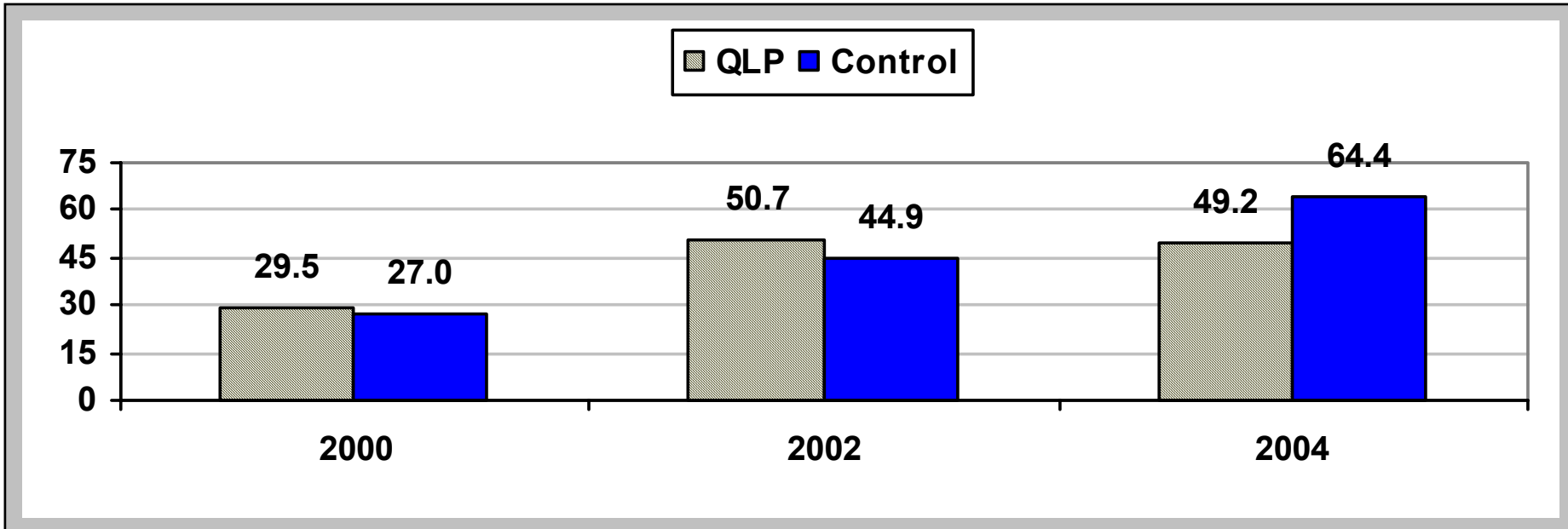
Grade 12 Overall Matric passrates



Grade 12 English (HG) passrates



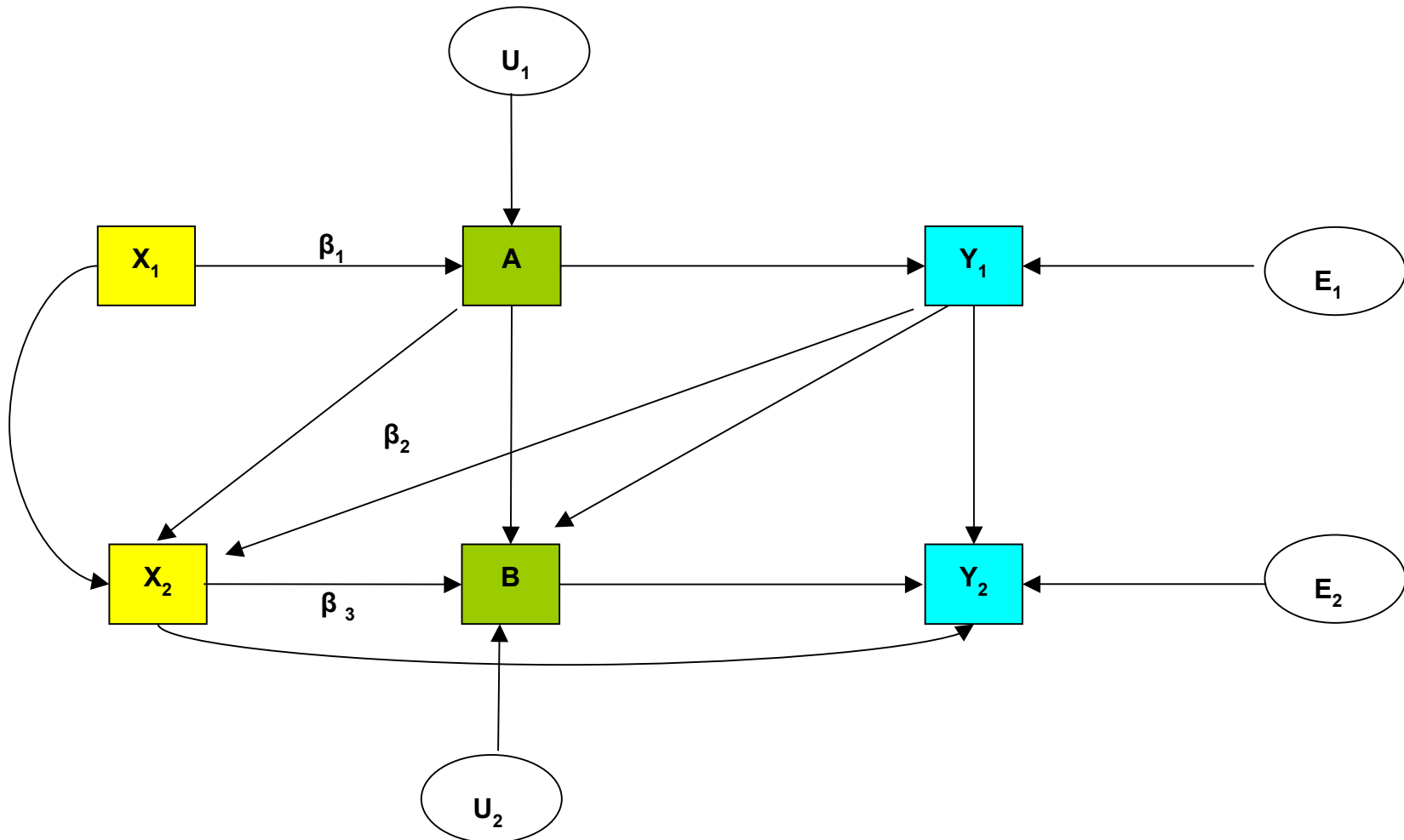
Grade 12 Maths (SG) passrates



Causal model and its elements



Path model applied (AMOS software)



Indicators and variables used



- Six clusters of information:
 - Cluster 1 (X_1) – Interventions mid-2001 to end 2002
(district, school, maths teachers, language teachers as var.s)
 - Cluster 2 (A) – Initial functionality level at end 2002
(district, school, classroom) – latter = x 2 subjects x 2 gr.s)
 - Cluster 3 (Y_1) – Learner performance at end 2002
(Maths Gr9, Maths Gr 11, R&W Gr 9, R&W Gr 11)
 - Cluster 4 (X_2) – Interventions since 2003 to mid-2004
(district, school, maths teachers, language teachers as var.s)
 - Cluster 5 (B) – Eventual functionality level end 2002
(district, school, classroom) – latter = x 2 subjects x 2 gr.s)
 - Cluster 6 (Y_2) – Learner performance at end 2004
(Maths Gr9, Maths Gr 11, R&W Gr 9, R&W Gr 11)



Indicators and variables used



- Five blocks of modelling:
 - Block 1: Effect Cluster 1 → Cluster 2 (Interventions up to 2002 → 2002 functionality)
 - Block 2: Effect Cluster 2 → Cluster 3 (2002 functionality → learner performance at the end 2002)
 - Block 3: Effects of Clusters 1, 2, 3 → Cluster 4 (Pre-2003 interventions, 2002 functionality, 2002 learner performance → interventions since 2003)
 - Block 4: Effects of Clusters 2, 3, 4 → Cluster 5 (2002 functionality, 2002 learner performance, interventions since 2003 → 2004 functionality)
 - Block 5: Effects of Clusters 3, 4, 5 → Cluster 6 (2002 learner performance, interventions since 2003, 2004 functionality → 2004 learner performance)



Main findings from causal modelling



Findings pertaining to Gr 9 Maths



Predicted	Variables		P	Regression coefficient	
	←	Predictor		Standardised	Unstandardised*
Mths9 Lrn Perf 2002	2a	Schl Funct 2002	.024	.272	.572
Mths9 Lrn Perf 2002	2b	Mths9 Tchr Funct 2002	.003	.354	.425
Distr Intrv 2003/4	3a	Distr Intrv 2001/2	***	.504	.826
Distr Intrv 2003/4	3b	Schl Intrv 2001/2	.004	-.260	-.232
Schl Intrv 2003/4	3c	Distr Intrv 2001/2	***	.280	.422
Schl Intrv 2003/4	3d	Schl Intrv 2001/2	***	.395	.326
Schl Intrv 2003/4	3e	Mths Tchr Intrv 2001/2	***	.435	.298
Mths Tchr Intrv 2003/4	3f	Mths Tchr Intrv 2001/2	***	.856	.764
Schl Funct 2004	4a	Mths Tchr Intrv 2003/4	***	.372	.030
Schl Funct 2004	4b	Mths9 Lrn Perf 2002	***	.524	.260
Schl Funct 2004	4c	Schl Funct 2002	.038	.191	.199
Distr Funct 2004	4d	Distr Funct 2002	***	.309	.424
Mths9 Tchr Funct 2004	4e	Distr Funct 2002	.012	.260	.051
Mths9 Tchr Funct 2004	4f	Mths9 Tchr Funct 2002	***	.406	.371
Mths9 Tchr Funct 2004	4g	Distr Intrv 2001/2	***	-.377	-.093
Mths9 Lrn Perf 2004	5a	Schl Funct 2004	.028	.139	.240
Mths9 Lrn Perf 2004	5b	Mths9 Tchr Funct 2004	.010	.132	.149
Mths9 Lrn Perf 2004	5c	Mths9 Lrn Perf 2002	***	.794	.680

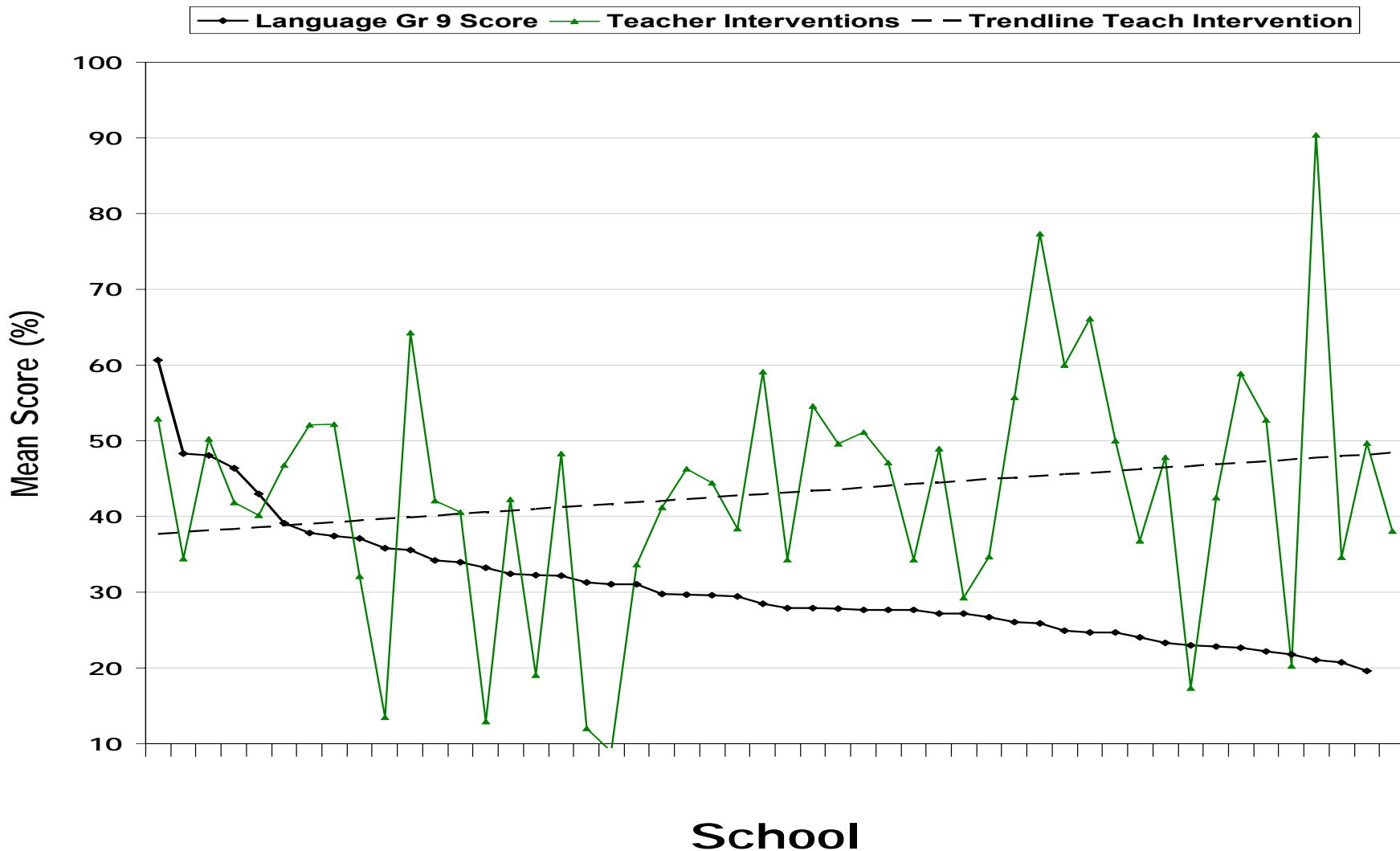


Findings pertaining to Gr 9 R&W

Predicted	Variables		P	Regression coefficient	
	←	Predictor		Standardised	Unstandardised*
Distr Funct 2002	1a	Lang Tchr Intrv 2001/2	.019	.281	.163
Lang9 Tchr Funct 2002	1b	Distr Intrv 2001/2	.020	-.256	-.080
Lang9 Tchr Funct 2002	1c	Schl Intrv 2001/2	***	-.388	-.067
Lang9 Lrn Perf 2002	2a	Schl Funct 2002	.009	.298	.940
Lang9 Lrn Perf 2002	2b	Lang9 Tchr Funct 2002	***	.384	.592
Distr Intrv 2003/4	3a	Lang9 Lrn Perf 2002	.045	.153	.500
Distr Intrv 2003/4	3b	Distr Intrv 2001/2	***	.547	.867
Distr Intrv 2003/4	3c	Schl Intrv 2001/2	.045	-.204	-.177
Schl Intrv 2003/4	3d	Distr Intrv 2001/2	.006	.206	.307
Schl Intrv 2003/4	3e	Schl Intrv 2001/2	.004	.287	.234
Schl Intrv 2003/4	3f	Lang Tchr Intrv 2001/2	***	.564	.385
Lang Tchr Intrv 2003/4	3g	Lang Tchr Intrv 2001/2	***	.828	.818
Schl Funct 2004	4a	Lang Tchr Intrv 2003/4	***	.321	.022
Schl Funct 2004	4b	Lang9 Lrn Perf 2002	***	.437	.135
Schl Funct 2004	4c	Schl Funct 2002	.013	.262	.256
Distr Funct 2004	4d	Distr Intrv 2003/4	***	.374	.396
Distr Funct 2004	4e	Schl Funct 2002	.036	.234	2.558
Distr Funct 2004	4f	Distr Funct 2002	.019	.259	.341
Lang9 Tchr Funct 2004	4g	Schl Funct 2002	.026	.274	.509
Lang9 Lrn Perf 2004	5a	Schl Funct 2004	.026	.141	.422
Lang9 Lrn Perf 2004	5b	Lang Tchr Intrv 2003/4	.052	-.105	-.022
Lang9 Lrn Perf 2004	5c	Lang9 Lrn Perf 2002	***	.830	.768



Effect of teacher interventions on L09 Performance (No Modification)



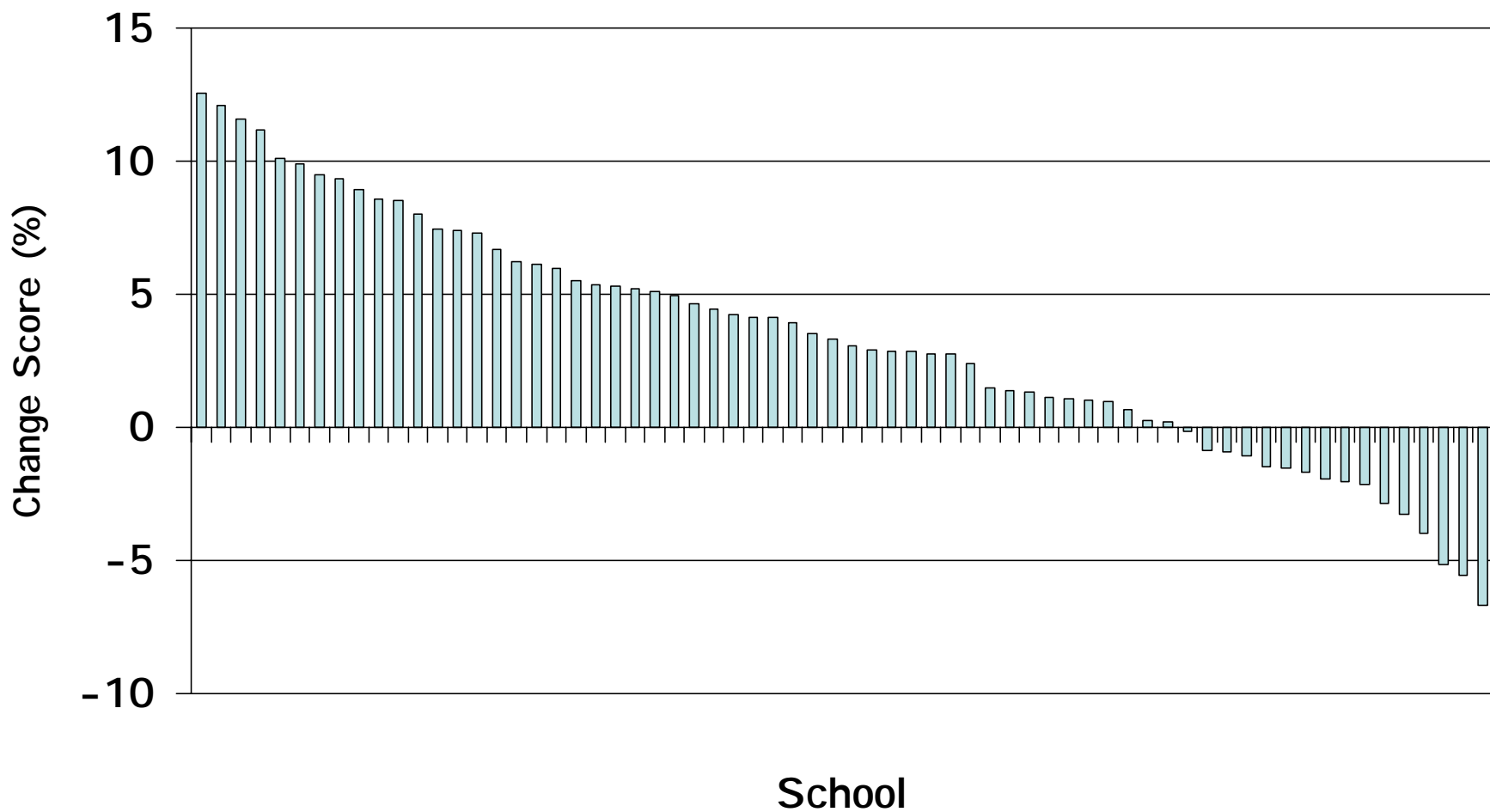
Findings pertaining to Gr 11 Maths

Predicted	Variables		P	Regression coefficient	
	←	Predictor		Standardised	Unstandardised*
Schl Funct 2002	1a	Schl Intrv 2001/2	.071	-.210	-.020
Distr Funct 2002	1b	Mths Tchr Intrv 2001/2	.045	.241	.194
Mths11 Tchr Funct 2002	1c	Distr Intrv 2001/2	.006	.312	.074
Mths11 Lrn Perf 2002	2a	Schl Funct 2002	.032	.251	.601
Mths11 Lrn Perf 2002	2b	Distr Funct 2002	.048	.232	.062
Distr Intrv 2003/4	3a	Distr Funct 2002	.051	-.154	-.203
Distr Intrv 2003/4	3b	Distr Intrv 2001/2	***	.482	.825
Distr Intrv 2003/4	3c	Schl Intrv 2001/2	***	-.335	-.372
Schl Intrv 2003/4	3d	Distr Intrv 2001/2	.003	.302	.342
Schl Intrv 2003/4	3e	Schl Intrv 2001/2	***	.497	.365
Mths Tchr Intrv 2003/4	3f	Mths11 Tchr Funct 2002	.004	-.231	-1.379
Mths Tchr Intrv 2003/4	3g	Mths Tchr Intrv 2001/2	***	.646	.564
Schl Funct 2004	4a	Mths Tchr Intrv 2003/4	.002	.325	.035
Schl Funct 2004	4b	Mths11 Lrn Perf 2002	***	.365	.159
Distr Funct 2004	4c	Distr Intrv 2003/4	***	.395	.359
Distr Funct 2004	4d	Distr Funct 2002	***	.367	.437
Mths11 Tchr Funct 2004	4e	Schl Funct 2002	.020	.269	.492
Mths11 Lrn Perf 2004	5a	Mths11 Tchr Funct 2004	.036	.202	.275
Mths11 Lrn Perf 2004	5b	Distr Intrv 2003/4	.001	.307	.065
Mths11 Lrn Perf 2004	5c	Mths11 Lrn Perf 2002	***	.511	.531

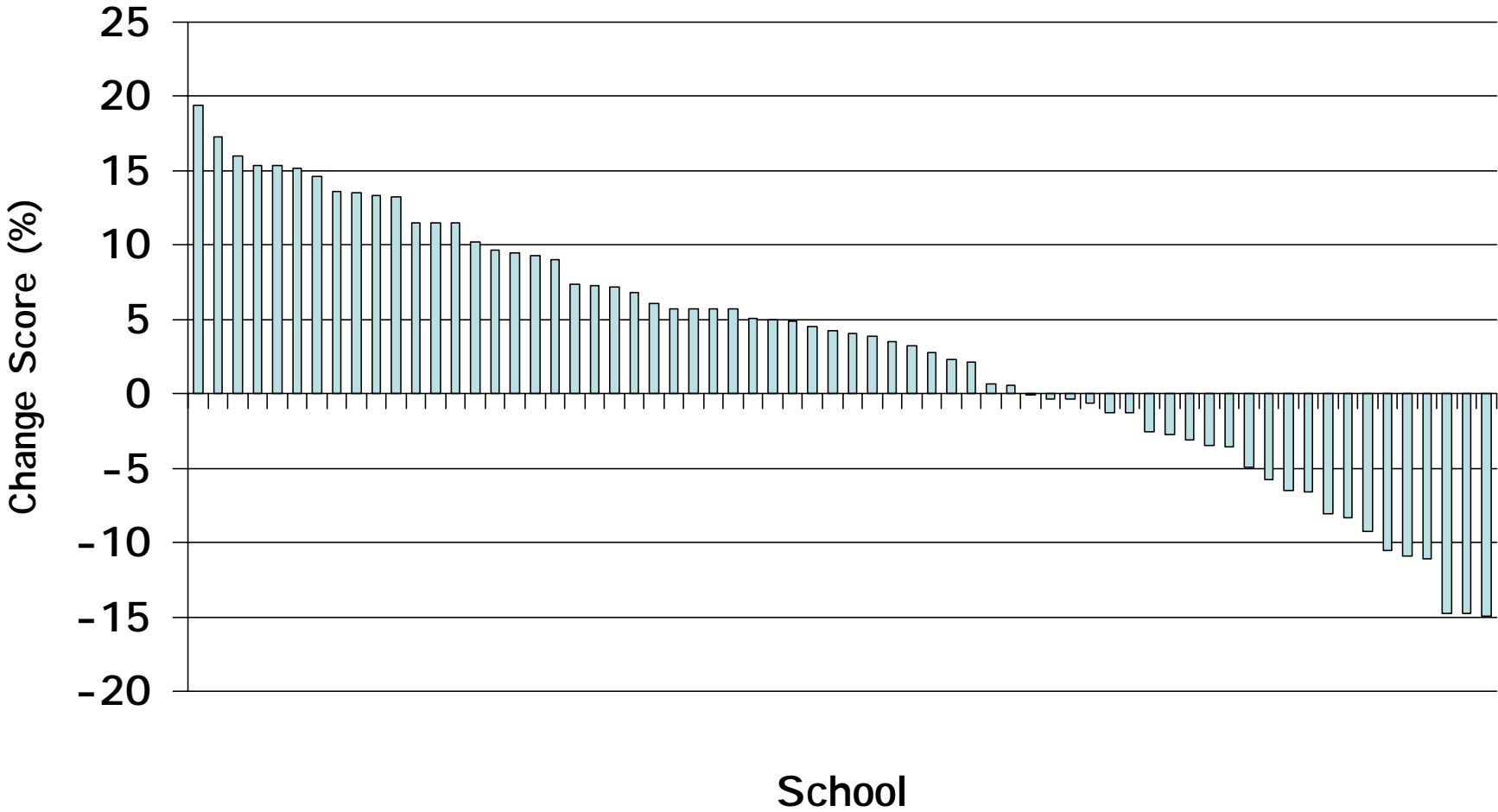
Findings pertaining to Gr 11 R&W

Predicted	Variables		P	Regression coefficient	
	←	Predictor		Standardised	Unstandardised*
Distr Funct 2002	1a	Lang Tchr Intrv 2001/2	.005	.324	.252
Lang11 Tchr Funct 2002	1b	Schl Intrv 2001/2	***	-.411	-.092
Lang11 Lrn Perf 2002	2a	Schl Funct 2002	***	.376	.995
Lang11 Lrn Perf 2002	2b	Lang11 Tchr Funct 2002	.001	.346	.391
Distr Intrv 2003/4	3a	Lang11 Lrn Perf 2002	.011	.191	.802
Distr Intrv 2003/4	3b	Distr Intrv 2001/2	***	.439	.719
Distr Intrv 2003/4	3c	Schl Intrv 2001/2	***	-.328	-.348
Schl Intrv 2003/4	3d	Distr Intrv 2001/2	.009	.269	.298
Schl Intrv 2003/4	3e	Schl Intrv 2001/2	.006	.309	.222
Schl Intrv 2003/4	3f	Lang Tchr Intrv 2001/2	.002	.331	.214
Lang Tchr Intrv 2003/4	3g	Lang Tchr Intrv 2001/2	***	.665	.640
Schl Funct 2004	4a	Lang Tchr Intrv 2003/4	***	.378	.035
Schl Funct 2004	4b	Lang11 Lrn Perf 2002	***	.409	.160
Distr Funct 2004	4c	Distr Intrv 2003/4	***	.362	.350
Distr Funct 2004	4d	Distr Funct 2002	***	.390	.464
Lang11 Tchr Funct 2004	4e	Lang Tchr Intrv 2003/4	.003	.325	.063
Lang11 Tchr Funct 2004	4f	Lang11 Lrn Perf 2002	.001	.346	.285
Lang11 Tchr Funct 2004	4g	Distr Funct 2002	.001	-.334	-.081
Lang11 Lrn Perf 2004	5a	Schl Funct 2004	.102	.129	.342
Lang11 Lrn Perf 2004	5b	Lang11 Tchr Funct 2004	.049	-.149	-.189
Lang11 Lrn Perf 2004	5c	Lang11 Lrn Perf 2002	***	.832	.867

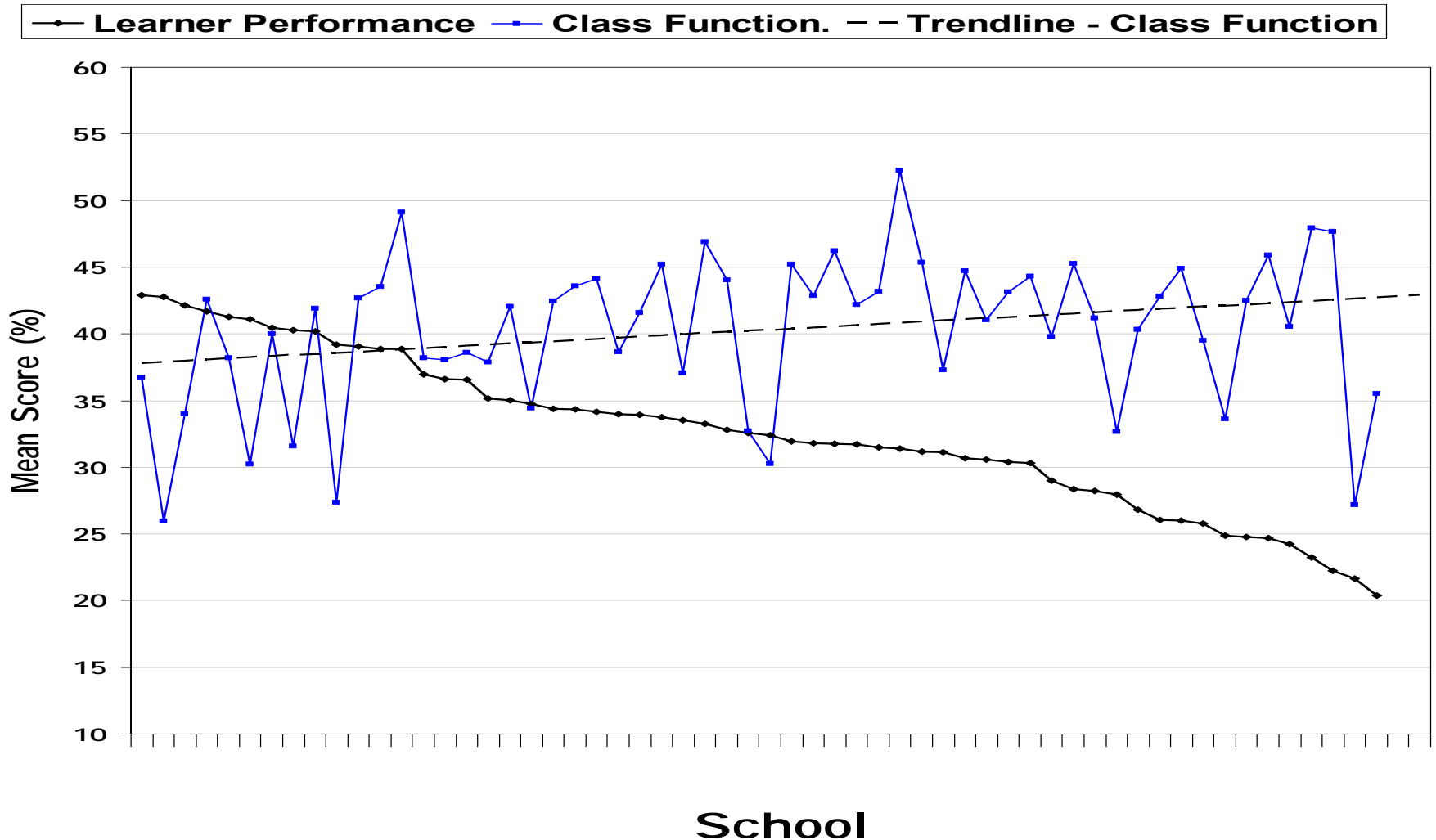
Grade 11 Language % change in scores: 2002 to 2004



Grade 11 Language % change in teacher functionality: 2002 to 2004



Effect of teacher functionality on L11 Performance + Trend Line (Modified)



Passrates -- Gr 12 overall

Variables (highlighted ← already reported in Sect 7.2.3, Tab 7.11)				Regression coefficient	
Predicted	←	Predictor	P	Standardised	Unstandardised*
Distr Funct 2002	1a	Lang Tchr Intrv 2001/2	.005	.324	.252
Lang11 Tchr Funct 2002	1b	Schl Intrv 2001/2	***	-.411	-.092
Matric passrate in 2002	2b	Lang11 Tchr Funct 2002	.005	.332	1.181
Distr Intrv 2003/4	3b	Distr Intrv 2001/2	***	.454	.754
Distr Intrv 2003/4	3c	Schl Intrv 2001/2	***	-.370	-.399
Schl Intrv 2003/4	3d	Distr Intrv 2001/2	.009	.270	.300
Schl Intrv 2003/4	3e	Schl Intrv 2001/2	.007	.304	.219
Schl Intrv 2003/4	3f	Lang Tchr Intrv 2001/2	.001	.341	.221
Lang Tchr Intrv 2003/4	3g	Lang Tchr Intrv 2001/2	***	.665	.640
Schl Funct 2004	4a	Lang Tchr Intrv 2003/4	.009	.415	.038
Schl Funct 2004	4b	Matric passrate in 2002	.028	.222	.027
Schl Funct 2004	4i	Schl Funct 2002	.040	.214	.217
Schl Funct 2004	4ii	Lang11 Tchr Funct 2002	.068	.187	.081
Distr Funct 2004	4c	Distr Intrv 2003/4	***	.368	.350
Distr Funct 2004	4d	Distr Funct 2002	***	.388	.460
Lang11 Tchr Funct 2004	4e	Lang Tchr Intrv 2003/4	.005	.321	.062
Lang11 Tchr Funct 2004	4iii	Schl Funct 2002	.016	.277	.598
Lang11 Tchr Funct 2004	4g	Distr Funct 2002	.003	-.325	-.078
Matric passrate in 2004	5i	Lang Tchr Intrv 2003/4	.002	.297	.211
Matric passrate in 2004	5c	Matric passrate in 2004	***	.580	.555

Passrates -- Gr 12 English HG

Variables (highlighted ← already reported in Sect 7.2.3, Tab 7.11)				Regression coefficient	
Predicted	←	Predictor	P	Standardised	Unstandardised*
Schl Funct 2002	1i	Lang Tchr Intrv 2001/2	.026	-.270	-.023
Distr Funct 2002	1ii	Distr Intrv 2001/2	.072	.223	.284
Distr Funct 2002	1a	Lang Tchr Intrv 2001/2	.009	.327	.245
Lang11 Tchr Funct 2002	1b	Schl Intrv 2001/2	***	-.468	-.100
English passrate in 2002	2i	Distr Funct 2002	.000	-.559	-.384
Distr Intrv 2003/4	3b	Distr Intrv 2001/2	***	.450	.746
Distr Intrv 2003/4	3c	Schl Intrv 2001/2	***	-.372	-.399
Schl Intrv 2003/4	3d	Distr Intrv 2001/2	.010	.268	.298
Schl Intrv 2003/4	3e	Schl Intrv 2001/2	.007	.306	.220
Schl Intrv 2003/4	3f	Lang Tchr Intrv 2001/2	.002	.333	.219
Lang Tchr Intrv 2003/4	3g	Lang Tchr Intrv 2001/2	***	.662	.643
Schl Funct 2004	4a	Lang Tchr Intrv 2003/4	.000	.403	.035
Schl Funct 2004	4i	Schl Funct 2002	.045	.228	.227
Schl Funct 2004	4ii	Lang11 Tchr Funct 2002	.033	.225	.098
Distr Funct 2004	4c	Distr Intrv 2003/4	***	.361	.349
Distr Funct 2004	4d	Distr Funct 2002	***	.371	.468
Lang11 Tchr Funct 2004	4e	Lang Tchr Intrv 2003/4	.008	.310	.058
Lang11 Tchr Funct 2004	4iii	Schl Funct 2002	.054	.223	.476
Lang11 Tchr Funct 2004	4g	Distr Funct 2002	.001	-.348	-.084
Matric passrate in 2004	5a	Schl Funct 2004	.002	.392	1.974
Matric passrate in 2004	5i	Distr Funct 2004	.014	-.283	-.127
Matric passrate in 2004	5b	Lang11 Tchr Funct 2004	.051	-.246	-.576

Passrates -- Gr 12 Mathematics □

Variables (highlighted ← already reported in Sect 7.2.3, Tab 7.10)			Regression coefficient		
Predicted	←	Predictor	P	Standardised	Unstandardised*
Distr Funct 2002	1b	Mths Tchr Intrv 2001/2	.035	.257	.214
Mths11 Tchr Funct 2002	1c	Distr Intrv 2001/2	.009	.312	.072
Distr Intrv 2003/4	3a	Distr Funct 2002	.006	-.200	-.267
Distr Intrv 2003/4	3i	Maths passrate in 2002	.004	.209	.288
Distr Intrv 2003/4	3b	Distr Intrv 2001/2	***	.440	.767
Distr Intrv 2003/4	3c	Schl Intrv 2001/2	***	-.399	-.461
Schl Intrv 2003/4	3d	Distr Intrv 2001/2	.002	.327	.363
Schl Intrv 2003/4	3e	Schl Intrv 2001/2	***	.469	.345
Mths Tchr Intrv 2003/4	3f	Mths11 Tchr Funct 2002	.008	-.219	-1.288
Mths Tchr Intrv 2003/4	3g	Mths Tchr Intrv 2001/2	***	.657	.586
Schl Funct 2004	4a	Mths Tchr Intrv 2003/4	.013	.286	.031
Schl Funct 2004	4i	Schl Funct 2002	.022	.270	.274
Distr Funct 2004	4c	Distr Intrv 2003/4	.002	.344	.297
Distr Funct 2004	4ii	Maths passrate in 2002	.003	.319	.381
Distr Funct 2004	4d	Distr Funct 2002	.003	.318	.367
Mths11 Tchr Funct 2004	4e	Schl Funct 2002	.012	.301	.539
Maths passrate in 2004	5c	Maths passrate in 2002	***	.624	.615

(The rest →

) [to last slide]

Effects of restructuring

(Sometimes an additional burden, and
sometimes timeous corrective measures
and laying new solid foundations)

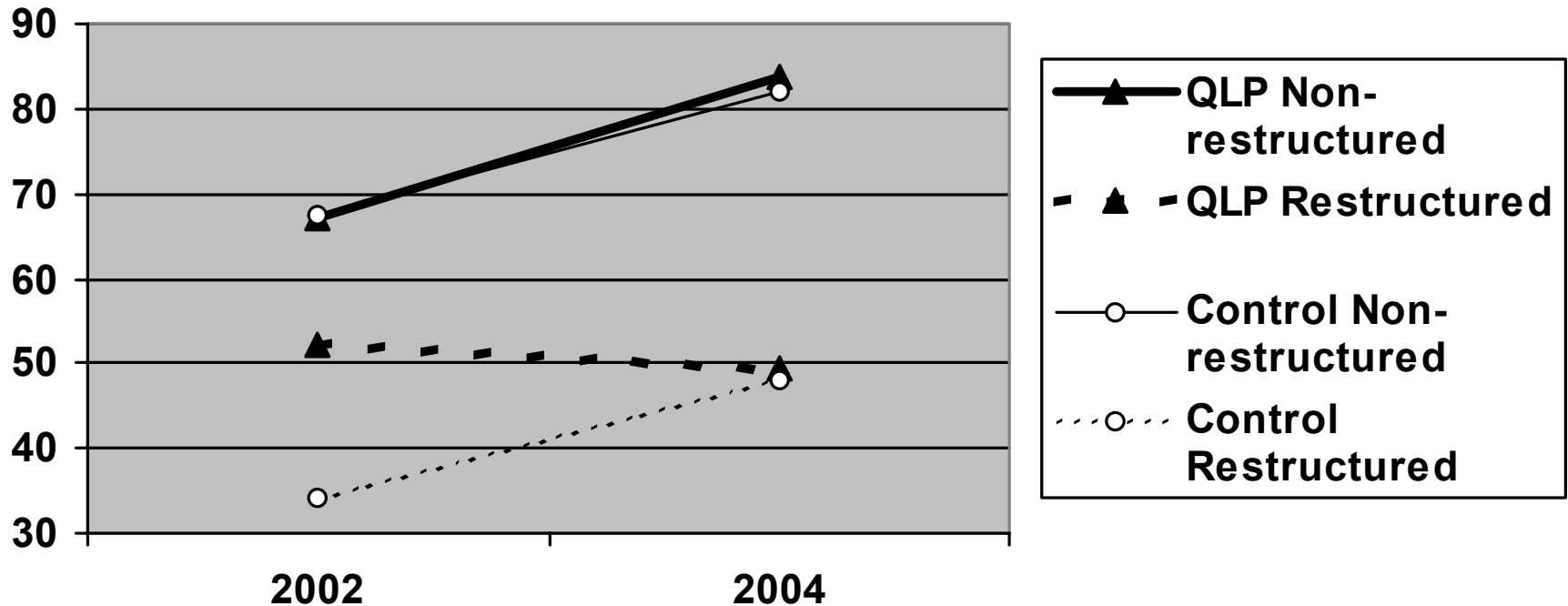
Intervention indices trends

- Non-Restructured, with QLP & Control schools:
 - Free State and Gauteng
- Restructured, with QLP & Control schools:
 - North-West Province and Limpopo
- Non-Restructured, with only QLP schools:
 - Eastern, Northern and Western Cape
- Restructured, with only QLP schools:
 - KwaZulu-Natal and Mpumalanga

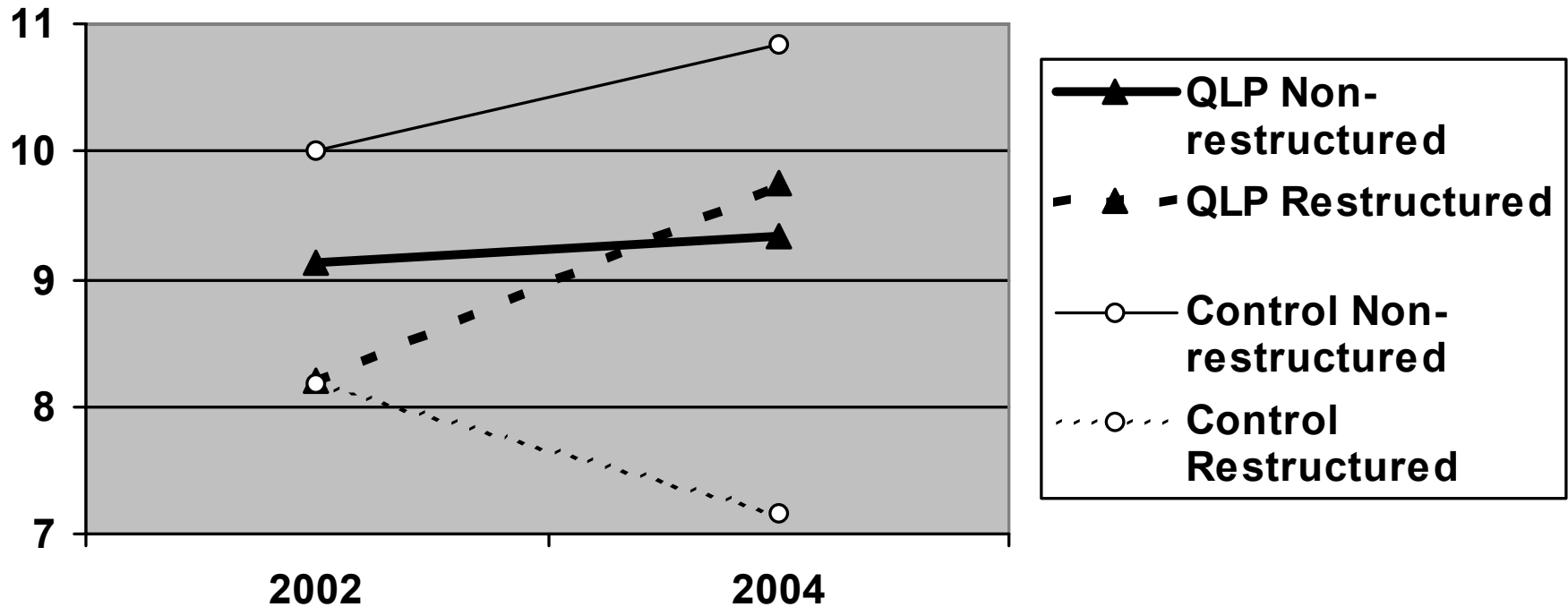
(a) Restructuring and system functionality



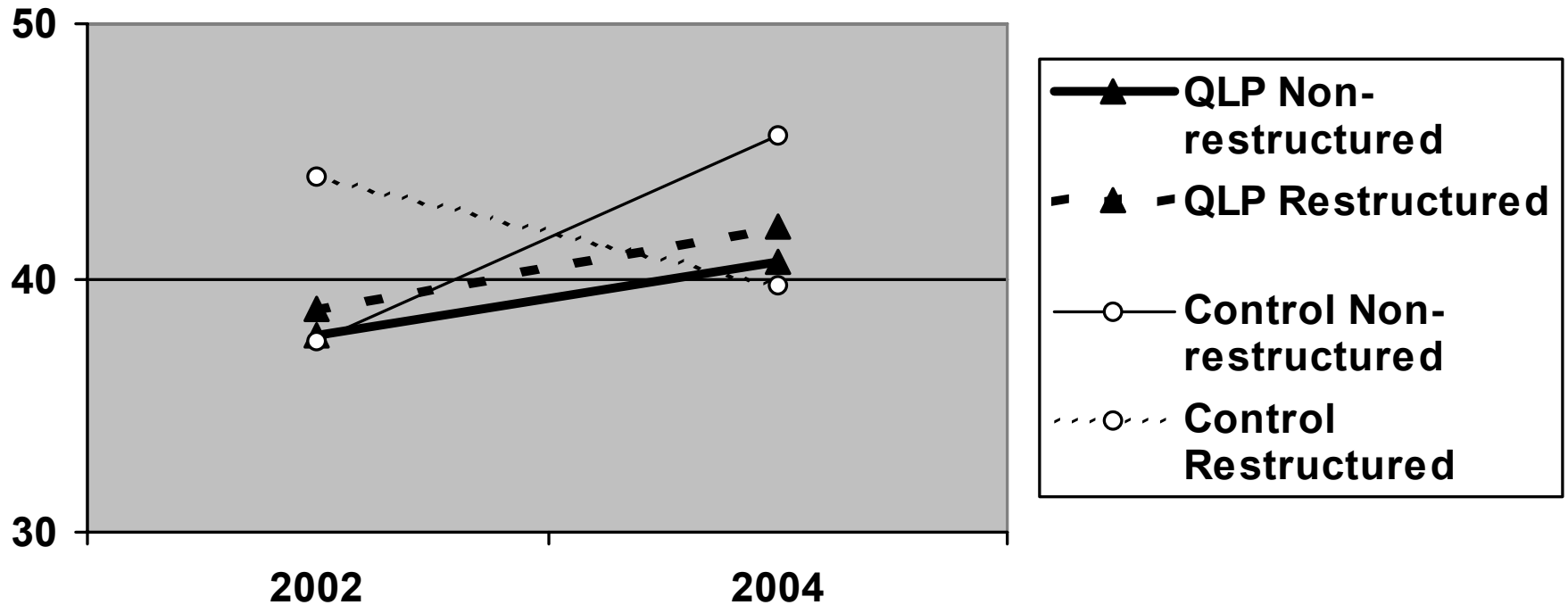
Restructuring & district functionality



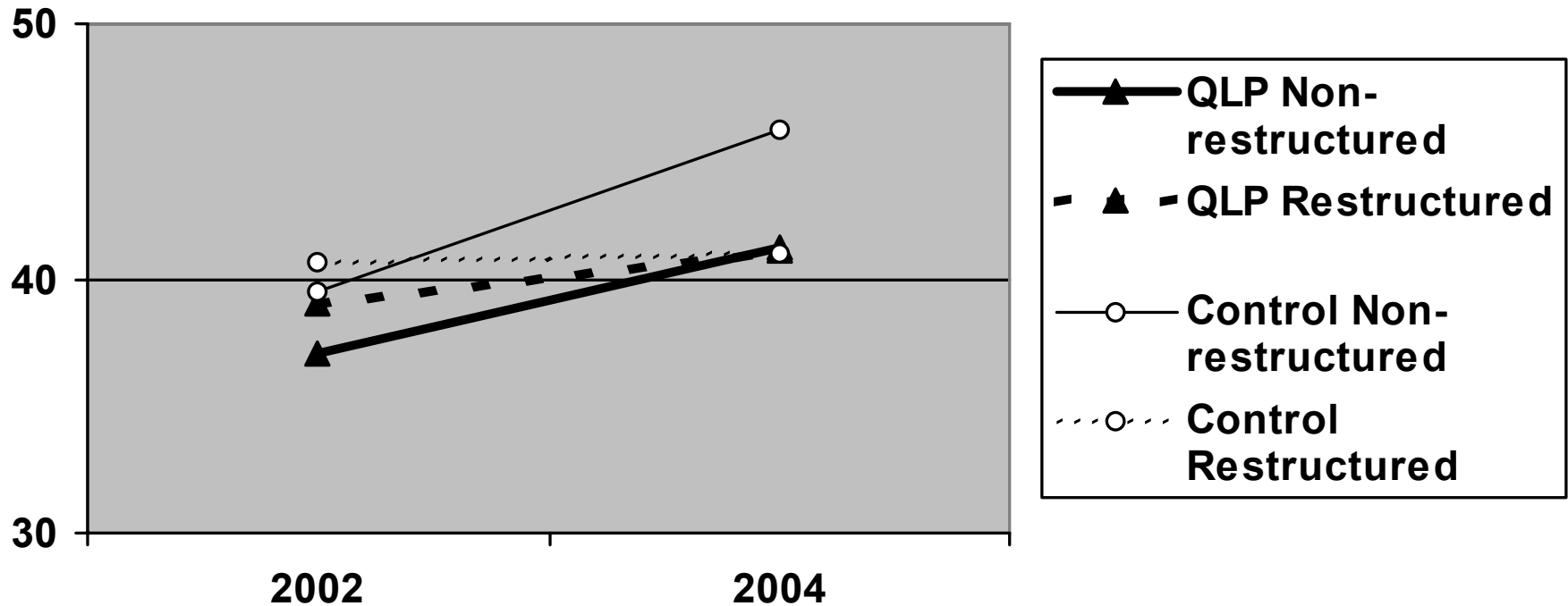
Restructuring & school functionality



Restructuring & Gr 9 R&W classes



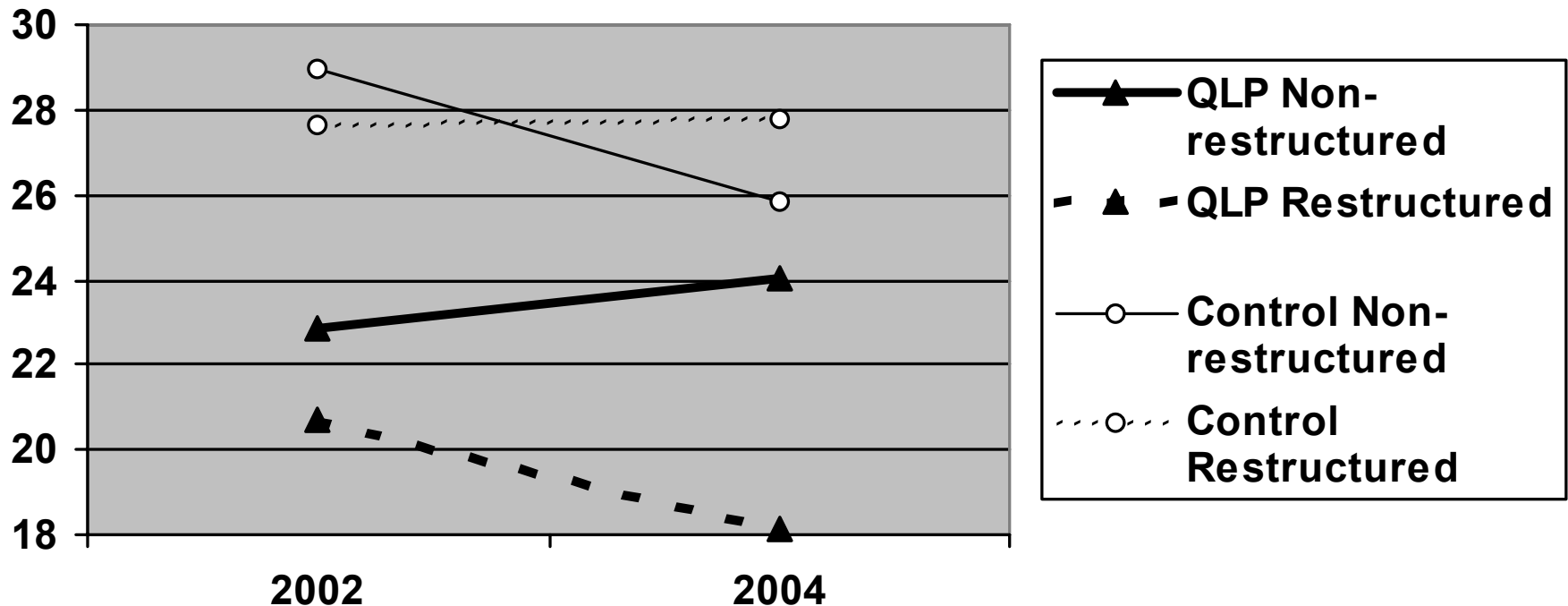
Restructuring & Gr 11 R&W classes



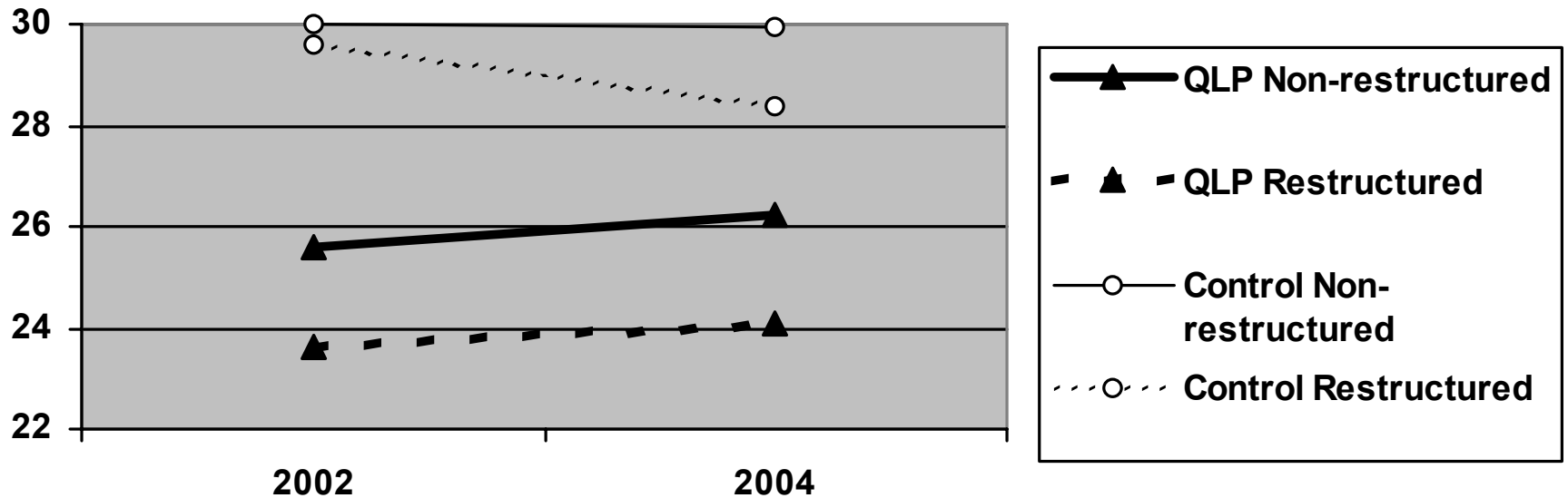
(b) Restructuring and learner performance



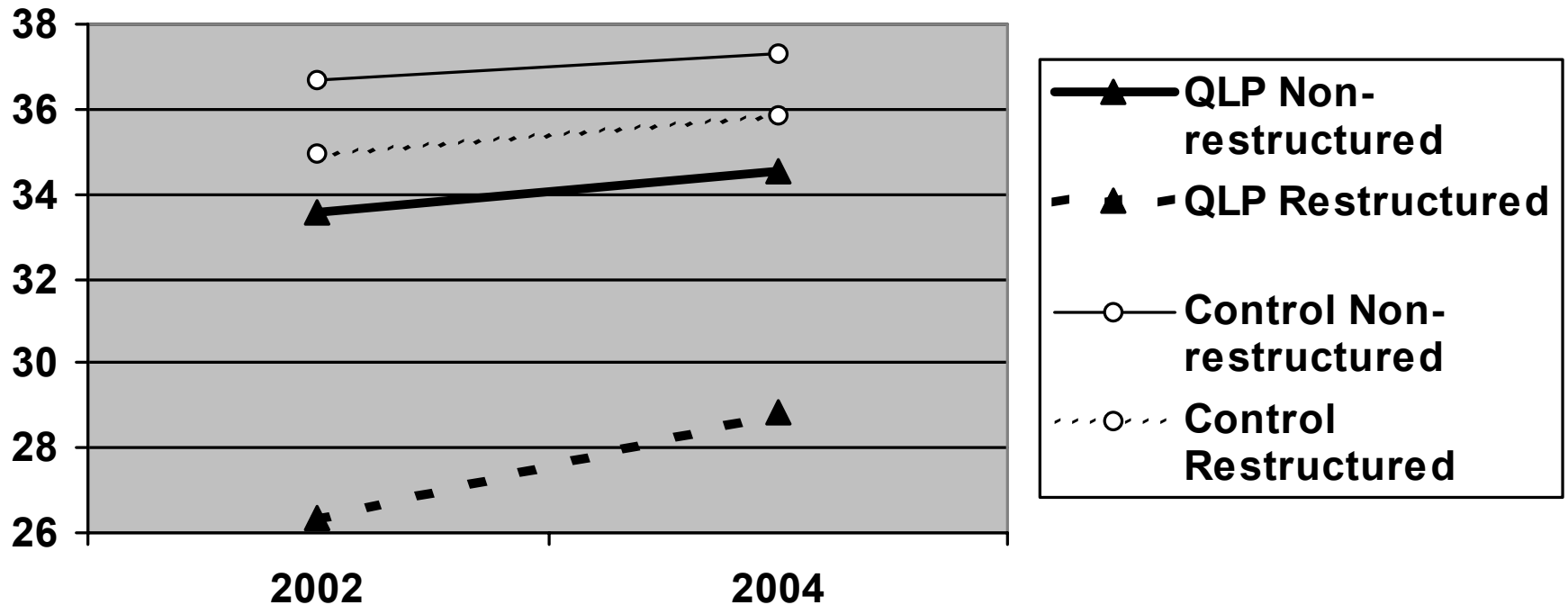
Restructuring & Gr 11 Maths scores



Restructuring & Gr 9 Maths scores



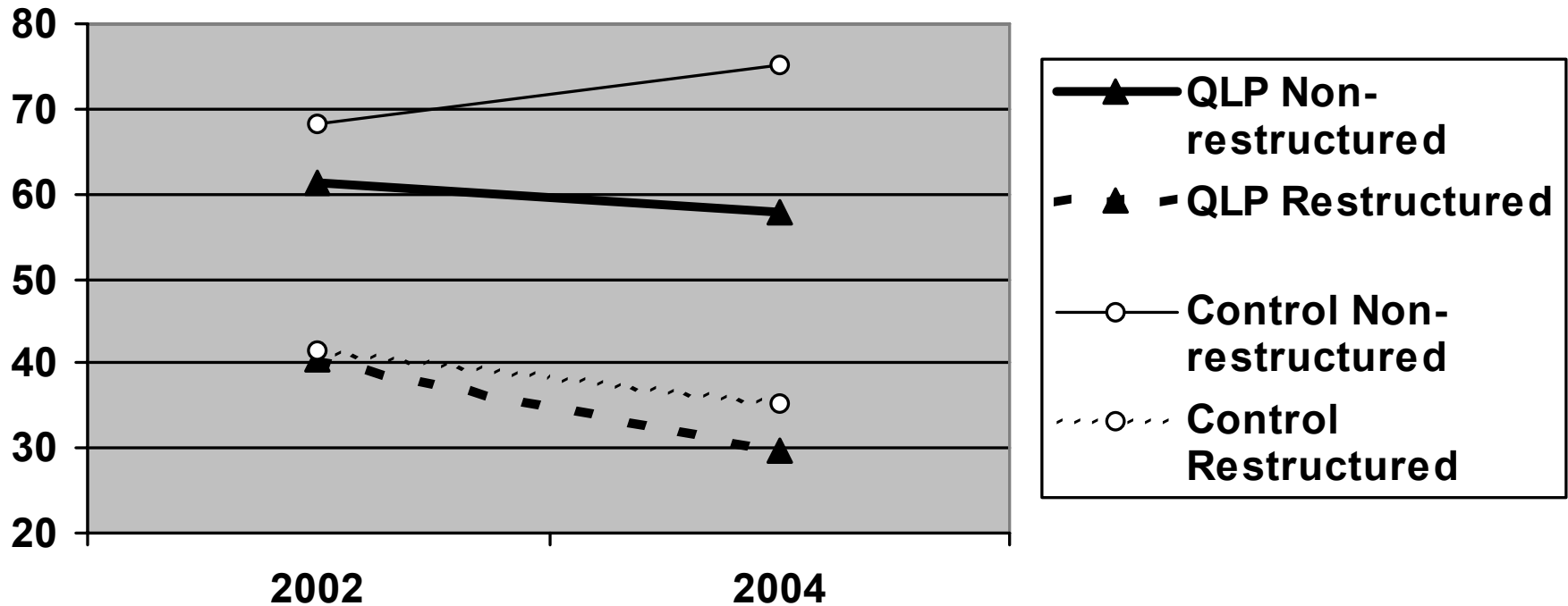
Restructuring & Gr 9 R&W scores



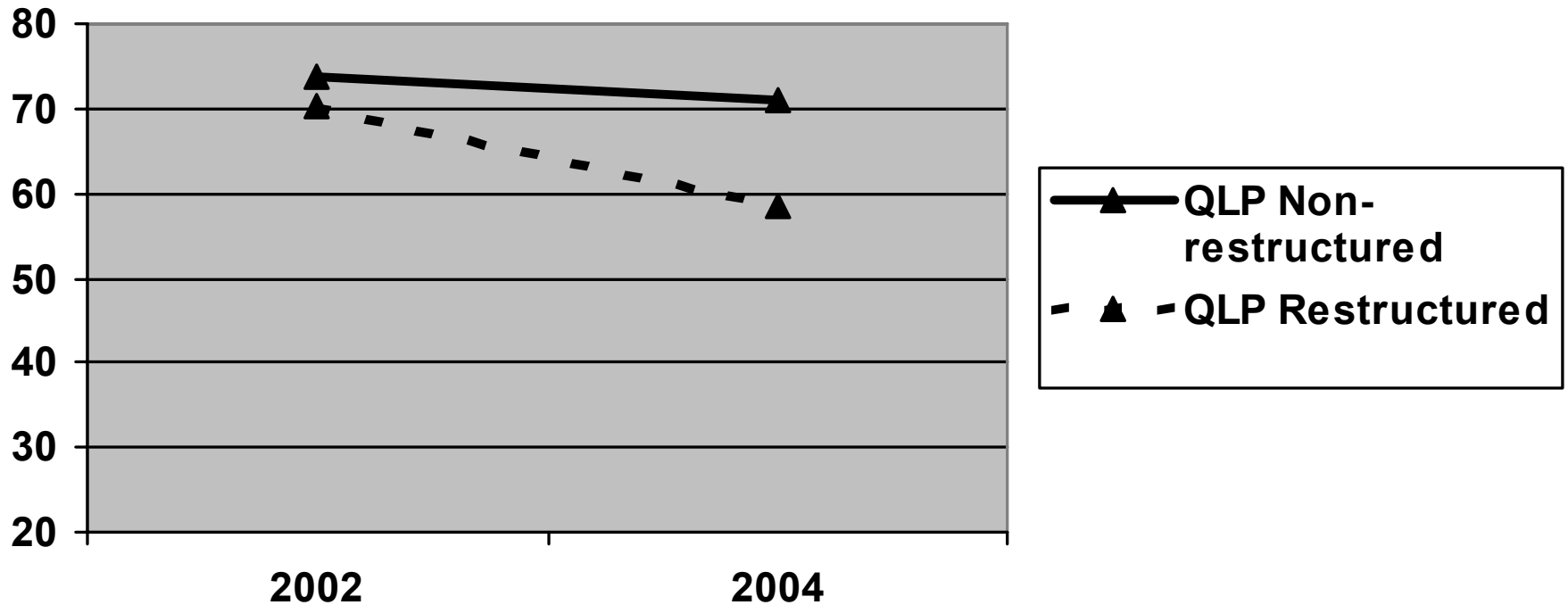
(c) Restructuring and interventions



Restructuring & District intervention

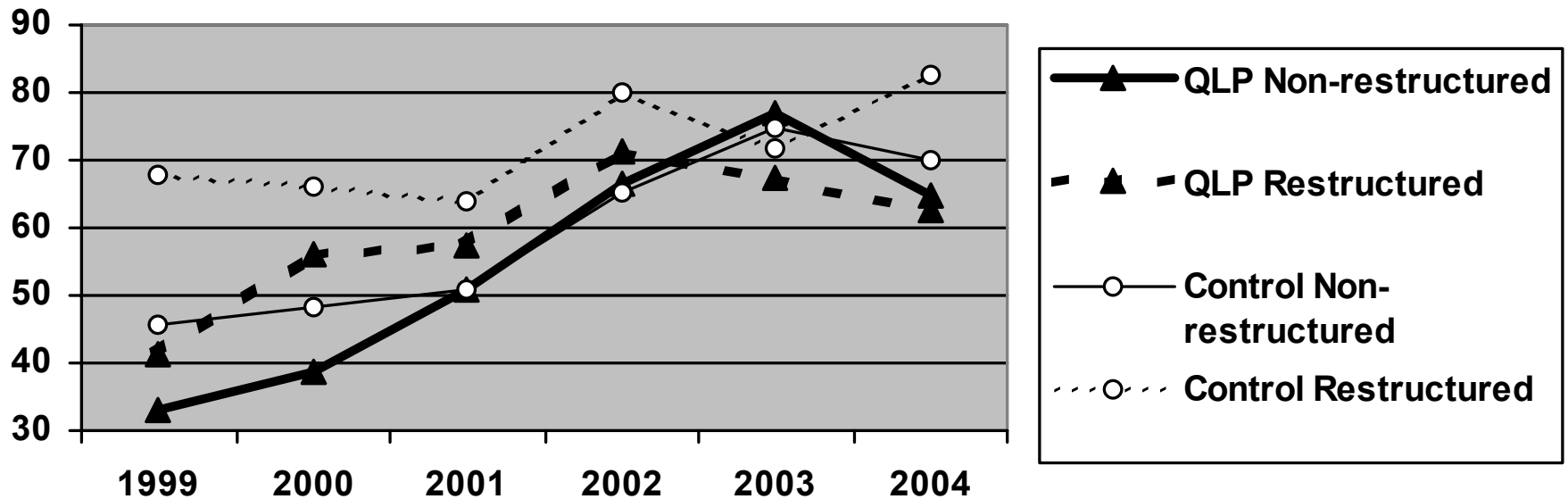


Restructuring & School intervention

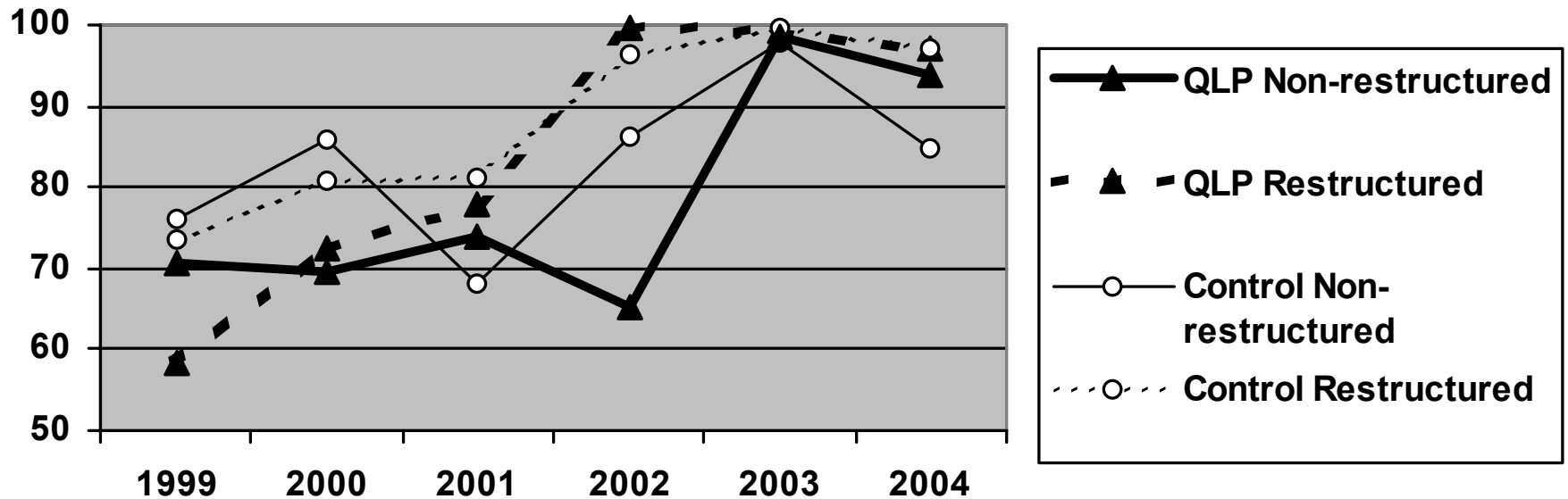


**(d) Restructuring and
Gr 12 passrates**

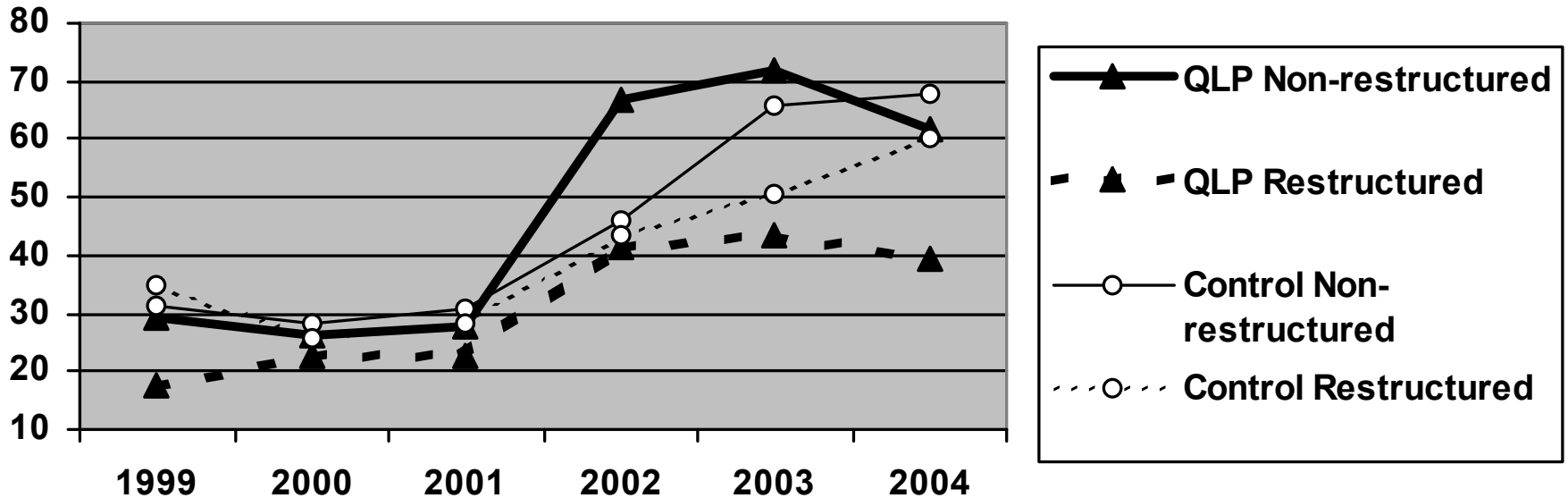
Restructuring & Matric passrate



Restructuring & Eng HG passrate



Restructuring & Maths SG passrate



Quo vadis?

- As indicated earlier, many policy-related, technical, and other communications to follow
- One promising opportunity could be district- or province-specific, customised localisation of findings as part of a “roadshow”

Thank you!

(Note: We just scratched the surface)

Any comments or questions?

