

BOTSWANA BASIC EDUCATION PUBLIC EXPENDITURE REVIEW (PER)

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WORLD BANK GROUP

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Objectives, data collection and focus of analysis



Objectives

- The overall objective of the Botswana Public Expenditure Review (PER) in Basic Education is to investigate public spending on basic education and whether it contributes in the most efficient way to the desired educational outcomes of providing quality education that meets the needs of the society and the labor market
- Specifically, the Botswana Basic Education PER is undertaken:
 - (i) to assess the adequacy and sustainability of public spending in education;
 - (ii) to assess the efficiency and effectiveness in the use of these resources;
 - (iii) to assess the equity of education expenditures and whether they protect the disadvantaged and vulnerable populations;
 - (iv) to assess key management and governance issues facing the education sector; and
 - (v) to provide policy recommendations.

Data collection

- The PER covers, data permitting, the period 2010-2017 and is based on:
 - field visits to review delivery of basic education services at regional and school levels;
 - Education Management Information System (EMIS);
 - budget and other financial and sectoral data and reports from the MFED and all Ministries responsible for different levels of education provision;
 - data made available by development partners;
 - international educational evaluations (TIMSS, PIRLS, SACMEQ);
 - data from household and labor surveys and the 2011 population census;
 - other data and reports collected from the field visits.

Focus of analysis

PER undertakes an analysis of the following areas:

- (i) Resources** - efficiency of budget allocation across education levels with breakdown among regional education jurisdictions;
- (ii) Educational outcomes** –
 - student flows, with attention to repetition and drop-out, including regional patterns
 - various international assessments;
- (iii) Equity** - possible spatial spending differentials; patterns of progress in educational attainment across gender and income groups; and
- (iv) Institutional context** - impact of the division of functions across different ministries on governance and management of the education system and on the efficiency of resource flows and resource use.

Context



Context

- Botswana is one of the world's fastest growing economies and has transitioned into an **upper middle-income country**
- However, the country continues to face **significant challenges** (i.e. high unemployment, income inequality, poverty in rural areas and the southern part of the country, and a relatively undiversified economy)
- **Education expenditure is among the highest in the world** (above 7 percent of GDP)
- **Almost 90 percent of the basic education budget is spent on salaries and other recurrent costs** (leaves very little for improving learning outcomes and for the most disadvantaged students)
- **Despite the significant investment over the years, the quality of education is still far from satisfactory**, with high levels of repetition and drop-out and poor performance in international tests

Context (cont.)

There is still significant variation across regions in both access and performance, **which raises critical questions about equity of access to quality education**

- **There has not been a comprehensive analysis** of resource allocation, adequacy, patterns, distribution, effectiveness and efficiency of public expenditures across all levels of education and all levels of government and education institutions
- **The Government of Botswana is cognizant of the high levels of spending yet weak learning outcomes in the basic education system and has requested the World Bank to carry out a public expenditure review (PER)** to review the equity, efficiency and effectiveness of public expenditures in basic education

Findings



Findings

- a. Institutional analysis**
- b. Education sector financing**
- c. Education performance**
- d. Summary of preliminary findings**

Institutional analysis



Fragmentation of policy/decision making and implementation

- Involvement of multiple ministries/departments; opportunity to improve coordination of priorities and execution
- Regarding enrolment, appointment of teachers and provision of classrooms:
 - Large classroom shortage, yet very favourable staffing situation in schools, and often large class sizes
 - Allocation of resources to building classrooms not linked to decisions regarding enrolment or appointment of teachers

District and secondary school level budgeting need re-organization

- “Estimates” unrealistic

Example from North West Region:	Estimated budget	Budget allocation
2017/18	P160 million	P40 million
2018/19	P145 million	P67 million

- Allocations ignore local priorities, and distances (from Gaborone, or to schools)
- reallocation difficult → inflexible budgeting/expenditure mechanism; limited autonomy
- Problems of non-spending (sometimes allocations are too small for meaningful spending)
- **Suggestions:** Estimates should occur within a given spending ceiling, with special requests beyond that considered only with adequate motivation and planning

Education sector financing

Education sector financing

(a) Financing sources, budget planning and execution:

Sources of funds, levels, trends and composition of spending

Planning and budgeting process

Allocative efficiency of spending

(b) Decentralized financing:

Analysis of financial flows of funds to regions and to schools

e.g. are resources sufficient to finance regions and schools to carry out their mandates?

Assessment of structure, responsibilities and accountability mechanisms

e.g. accountability mechanisms to monitor education quality

(c) Equity of public spending, affordability of schools and role of households:

Inequality in school enrollment, performance, progression, completion and out-of-school incidence

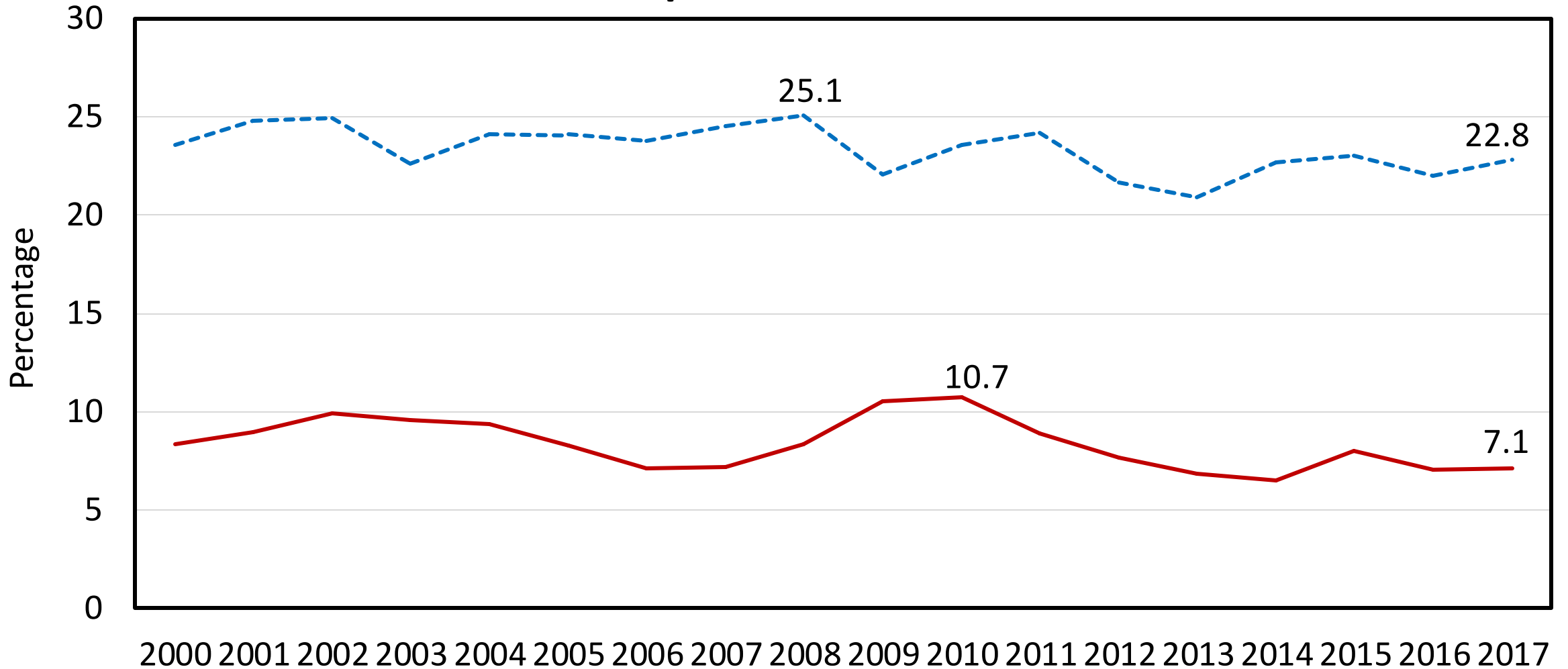
Does public spending protect equity?

(d) Links between education policy priorities and education spending:

Alignment of budget allocation and education sector priorities in ETSSP 2015-2020

Recruitment and deployment practices, teacher management and incentive practices

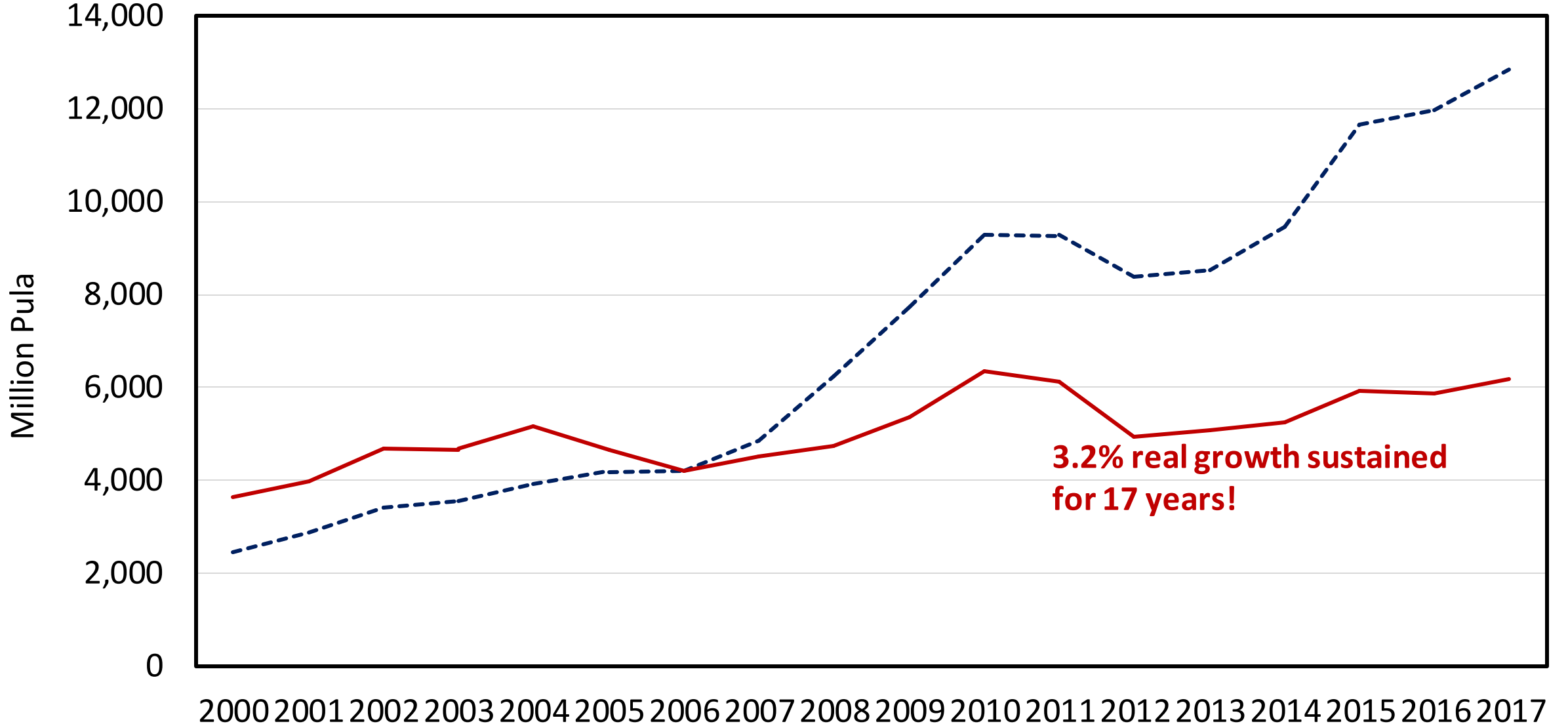
Government Expenditure on Education as % of all Government Expenditure and as % of GDP



--- Percent of Government Expenditure

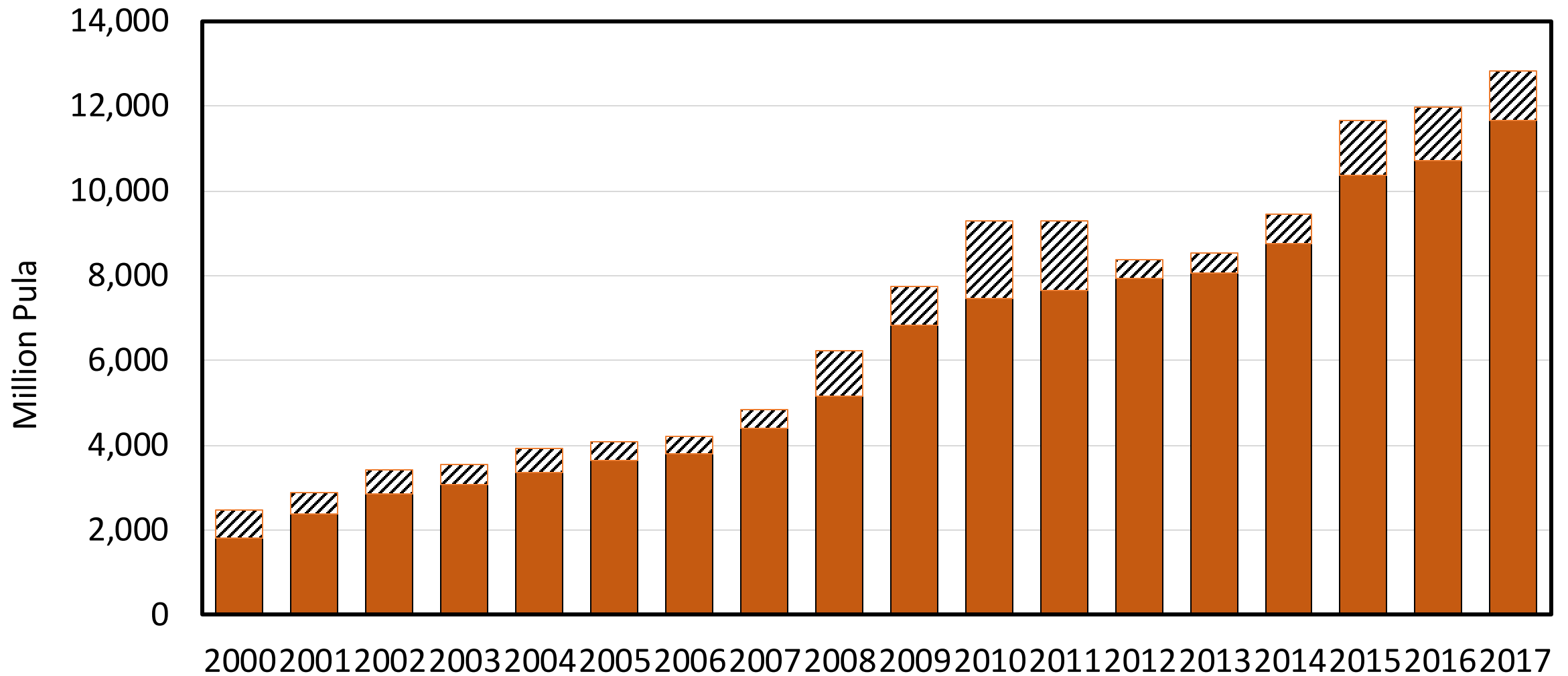
— Percent of GDP

Growth in government expenditure on education



--- Nominal

Composition of government expenditure on education



■ Recurrent Expenditure ▨ Development Expenditure

Ministry of Education and Skills Development: Actual expenditure

Department	Recurrent Expenditure			Development Expenditure			Total Expenditure		
	2015	2016	2017	2015	2016	2017	2015	2016	2017
Headquarters	1 865 396	2 225 506	2 313 779	70 583	77 951	31 807	1 935 979	2 303 457	2 345 586
Vocational Training and Education	450 453	500 669	585 198	23 408	3 113	21 035	473 861	503 782	606 233
Tertiary Education Financing	2 545 198	2 243 783	2 970 562	0	0	0	2 545 198	2 243 783	2 970 562
Out of School Education and Training	111 138	112 712	114 256	0	0	0	111 138	112 712	114 256
Curriculum Development and Evaluation	20 547	20 887	20 573	0	0	0	20 547	20 887	20 573
Teaching Service Management	4 128 482	4 357 968	4 404 832	0	0	0	4 128 482	4 357 968	4 404 832
Pre-Primary and Primary Education	33 193	47 030	65 163	0	0	0	33 193	47 030	65 163
Secondary Education	915 969	828 204	878 017	976 149	1 004 296	872 615	1 892 118	1 832 500	1 750 631
Teacher Training and Development	178 232	160 952	104 247	0	0	0	178 232	160 952	104 247
MoBE Mobile Service	22 541	23 301	24 354	0	0	0	22 541	23 301	24 354
Information, Communication and Media Services	12 215	13 114	15 305	0	0	0	12 215	13 114	15 305
Special Support Services	26 492	20 228	19 697	0	0	0	26 492	20 228	19 697
Educational Planning and Research	7 252	8 811	9 316	0	0	0	7 252	8 811	9 316
Total	10 317 107	10 563 163	11 525 299	1 070 141	1 085 361	925 456	11 387 248	11 648 523	12 450 755

Teachers

- Teacher salaries not excessive:
 - \pm 2.0 times per capita GNI, compared to 4.0 for low income countries (more than 11 in Lesotho!)
 - Yet large teaching staff pushes up cost per student: Salary bill per student was P **6 200** in primary in 2015 , P**16 000** in JSS, P**28 500** in SSS
- Pupil-teacher ratios are low: in 2015, 21:1 for primary, less than 12:1 for secondary
 - 6% of teachers on study leave
 - 10% of teachers are temporary teachers
- Rural teachers are often demotivated
- Current deployment practices are seen as unfair by many rural teachers

Low pupil-teacher ratios in all regions, 2015

	Primary			Secondary		
	Enrolment	Teachers	Pupil-teacher ratio	Enrolment	Teachers	Pupil-teacher ratio
1 Southeast	40 480	1 864	21.7	28 525	2 557	11.2
2 North	26 142	1 162	22.5	16 476	1 470	11.2
3 South	42 640	1 865	22.9	22 885	2 104	10.9
4 Kweneng	49 533	1 958	25.3	20 431	1 712	11.9
5 Kgatleng	14 680	679	21.6	7 556	707	10.7
6 Northwest	31 034	1 245	24.9	14 396	1 192	12.1
7 Chobe	3 669	174	21.1	1 267	101	12.5
8 Ghanzi	7 866	328	24.0	3 572	318	11.2
9 Kgalagadi	9 285	482	19.3	4 562	405	11.3
10 Central	119 289	4 776	25.0	64 371	5 219	12.3
Total	344 618	14 533	23.7	184 041	15 785	11.7

Yet class sizes are not necessarily small

Average availability of core textbooks by region, 2015

	English	Setswana	Mathematics	Social/cultural studies	Science
1 Southeast	74%	69%	71%	67%	73%
2 North	79%	75%	73%	71%	70%
3 South	82%	72%	73%	70%	84%
4 Kweneng	77%	69%	78%	79%	67%
5 Kgatleng	79%	69%	69%	68%	77%
6 Northwest	54%	55%	52%	50%	46%
7 Chobe	77%	65%	82%	90%	79%
8 Ghanzi	70%	61%	55%	57%	65%
9 Kgalagadi	72%	66%	61%	71%	63%
10 Central	67%	56%	64%	57%	57%
Total	72%	64%	68%	65%	65%

Education performance



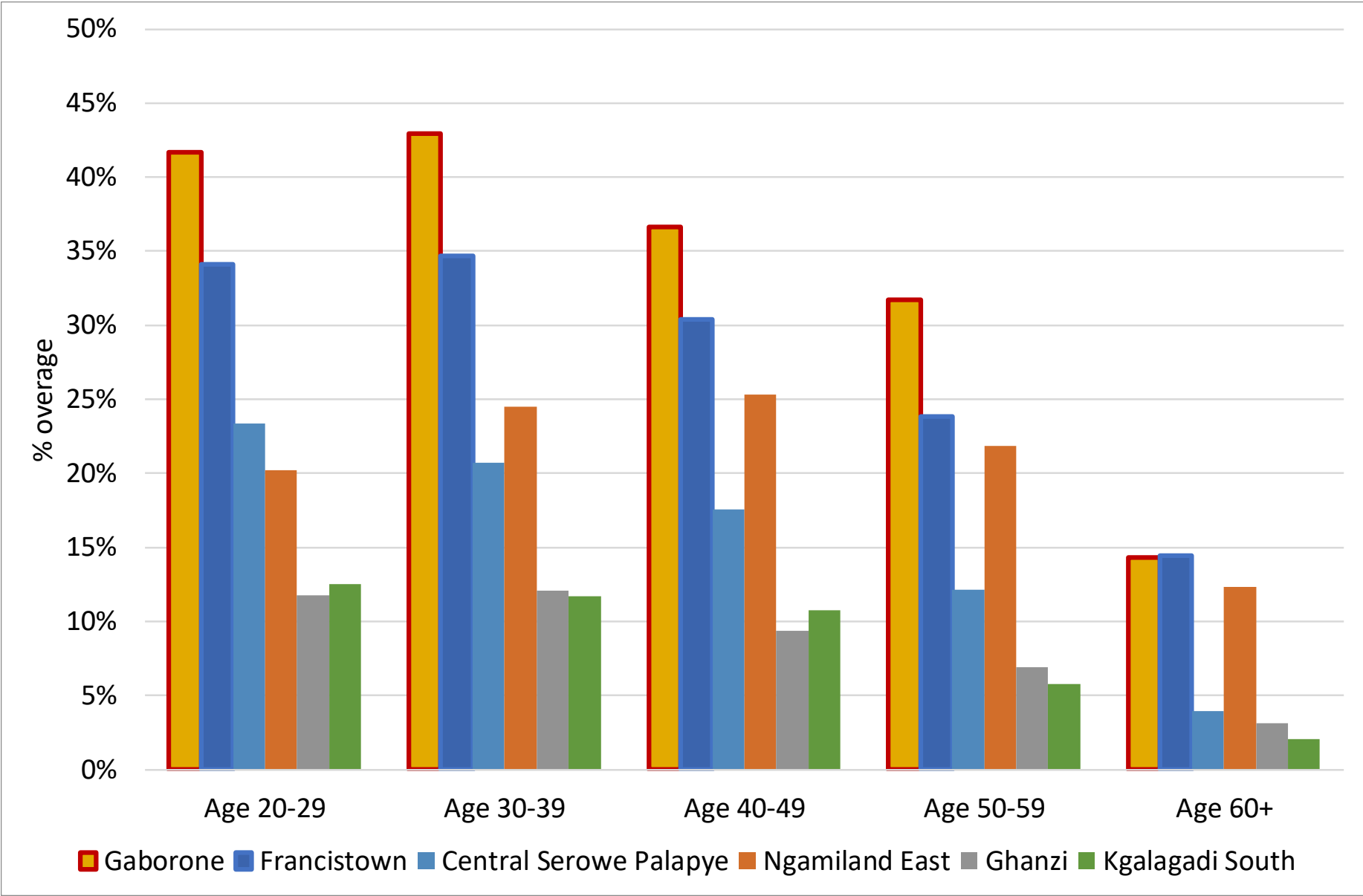
Botswana's Human Capital Index is low for its level of real GDP per capita

- HCI - summary measure of human capital that a child born today can expect to attain by age 18
- Derived from survival, quality-adjusted years of schooling, health
- Designed as indicator of productivity and therefore economic growth that countries should be able to sustain
- Botswana average education attainment of 8.4 years equivalent to only 5.3 years quality adjusted

Log Real GDP Per Capita at PPP

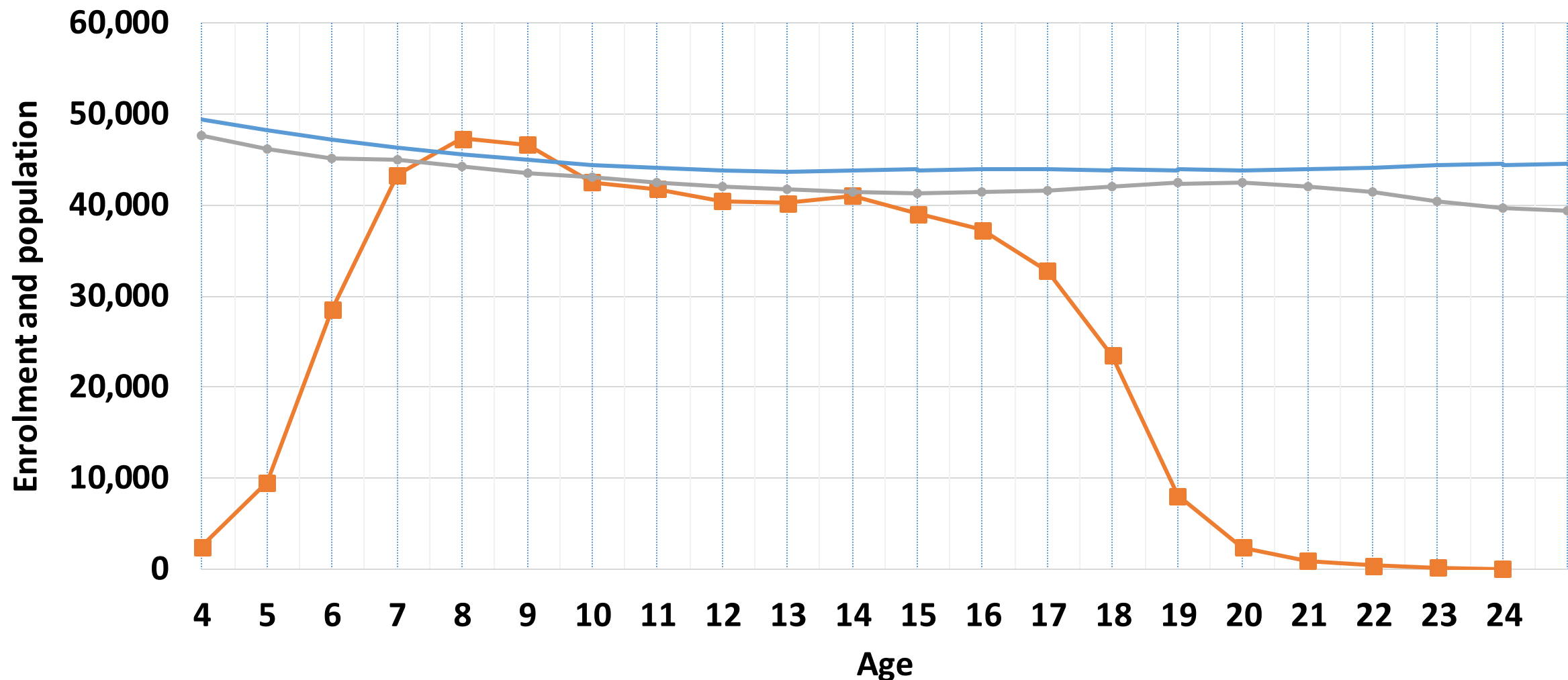
... largely because of the weak quality of education that reduces its learning-adjusted years of schooling

Percentage of population with post-school education by age group for a selection of districts, 2011



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Enrolment and population by age, 2014



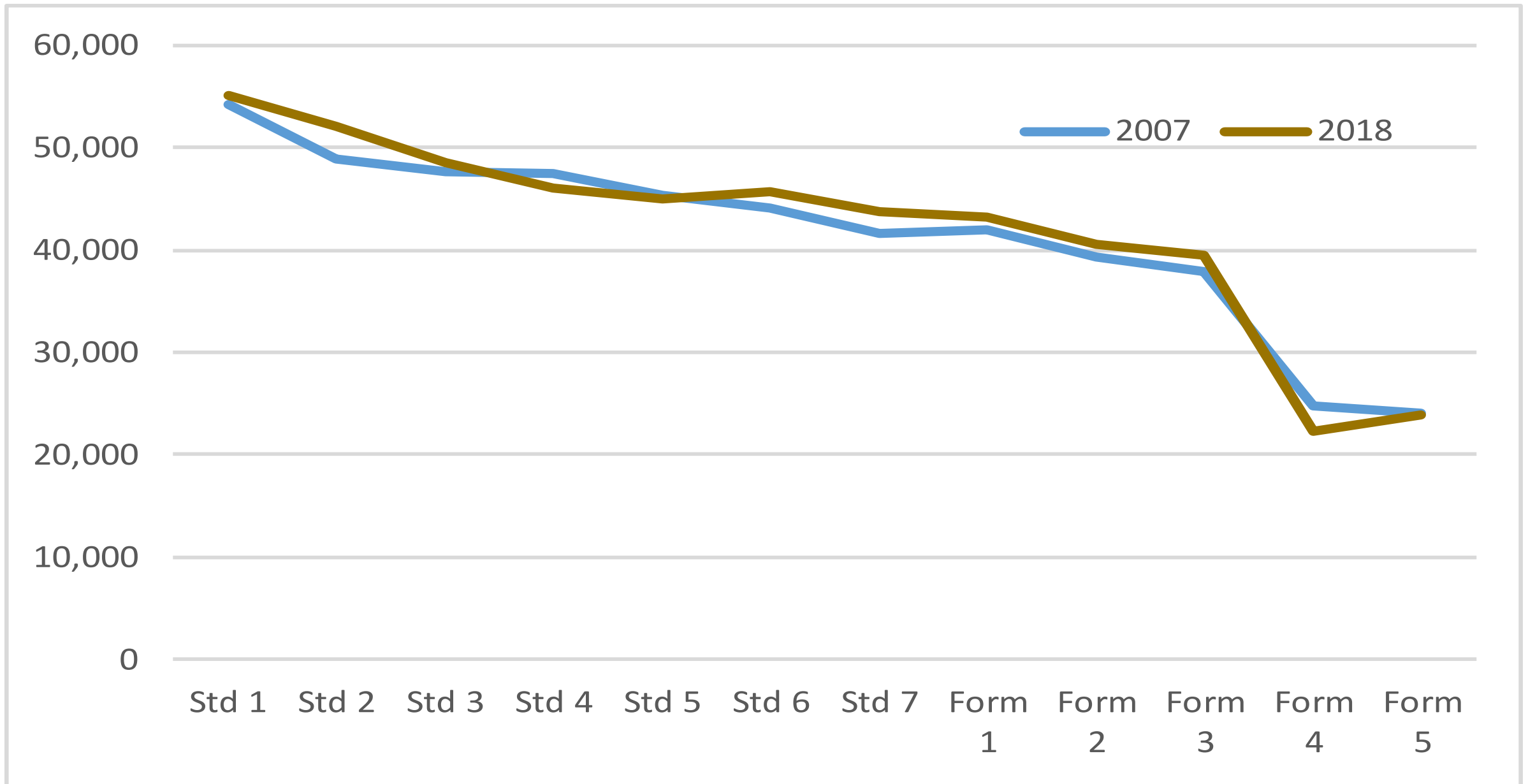
Enrolment Population (UNPD estimate) Population (Statistics Botswana estimate)

Enrolment by grade and year

	2007	2010	2015	2018	% growth over period 2007-2018	% growth over period 2007-2015
Std 1	54,220	51,968	54,690	55,041	1.5%	
Std 2	48,933	48,066	49,618	52,093	6.6%	
Std 3	47,717	47,303	50,911	48,577	1.8%	
Std 4	47,463	48,886	50,411	46,113	-2.8%	
Std 5	45,420	47,294	47,064	44,919	-1.1%	
Std 6	44,113	44,845	43,987	45,755	3.7%	
Std 7	41,552	41,609	42,349	43,668	5.1%	
Primary	331,425	331,981	341,045	336,166	1.4%	
Form 1	41,900	40,600	43,199	43,285	3.3%	
Form 2	39,357	39,700	42,738	40,618	3.2%	
Form 3	37,832	39,800	40,553	39,416	4.2%	
Form 4	24,811	26,700	27,444	22,278	-10.2%	10.6%
Form 5	24,029	23,800	27,304	23,894	-0.6%	13.6%
Secondary	167,929	170,600	181,238	169,491	0.9%	7.9%
Total	497,347	500,571	522,283	505,657	1.7%	5.0%

Slow enrolment growth, but somewhat faster in higher grades

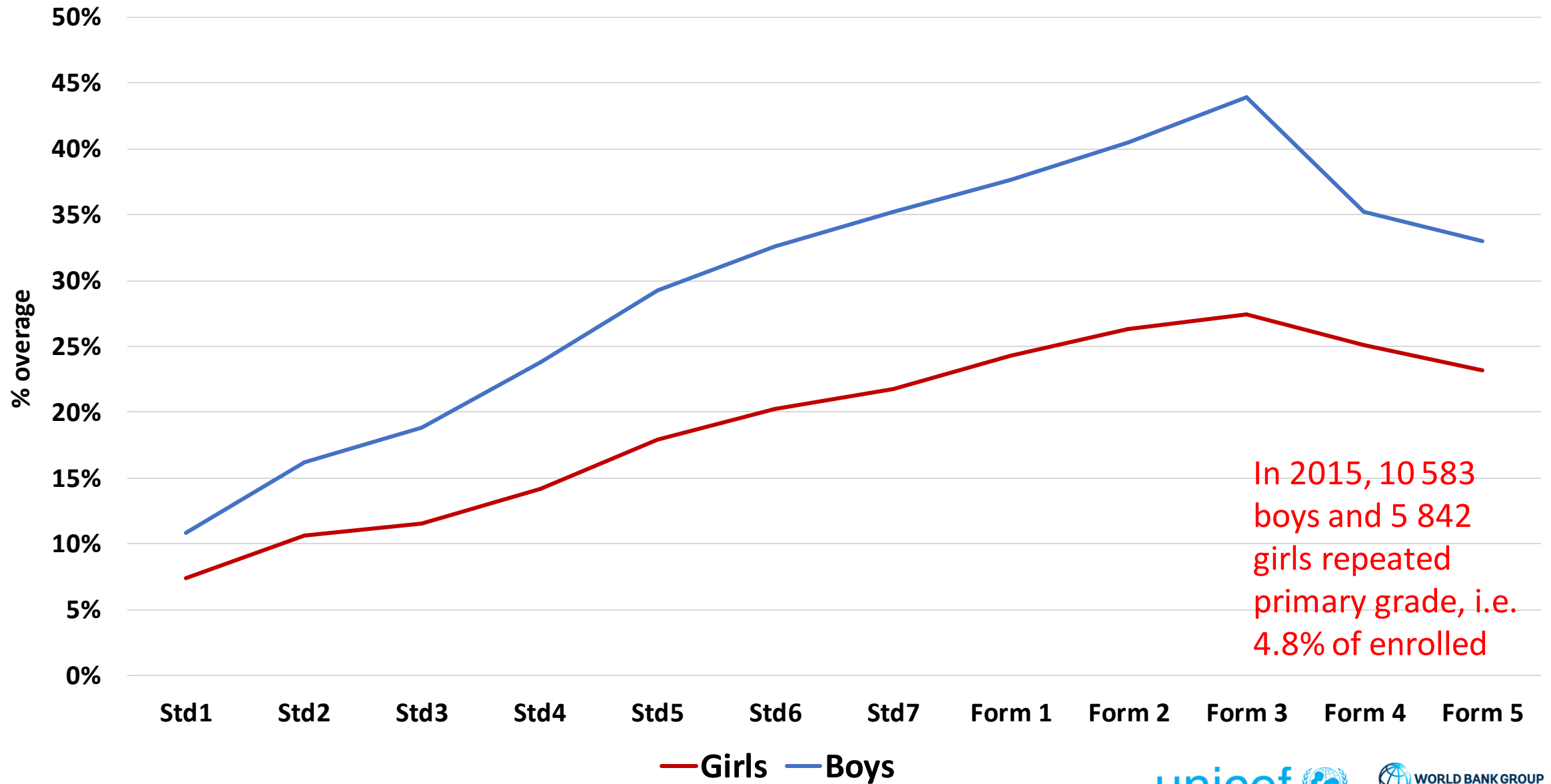
Enrolment by grade, 2007 and 2018



Primary repetition rate by region, 2015

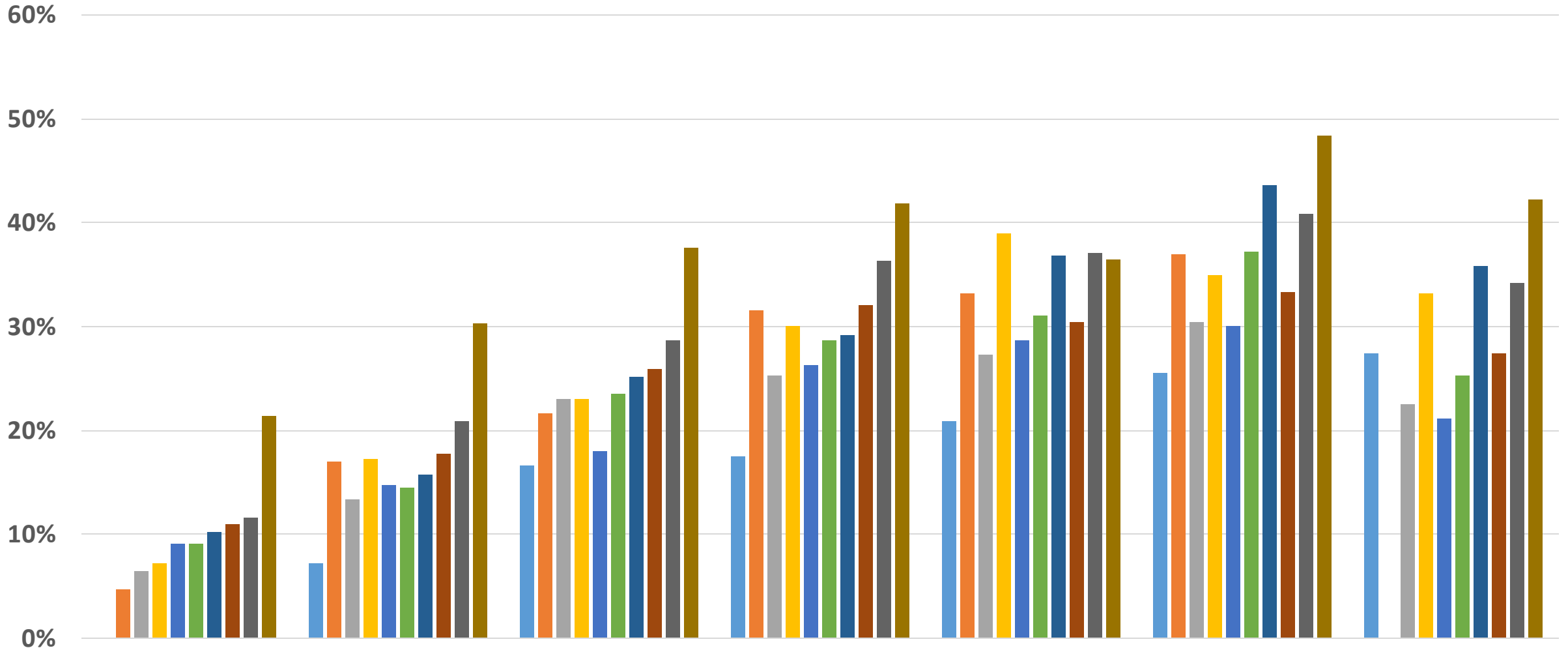
	Repetition rates
1 Southeast	3.3%
2 North	3.9%
3 South	4.3%
4 Kweneng	4.6%
5 Kgatleng	6.6%
6 Northwest	5.6%
7 Chobe	4.9%
8 Ghanzi	6.5%
9 Kgalagadi	6.7%
10 Central	5.0%
Total	4.8%

Percentage overage by grade & gender



In 2015, 10 583 boys and 5 842 girls repeated primary grade, i.e. 4.8% of enrolled

Overage by region and grade, 2014



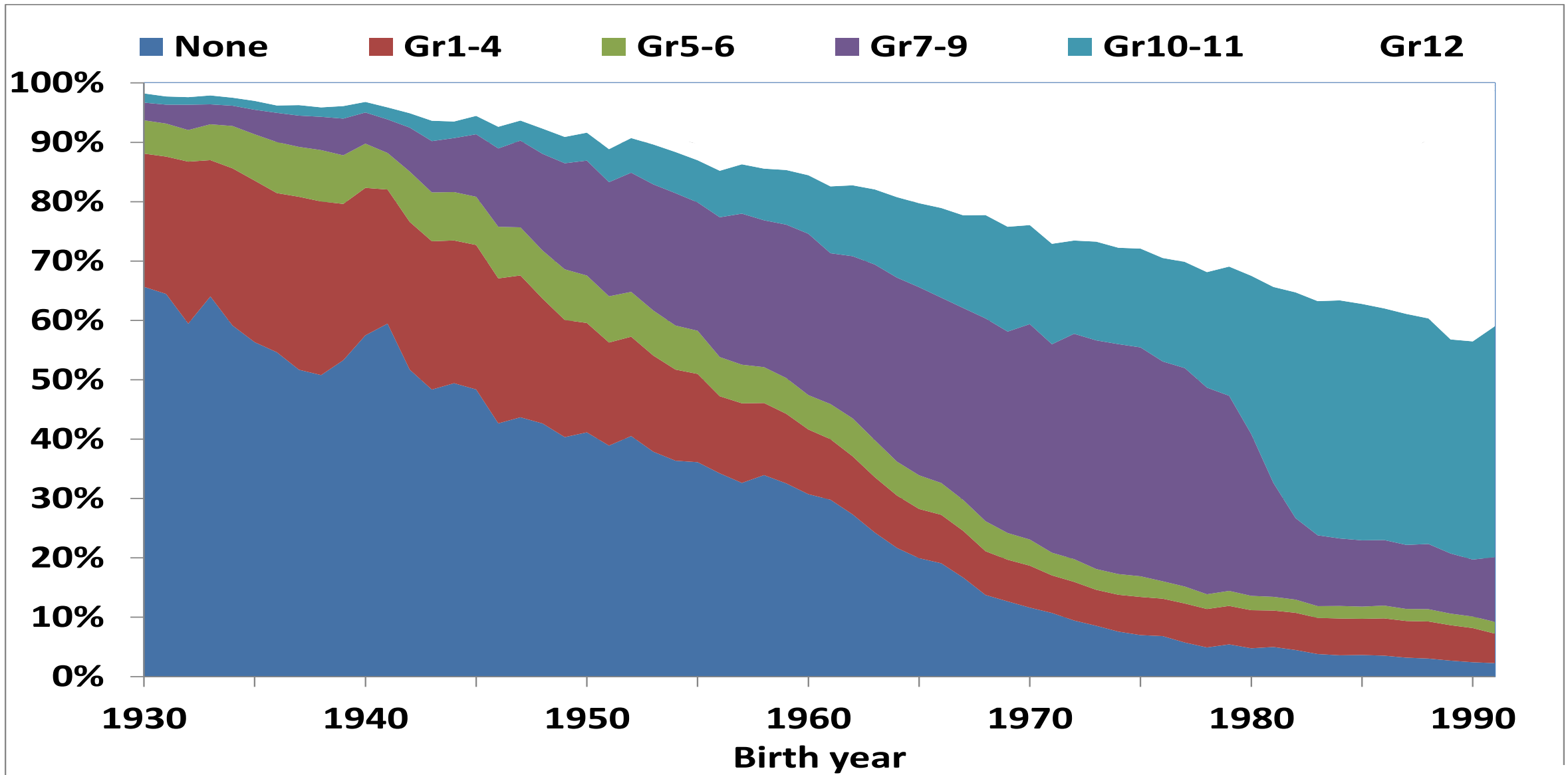
■ 1 Southeast
 ■ 7 Chobe
 ■ 2 North
 ■ 9 Kgalagadi
 ■ 5 Kgatleng
■ 10 Central
 ■ 4 Kweneng
 ■ 3 South
 ■ 6 Northwest
 ■ 8 Ghanzi

Despite much attention to pre-primary education, enrolment is still low, only about 41% of Std 1 enrolment (2018)

	Pre-primary girls	Pre-primary boys	Std 1 girls	Std 1 boys	Pre-primary as % of Std 1
Chobe	120	122	371	293	36%
Kgalagadi	560	575	838	722	73%
Central	4 670	4 537	10 501	9 397	46%
Ghanzi	305	312	717	772	41%
Kgatleng	812	722	1 310	1 159	62%
Kweneng	1 746	1 797	4 106	3 712	45%
North East	632	593	2 054	1 953	31%
North West	859	898	2 910	2 622	32%
South	982	1 027	3 668	3 231	29%
South East	676	743	2 390	2 315	30%
Total	11 362	11 326	28 865	26 176	41%

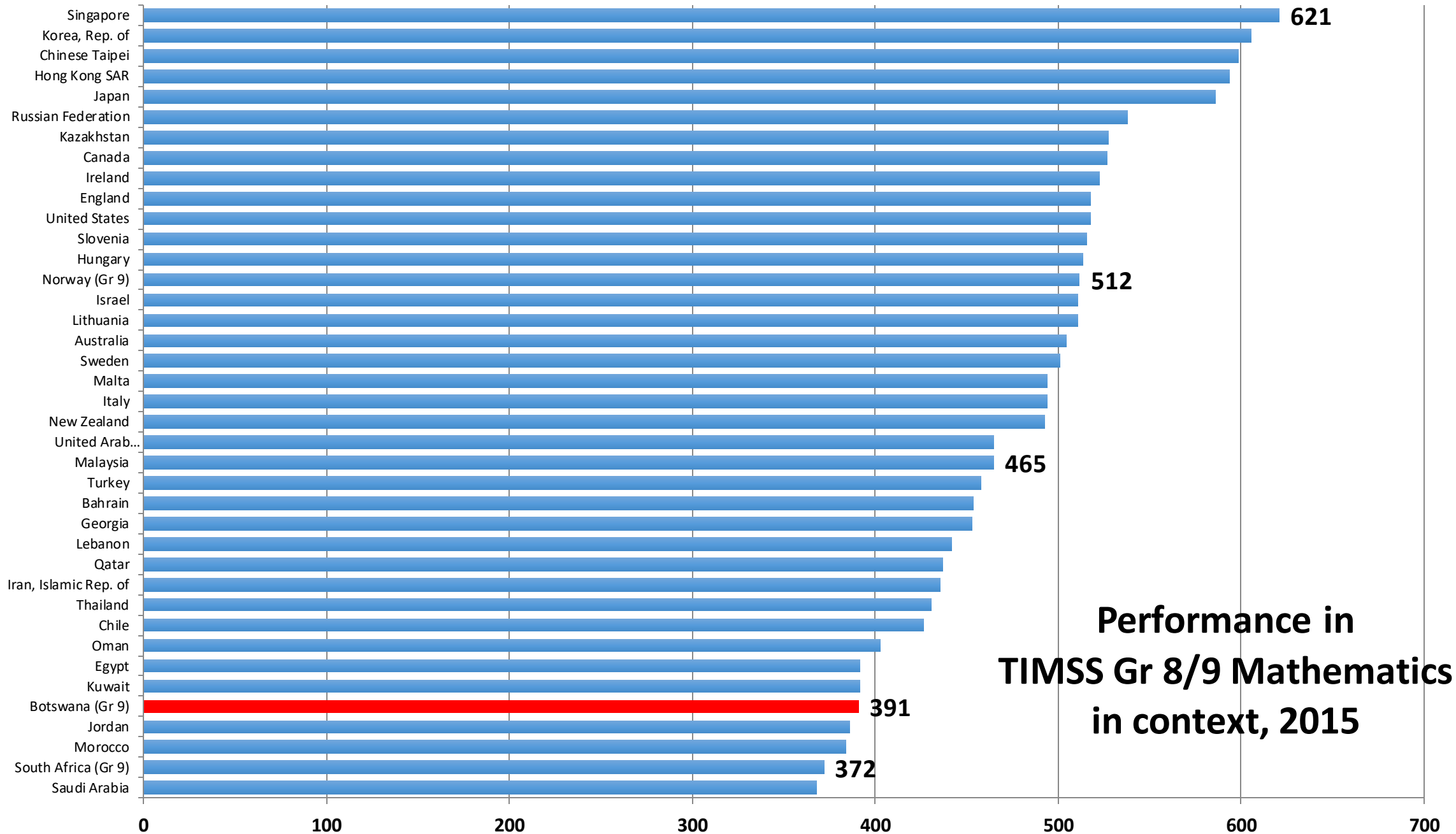
2018 pre-primary enrolment is 43% of 5 year olds

School attainment by birth cohort



Performance in international assessments

- Botswana performs poor in international educational assessments:
 - In SACMEQ, it performs around the middle in countries of southern and eastern Africa, despite being one of the richest and most developed economies
 - In PRE-PIRLS (Grade 4, testing literacy in home language), PIRLS (Gr5 literacy) and TIMSS (Grade 4 numeracy, Grade 9 Maths and Science), Botswana is amongst the worst performing participants (though not many African and poor developing countries participate)
 - The weak performance in Pre-PIRLS indicates that **learning deficits start early** – this strengthens the case for improving Early Childhood Care and Development and pre-primary education and paying much attention to teaching basic reading, writing and arithmetic well in the early school years



TIMSS 2015 Gr8/9 Maths		Mean	Std Error
Overall		391	2.0
Gender	Boy	381	2.4
	Girl	400	2.6
Parents' education	University or Higher	423	3.7
	Post-secondary but not University	400	3.6
	Upper Secondary	390	3.2
	Lower Secondary	375	2.5
	Some Primary, Lower Secondary or No Schooling	380	4.0
SES quintile	1	354	3.2
	2	383	2.6
	3	389	3.3
	4	406	2.8
	5	424	3.3
School SES quintile	1	360	5.2
	2	373	3.8
	3	389	3.8
	4	398	3.6
	5	436	4.8
School location	Urban, densely populated	418	3.5
	Suburban, on fringe of urban area	408	6.9
	Medium size city or large town	418	6.4
	Small town or village	386	3.4
	Remote rural	362	3.7

Regressions

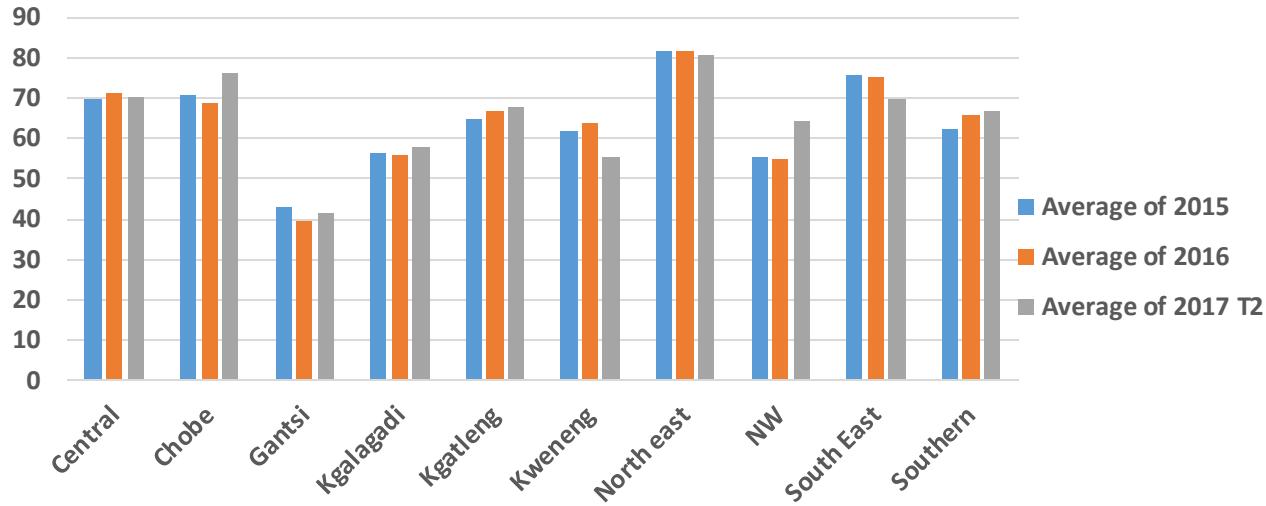
In all models,

- girls do better than boys
- urban areas do much better than remote rural areas, small towns and medium size cities
- SES is important but the SES of the school is more important than that of the individual (school-SES even has a convex shape)

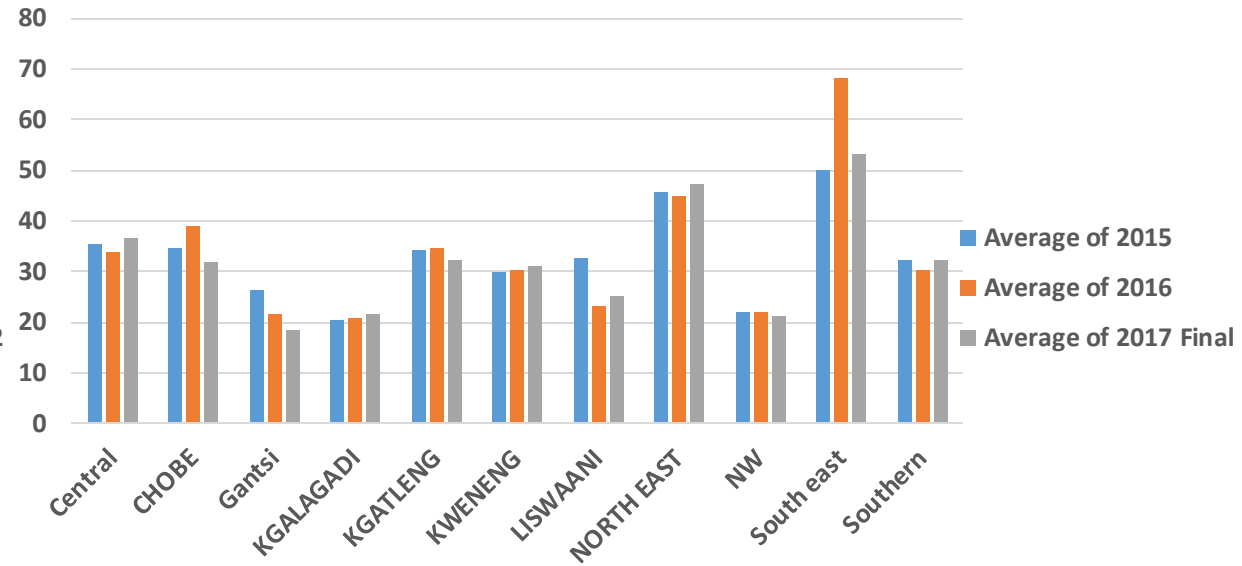
	Pre-PIRLS 2011 Literacy (Gr 4)	TIMSS2011 Maths (Gr6)	TIMSS2015 Maths (Gr9)
SES	13.4*	13.3	15.2
School-SES	34.2***	38.7***	55.4***
Girl	45.1***	20.0***	19.4***
Urban, densely populated	12.8***	6.0***	11.6***
Suburban, on fringes of urban	32.7***	12.8***	5.8***
Medium size city or large town	5.4***	-2.1***	4.9***
Small town or village	1.6***	1.2***	6.3***
Reference: Remote rural			
Constant	301.4	409.4	386.3
N	4261	5817	5903
R-squared	0.192	0.184	0.166
	Pre-PIRLS 2011 Literacy (Gr 4)	TIMSS2011 Maths (Gr6)	TIMSS2015 Maths (Gr9)
SES	13.2**	13.6*	14.5***
SES squared	-0.4	0.4	-1.1
School-SES	50.9***	43.8***	55.1***
School-SES squared	44.1***	28.6***	34.4***
Girl	44.4***	19.6***	19.5***
Urban, densely populated	12.6***	4.5***	14.0*
Suburban, on fringes of urban	24.9***	14.4***	12.2*
Medium size city or large town	3.1***	7.5***	9.5
Small town or village	14.4***	7.7***	10.6**
Reference: Remote rural			
Constant	279.2	393.5	377.1
N	4 261	5 817	5 903
R-squared	0.270	0.215	0.177

Inconsistent performance across regions

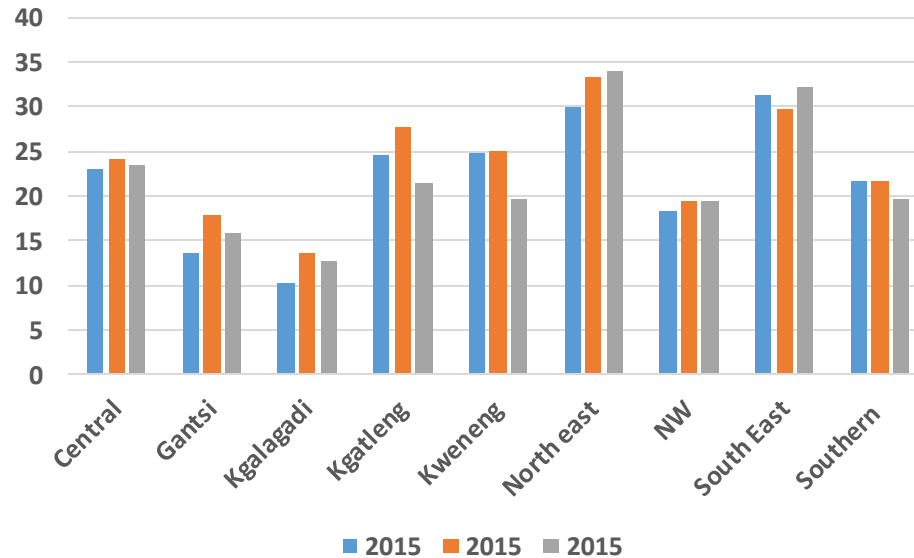
PSLE



JC

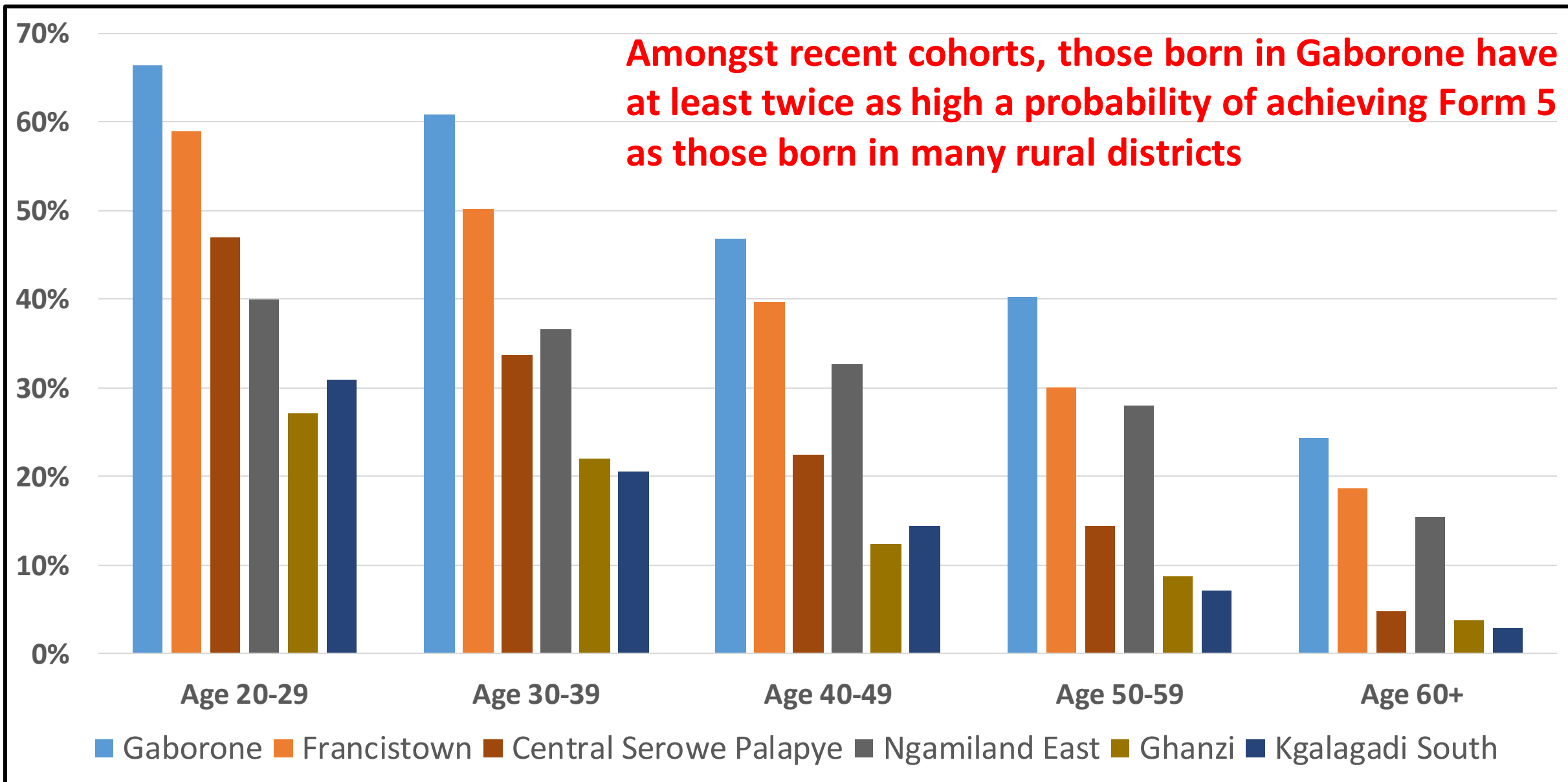


BGCSE



% with completed Form 5 by age group for selected districts (by birth district)

(Source: Census 2011)



Summarising key findings

Summarising key findings

FAVORABLE CONDITIONS

First it is important to restate that Botswana has a number of advantages compared with most developing countries, which in turn make it easier to address new challenges. These include:

- A relatively favourable fiscal situation with a government spending level that is moderate by international standards, government revenues that are well above average, and projected sustainability in the short to medium term.
- Population projections are favorable for Botswana in terms of developing human capital, with dependency ratios (the number of young people as a percentage of the adult population) that are significantly better than most countries in the region.

Summarising key findings

FAVORABLE CONDITIONS (cont.)

- Participation in education has reached almost 100% in the core school-going age. The net enrollment rate in primary school is above 90%, and almost all children participate in at least some years of lower secondary schooling.
- The system has a number of built-in features that increase participation and contribute to an equitable distribution of resources and inputs. Access to school is almost universal, and teachers, school meals and other resources are distributed relatively evenly across communities and regions. Pupil-teacher ratios are also low for primary and secondary schools compared internationally.

Summarising key findings (cont.)

CORE CHALLENGES

This review has also identified a number of core challenges facing the education sector in Botswana, including:

- **The main problem with the education system is low student achievement.** Botswana is among the lowest performers on TIMSS and PIRLS, and even compared with poorer neighbors in southern and eastern Africa its achievement is just average (SACMEQ). Internal examination performance has also been stagnant in recent years.
- **Decision-making in the education system is fragmented.** Responsibilities are divided among many ministries, and as a result there is a lack of clear prioritization within education spending.
- **Despite the favourable fiscal situation, there are significant shortages of textbooks and school infrastructure, including classrooms and specialist rooms for teaching (e.g. science subjects).** In primary schools, the classroom backlog is 15% of the current stock.

Summarising key findings (cont.)

CORE CHALLENGES

- **Insufficient teacher training is a key factor in understanding the country's low performance on student assessments.** Teacher preparation is now the responsibility of the regional education offices, which are constrained by lack of funds and subject specialists. There is also a very large over-supply of teachers in subject areas such as English, Setswana, History and Geography.
- **Data on spending and systemic monitoring and evaluation are not sufficient.** Budgetary data are often not disaggregated at regional level, and it is not possible to separate school spending from other categories. Data on enrollments (EMIS) and student assessments (Grade 4) are not available in a timely manner, and are not properly utilized.

Recommendations



Priority Recommendations

- ✓ **Improve data collection, management and analysis for evidence-based planning and decision making.**
 - Train and strengthen EMIS and ensuring the punctual capturing and analysis of the Annual School Census.
 - Need for better data for human resource planning, particularly to ensure that some teachers are not disadvantaged by having to remain in remote regions longer than initially intended.
 - Implement the BOOST initiative. The data in BOOST format would enable presentation of budgets and expenditure data in a consistent framework and in a highly disaggregated form, thereby facilitate effective financial planning.

- ✓ **Prioritize basic education spending to improve efficiency and quality of basic education.**
 - Shift the emphasis from providing more teachers to improving provision of much needed school infrastructure and ensuring availability of teaching and learning materials in the classrooms. This should insure, as a minimum, that there are adequate classrooms of good quality to accommodate all children, both for core subjects and for electives.

Priority Recommendations

- ✓ **Ensure that the budget process works in a way that allows prioritization among all education spending** which includes costs of personnel, construction of schools and classrooms, teacher training, and other quality inputs (textbooks, teaching and learning materials, stationaries, school feeding, etc.).
 - Currently most of the recurrent budget is located within MOBE (majority of this is for the personnel costs of teachers as well as the staff of Ministry and regional education offices), although part of it also falls under MLGRD (for primary school stationery, feeding, etc.).
 - The development budget is also split between MLGRD for construction of primary classrooms and schools, and MOBE, responsible for the financing (but not for the actual construction) of secondary school and classrooms (construction is done by the Ministry of Infrastructure).
 - This fragmentation of budget makes it almost impossible to see the allocation of education spending for each category and to prioritize among the categories.
- ✓ **Re-design secondary school and regional budgetary processes.**
 - Strengthen the budgetary autonomy of regional offices and schools in order to strengthen accountability of their education services.
 - Make the budgetary process more transparent. Regional offices and schools should have greater freedom to decide on their priorities in their initial budget allocation and the scope for transfer (virement) should be increased, whilst ensuring adequate provision for food and for maintenance.
 - Increase transparency in the warranted budget, based upon a clear set of criteria on how funds are allocated among the regions and schools.

Priority Recommendations

- ✓ **Simplify the complex institutional arrangements for building classrooms and schools.**
 - The budget split between recurrent and development expenditure is further complicated by split responsibility between MOBE, which budgets for building secondary schools and classrooms, and MLGRD, which budgets for the same activities at primary schools.
 - This makes it difficult to ensure that the classroom shortage receives sufficient attention. In addition, actual building of secondary schools or classrooms, though paid for by MOBE, is undertaken by the Ministry of Infrastructure.
 - It is vital to strengthen cooperation between MOBE, MLGRD and Ministry of Infrastructure to improve allocation of funds, planning and budgeting for building schools and classrooms.
- ✓ **Improve teacher recruitment, deployment, and management.**
 - Undertake an analysis of the demand and supply of teachers and reduce the number of scholarships to student teachers in non-core subjects to address the issue of existing and growing over-supply of teacher.
 - Set higher criteria for offering tertiary bursaries for teaching.
 - Develop teacher recruitment policy and teaching professional standards and redesign the deployment process for teachers so that each teacher serves only a limited stint in remote areas.

Other Recommendations

- **Teacher Development - Expand teacher training, particularly in-service training, significantly.**
 - include a formal national orientation program for new teachers as well as in-service training of current teachers.
 - redesign of the teacher training system, as decentralization of in-service training function to regions has not been successful.
- **Use assessment to support improved learning**
- **Implement a National Assessment Program and use the findings to target interventions.**
 - Provision of detailed scripted curriculum for teaching early grade reading and mathematics,
 - Improve quality of teaching foundational skills.
 - Training in the pedagogy of early reading (this is in line with the ETSSP, which proposed a revamping of both PRESET and INSET for teacher development).
- **Undertake a Service Delivery Survey in education** to gain a better understanding of the reasons for poor learning.

Other Recommendations (cont)

- **Continue the participation in international assessments and use the results to analyze deficiencies and to improve planning.**
- **Improve educational access, particularly for the poor**
- **Accelerate implementation of pre-primary education and improve Early Childhood Education**, to provide a stronger basis for quality of education in schools.
- **Make school attendance compulsory to the end of basic education considering that some children still do not attend school or drop out early.**
 - Carry out a study to determine why boys in particular tend to drop out early and perform less well in school.
- **Investigate the feasibility of expanding the school network at secondary level**
 - through the creation of more unified schools (e.g. primary plus junior secondary, or junior secondary plus senior secondary), to reduce boarding, which is costly and socially undesirable.
- **Track and support good performers in poor regions** or from poor households.