

Education & Training: Successes, Challenges, Possibilities, Constraints and Key Priorities.

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Human Sciences Research Council
Presentation to ANC Manifesto meeting
25 June 2018

Framing and Approach to the Presentation

FRAMING

- ANC December 2017 Conference Recommendations
- National Development Plan & Targets

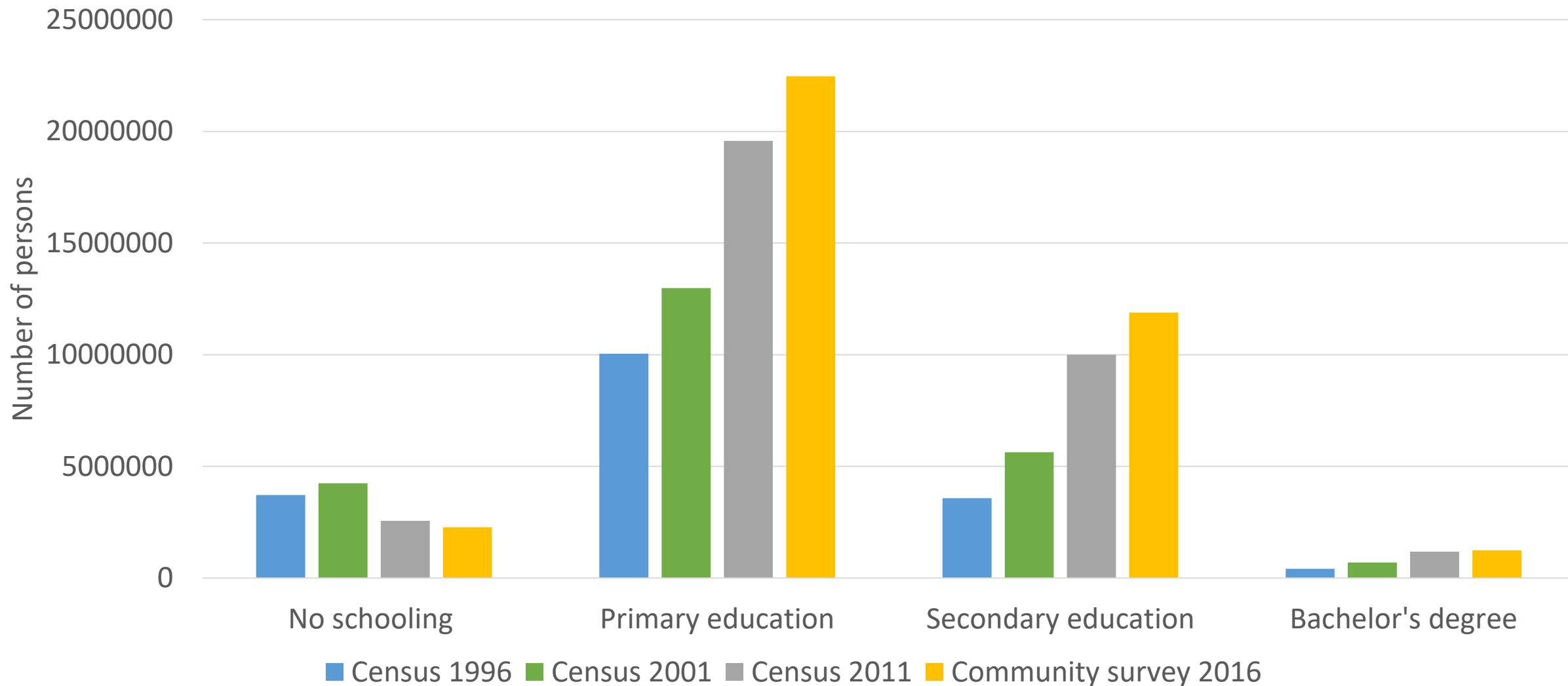
APPROACH

- High level view of education and training: basic and post-school with a focus on literacy/ reading and numeracy/mathematics.
- Analysis of trends over a longer time period
- Comparisons with other countries
- Research conducted at HSRC (LMIP, TIMSS) plus other research

Society, Education and Labour Market

- An engaged & productive society and economy is dependent on an educated citizenry and skilled and capable workforce.
- The challenge is grow the knowledge, skills and capability levels of the society and workforce and to reduce the high unemployment rates.

Highest level of education of persons aged >25 years 1996-2016



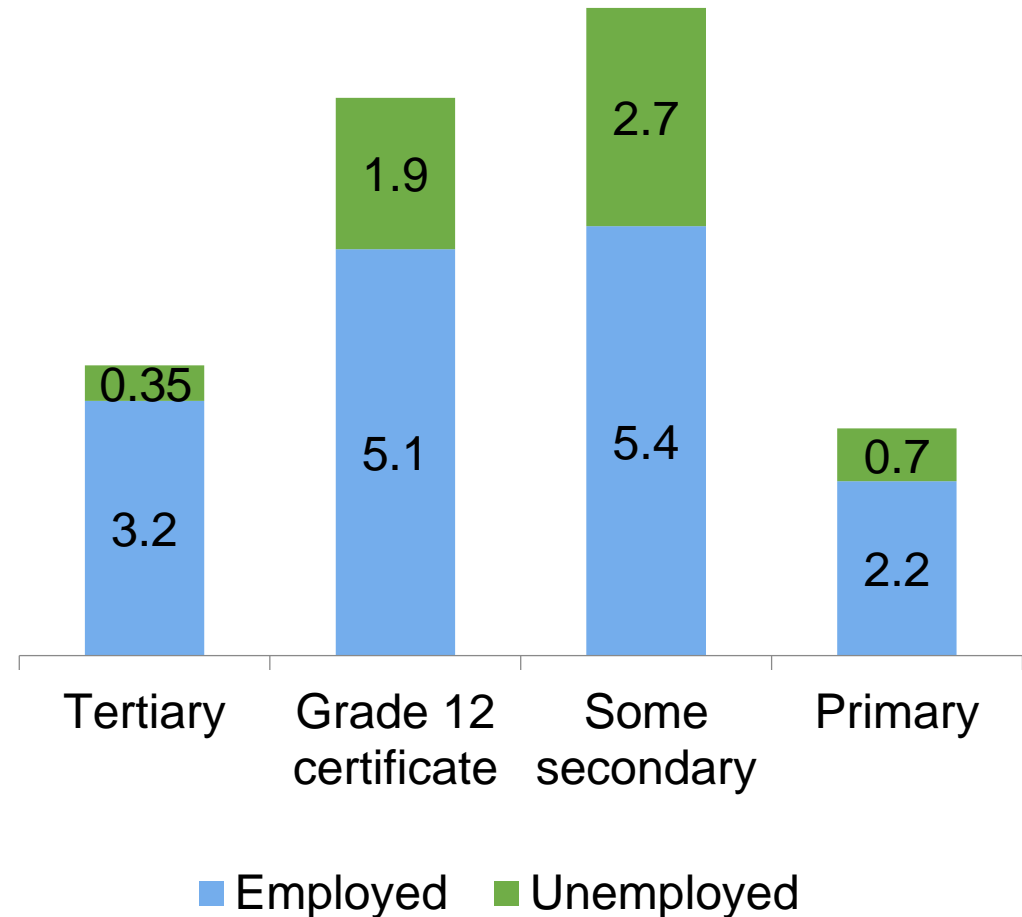
Source: Community survey (2016)

The Labour Force, Society and Skills, 2016

The Labour Force

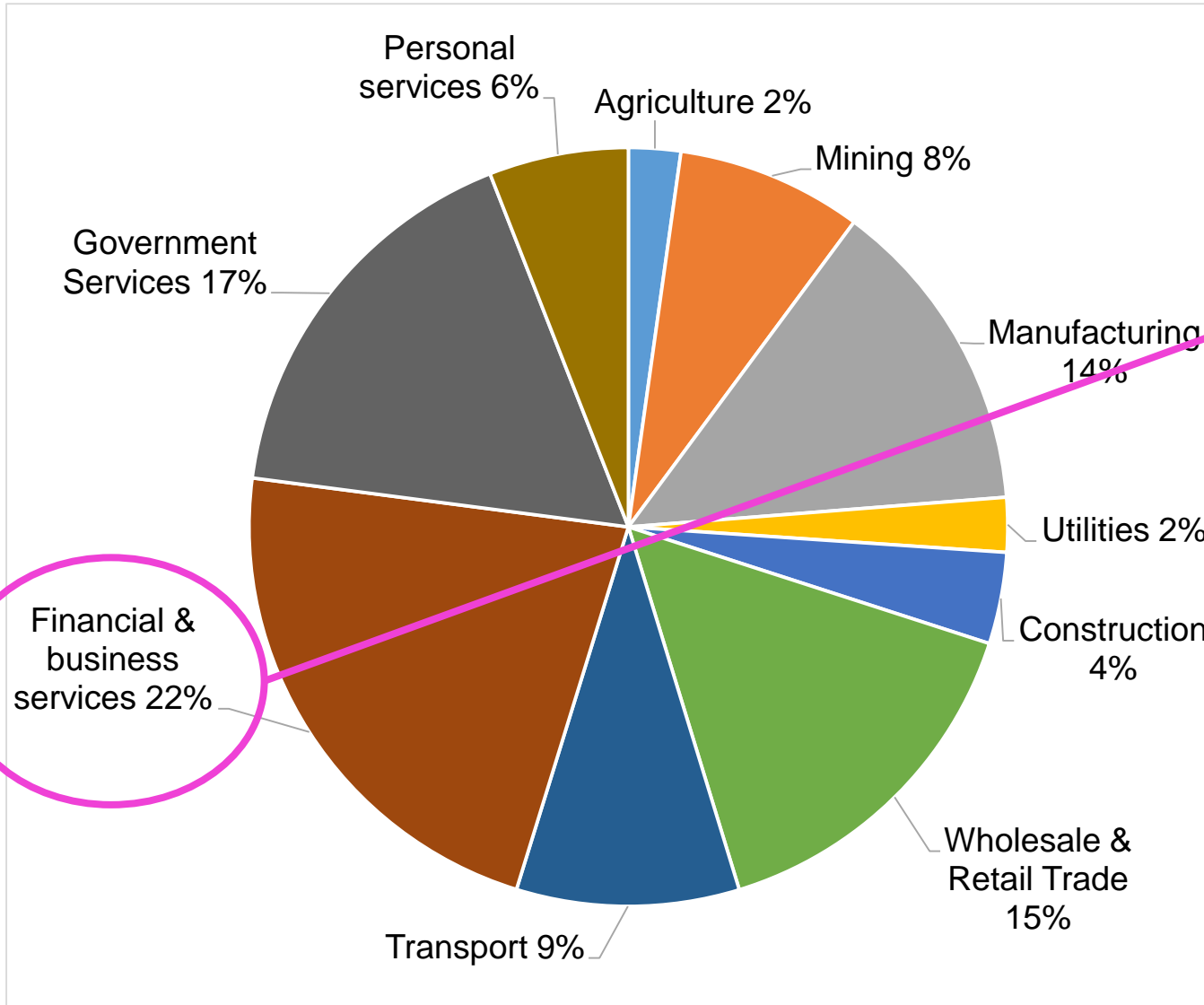
- 16 million employed people.
- High levels of unemployment (8.9mill), especially for youth (5.8mill).
- 2/3rd of the population are under youth –demographic dividend or demographic bomb.
- 2.6 million workers in informal sectors.

Skills Levels of the Labour Force (million)



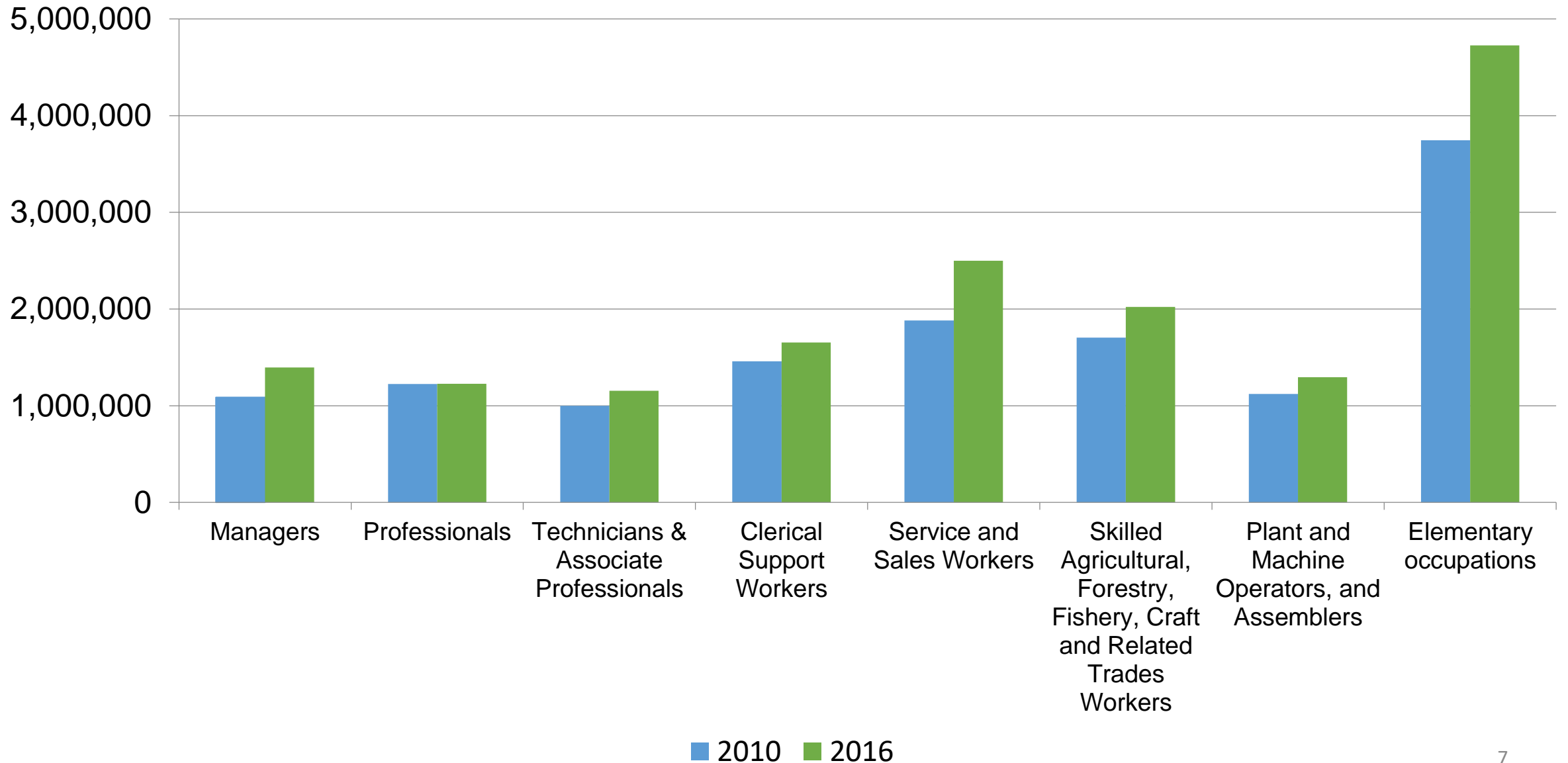
Sectoral Contribution to GDP, 2016

Employment (%) by sector, 2016



Govt & Personal Services	22
Wholesale and Retail Trade	20
Financial	14
Manufacturing	11
Construction	9
Private Households	8
Transport	6
Agriculture	6
Mining & Quarrying	3
Utilities	1

Occupational Structure of the Labour Market, 2016



Unemployment: The economy is unable to absorb LM entrants into employment



Schools & Learning

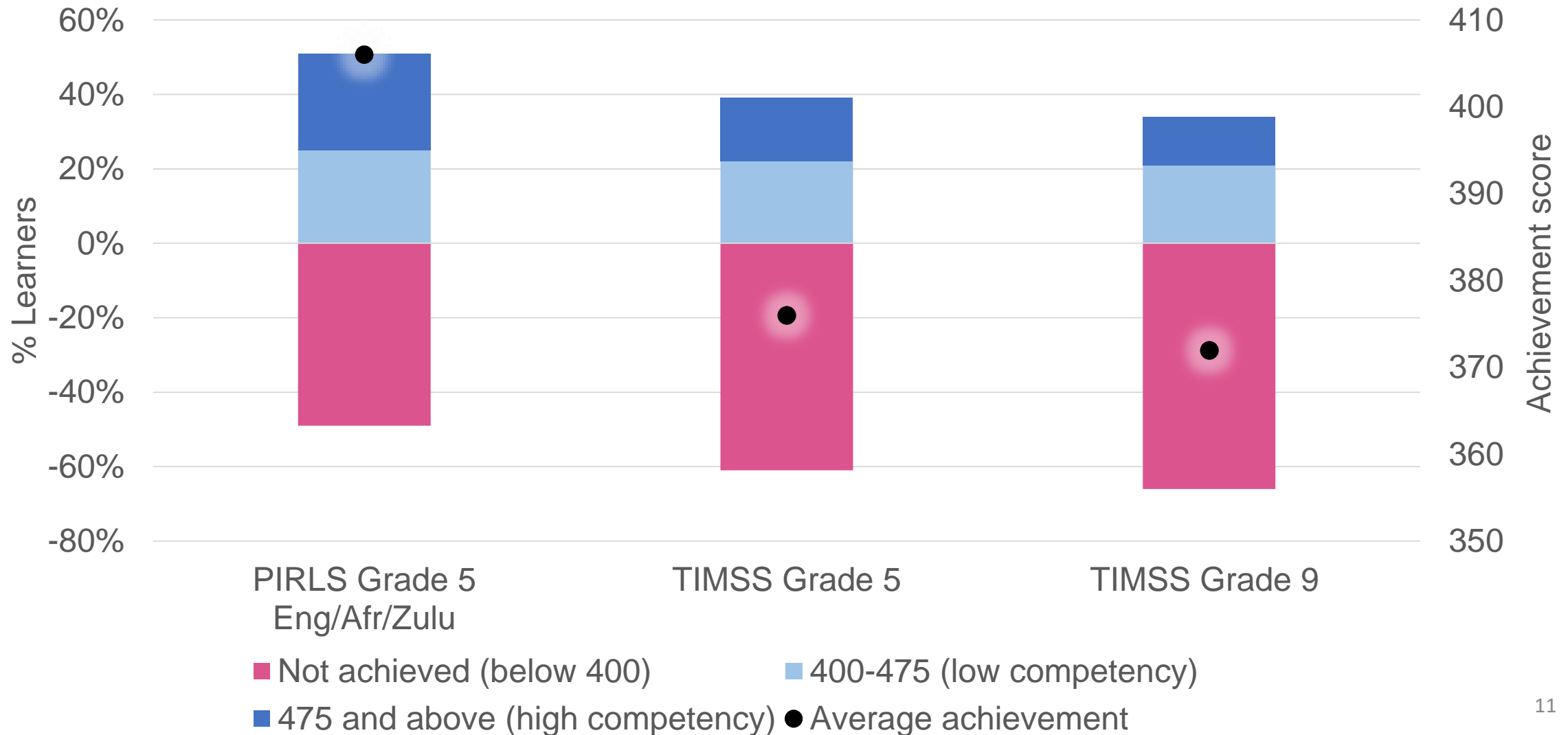
- Low and unequal achievement scores. I.E. not enough learning especially for the poor
- Educational achievement has improved since 1994, we started from a 'very low' base and moving to a 'low base'. The progress is slow if we want to meet the societal and economic targets we set.
- Education system has not overcome social disparities, but rather reflects it.

TIMSS 1995, 1999, 2003, 2011, 2015.....TIMSS 2019

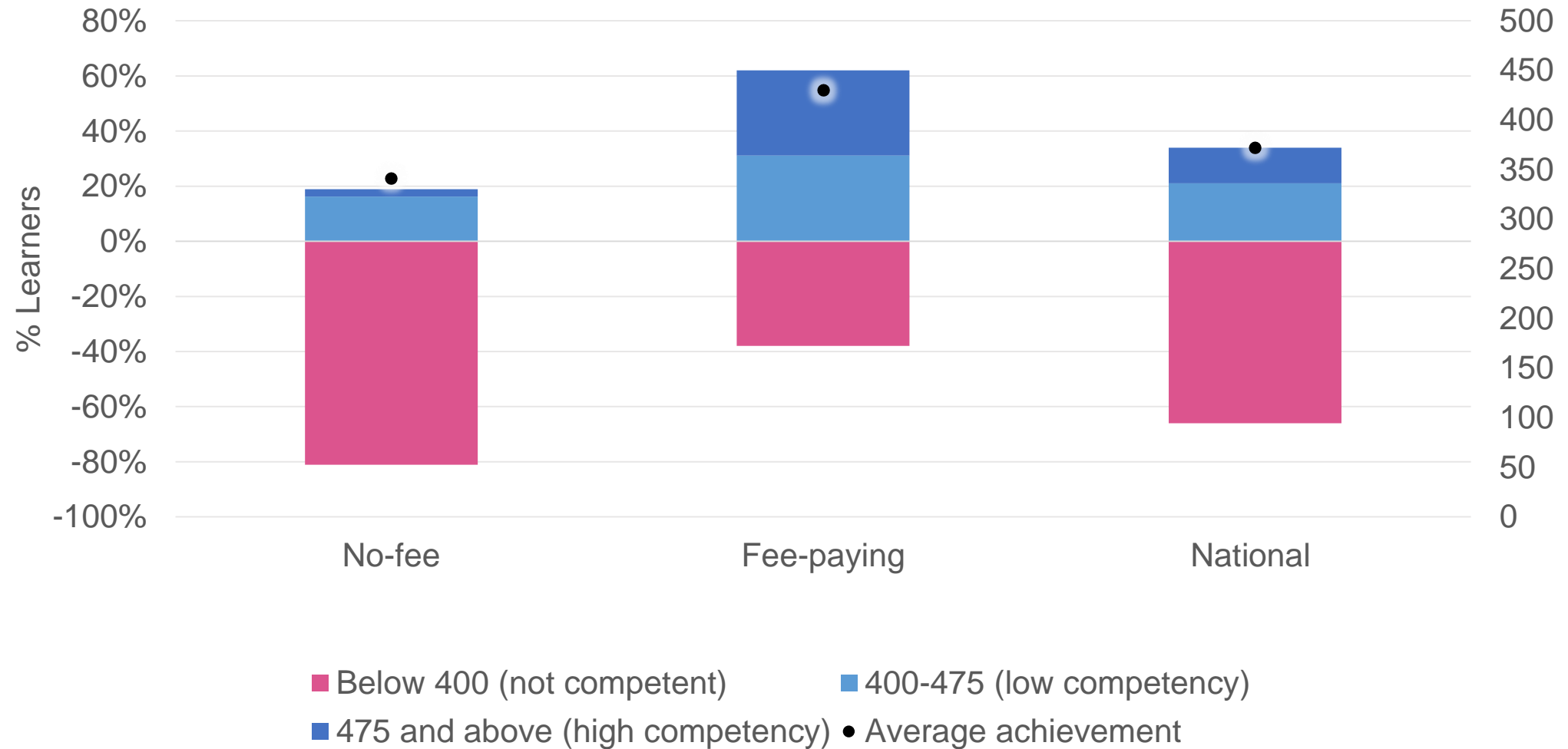
Mathematics	Average Scale score	Score distribution	Achievement distribution
Grade 9:TIMSS 2015	372 (4.5)	242-529=287	
Grade 9:TIMSS 2011	352 (2.5)	229-516=287	
Grade 9: TIMSS 2003	285 (4.2)	152-472=320	
Grade 8:TIMSS 2003	264 (5.5)	117-484=367	
Grade 8: TIMSS 1999	275 (6.8)	113-485=372	
Grade 8:TIMSS 1995	276 (6.7)	142-496=354	

How much Learning?

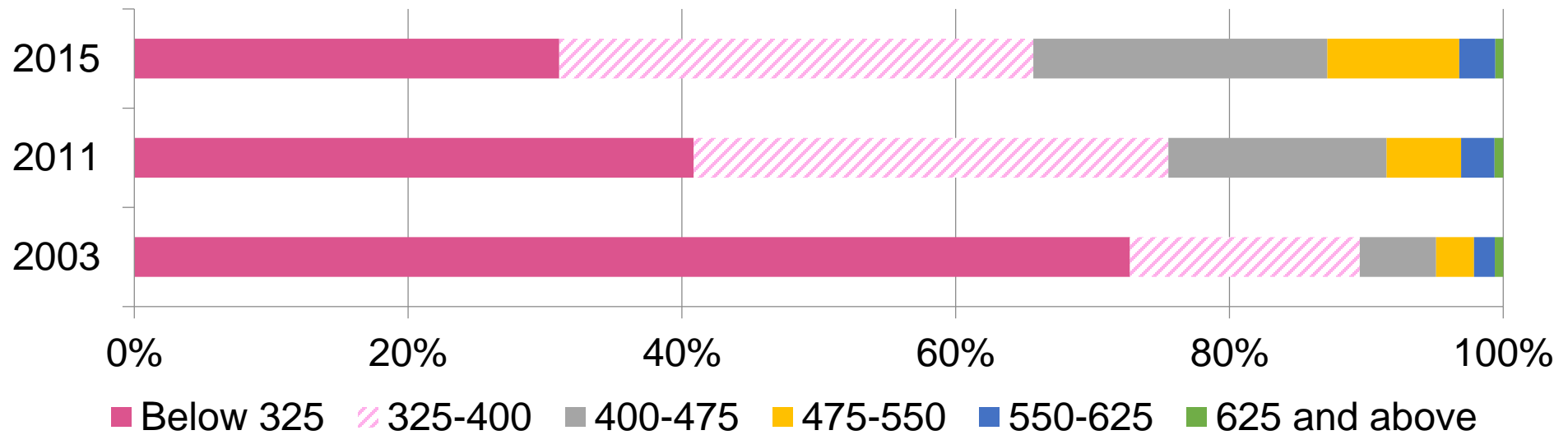
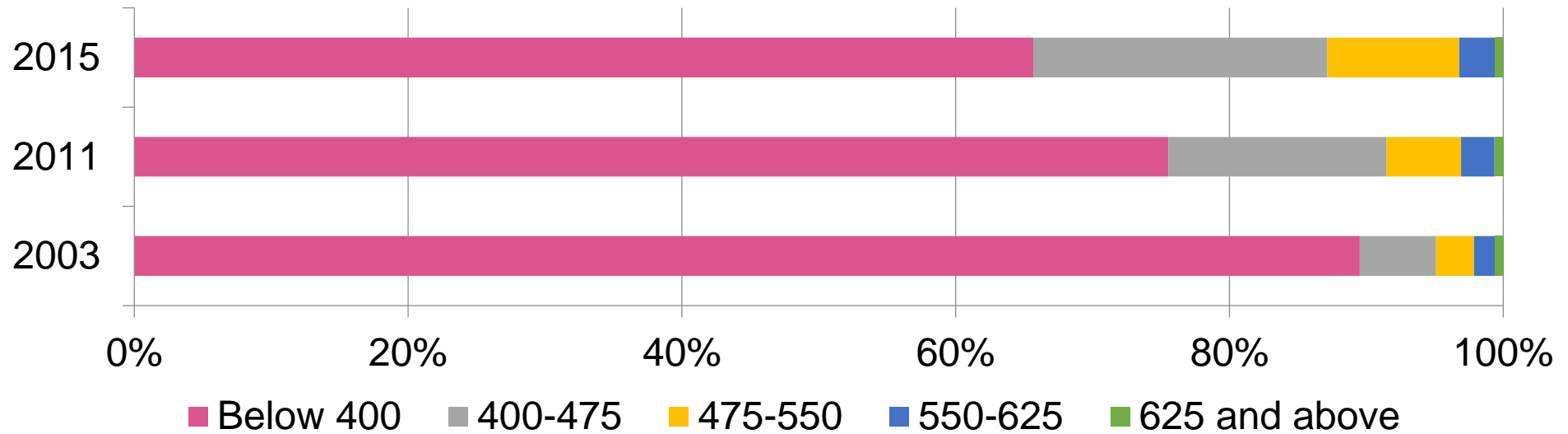
Gr 5 PIRLS 2016, Gr 5 & 9 TIMSS 2015



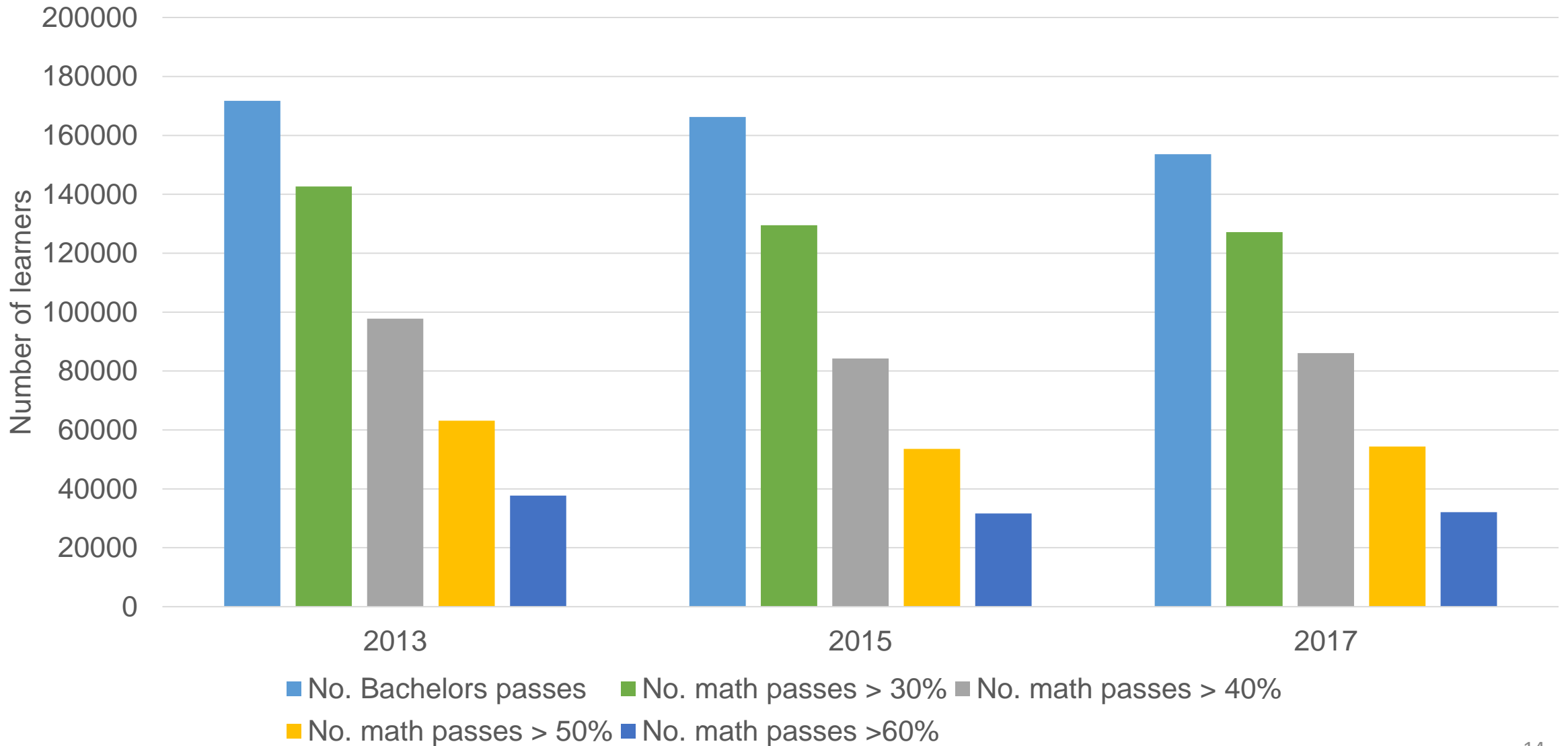
Learning in different school types (SES)



Mathematics Learning: 2003 to 2015



Constraint of high skills from schools



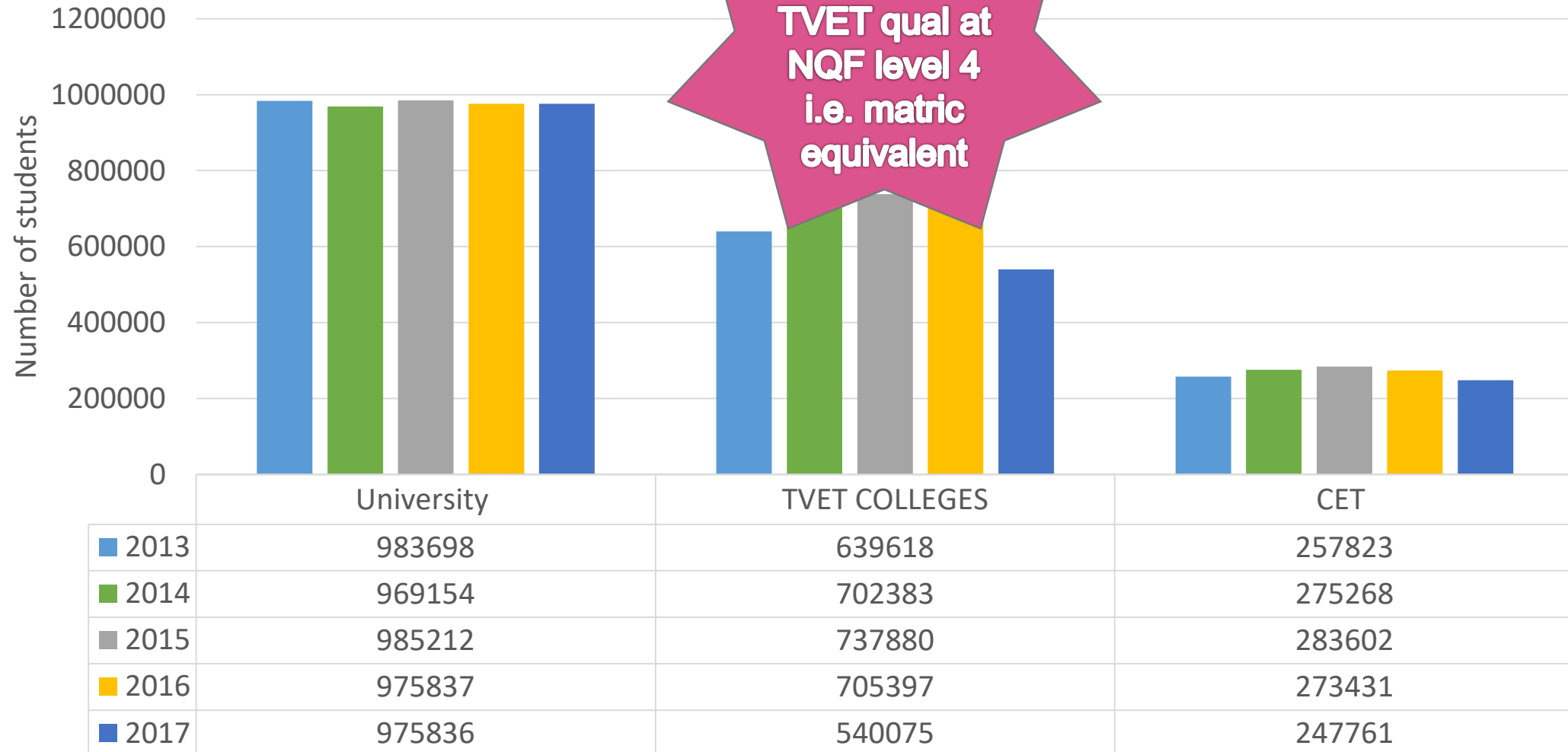
Learning from Latin America

- Significant progress in expanding access to pre-school, primary and secondary
- Major challenges in learning levels with gaps among sub-groups
- Countries show the best changes in bottom quintiles and least at top quintiles
- Priority is to target low income groups and change the material conditions as well as quality of instruction.

Post School Education & Training

- There is a labour market skills conundrum and challenge: on one hand we do not have enough of the relevant skills to sustain, build and support a high skilled economy and on the other hand we have to create jobs and training opportunities for the many low skilled employed and unemployed workers.
- Success rates at university and TVET colleges are low.

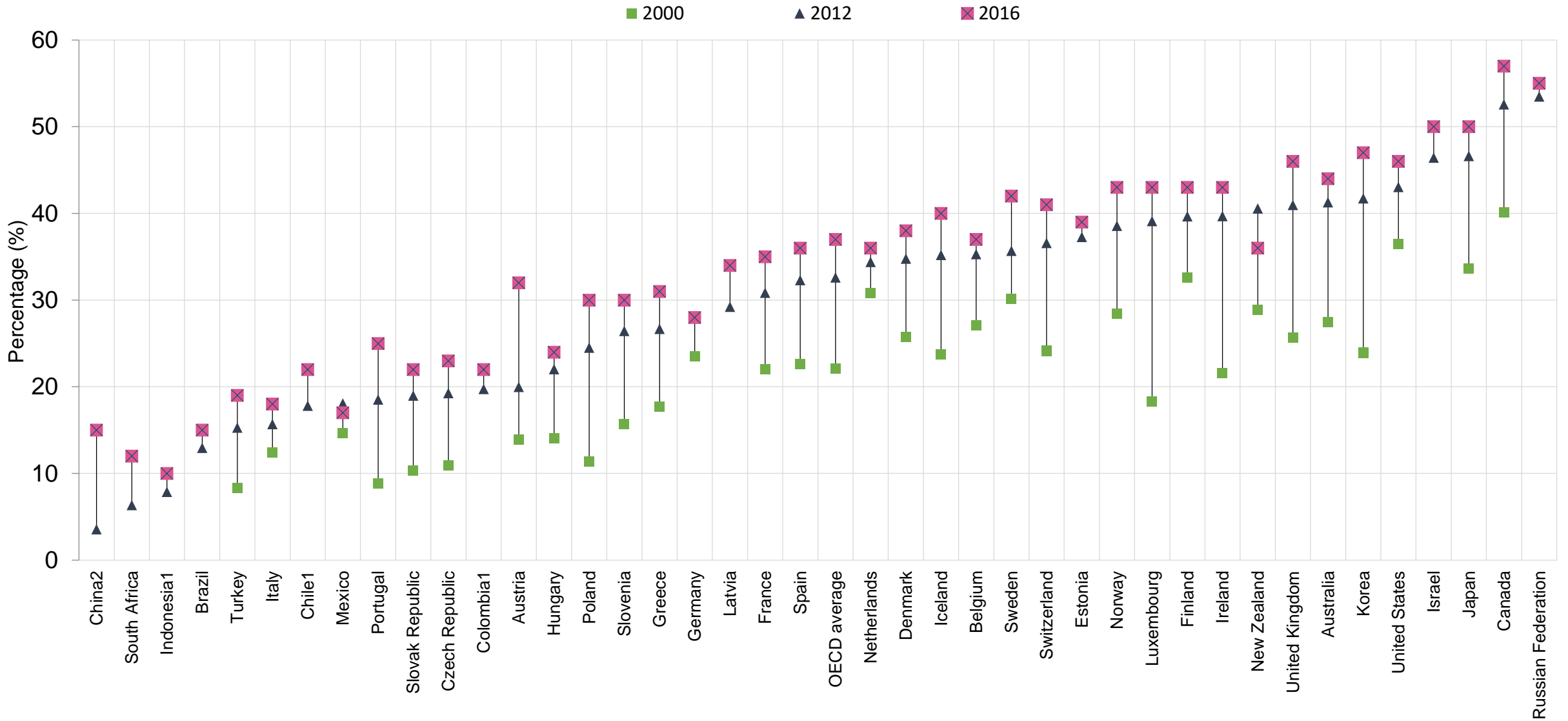
Enrolments at public post school institutions



University & TVET Completers, 2016

	TOTAL	Business, Economic & Management Science	Science, Engineering Technology	Humanities (incl. education)	Services
Universities	203076	56364	59125	87587	
Diplomas and Degrees		28%	29%	43%	
TVET Colleges	11716	5807	3248		2661
NCV 4		50%	28%		23%
TVET Colleges	60642	42198	12848		5596
NATED 6		70%	21%		9%

% tertiary educated 25-64 year-olds from 2000 to 2016



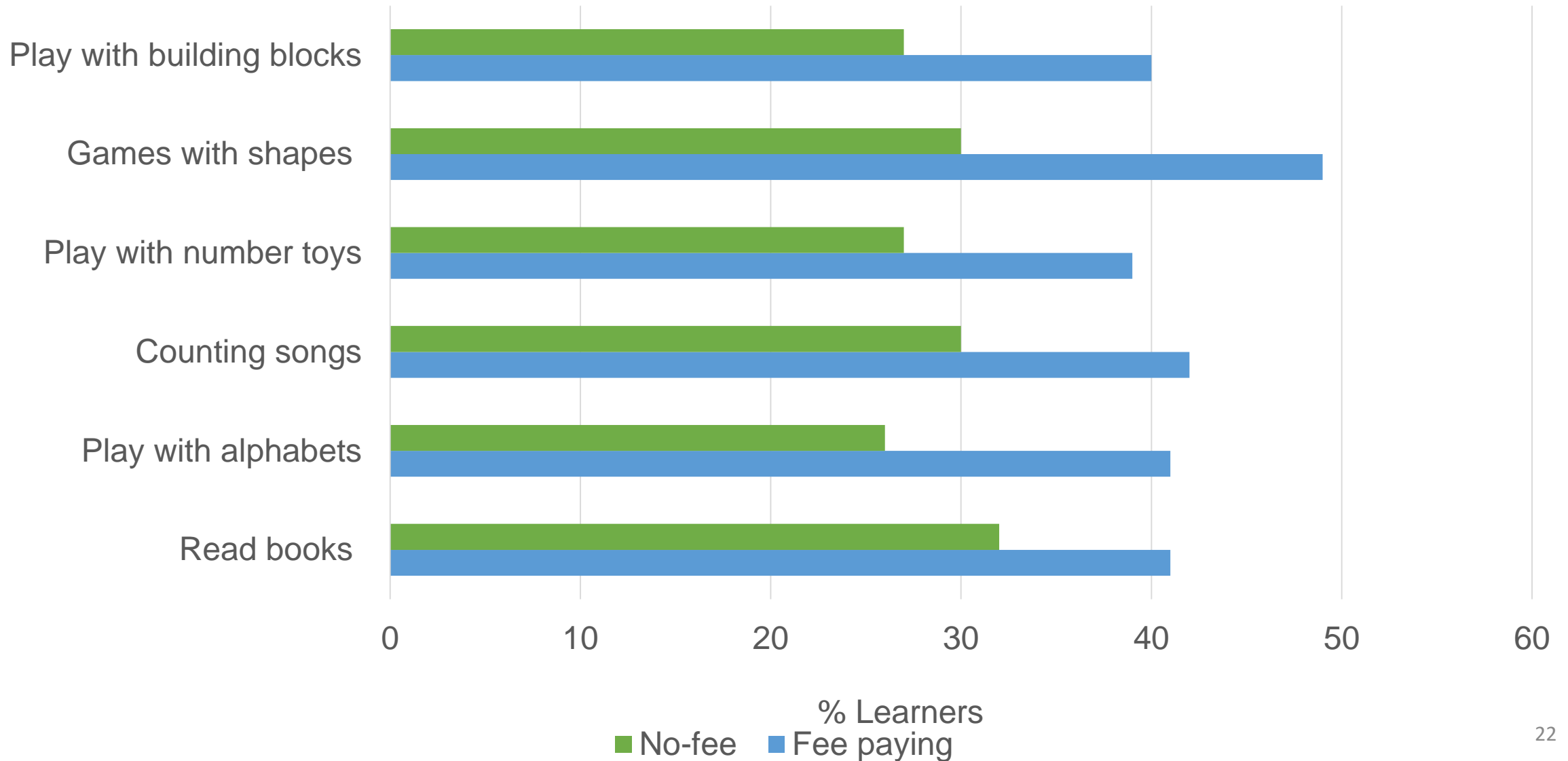
PRIORITIES

1. Long term: First 1000 days of schooling (gr RR, R, 1, 2,3) is key.
2. Solid foundations for reading/ literacy and numeracy/ mathematical skills (4Rs)
3. Short term: Increase number of high performing students completing matric by strengthening schools
4. Gender and learning in reading and mathematics
5. Skills for growth industries of the future
6. Planning for an Education and Training system

1. First 1000 days on health, the next 1000 days on solid educational foundations in schools

- High home variations. Children start grade 1 at different levels of school readiness. This impacts on early learning and predicts later achievement. Learning inequalities widen over the schooling period, especially for the poor.
- Solid foundations are best established by two years of schooling pre-grade 1 (Grade RR and R) offered in primary schools, especially for children in no-fee schools.
- High quality grade RR, R, 1,2,3 in well functioning schools, engaged teachers, small classes and support for learning.
- Focus on literacy and numeracy skills and knowledge.
- Decreasing learning gaps by grade 3, will lead to narrower score ranges in later grades.

Home educational activities by learners attending fee and no-fee schools



2. Prioritise Literacy and Numeracy Learning (4Rs)

- Reading/ literacy and Mathematical skills leads to good analytical and higher order thinking skills. Important for personal development, citizenship and economic development
- Reading and numerical learning, knowledge and skills acquisition are hierarchical in nature and learning processes cannot be leap-frogged.
- In the economy there is a demand for STEM professionals and technicians: for management, engineering, medical professions, teaching.
- Raise the expectations from learners rather than dropping it– e.g. shift numeracy pass mark from 40% to 50%.

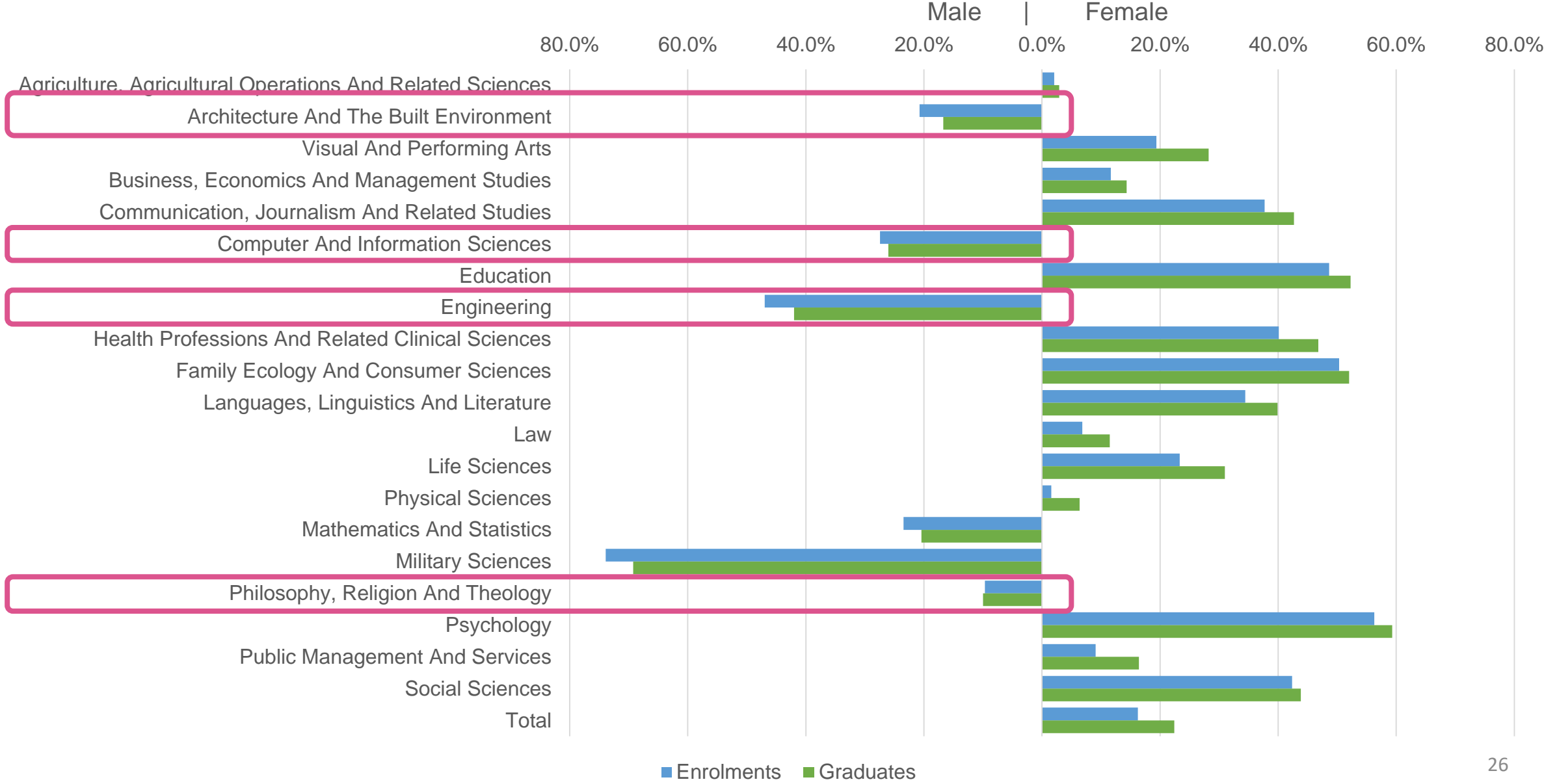
3. Increase high performing learners and schools

- South Africa aspires towards a high skilled economy. Workers need to demonstrate problem solving, analytical reasoning, creativity, higher order critical thinking skills.
- Matric 2017: 153 610 students achieved a bachelors pass, for access to tertiary qualifications. 32 000 students a score above 60% for math. This is a small pool of quality science and mathematics school graduates who can access SET based tertiary qualifications
- There are just over 10 000 high schools who offer grade 12 classes in the country. There are only a few schools who produce high quality and quantity of matric mathematics and science passes. Schools matter

4. Gender and mathematics and reading learning

- Girls outperform boys in reading scores
- The mathematics gender achievement patterns changes with age: At grade 5 girls outperform boys (statistically significant). At grade 9 math scores of girls and boys is not different.
- At grade 12, 154 733 girls and 121 620 boys wrote the NSC Mathematics examinations. 14 091 (9%) girls and 17 943 (15%) boys passed with a score over 60%.
- The dropout rate of boys at the senior secondary phase is higher than that of girls.
- Shares of female students are higher in both university and TVET sectors.
- Gender differences in the tertiary fields of study. Males are likely to study for the Technical, Science, Technology and Engineering based subjects whereas females are focussed on Health, Education and Social Sciences subjects.

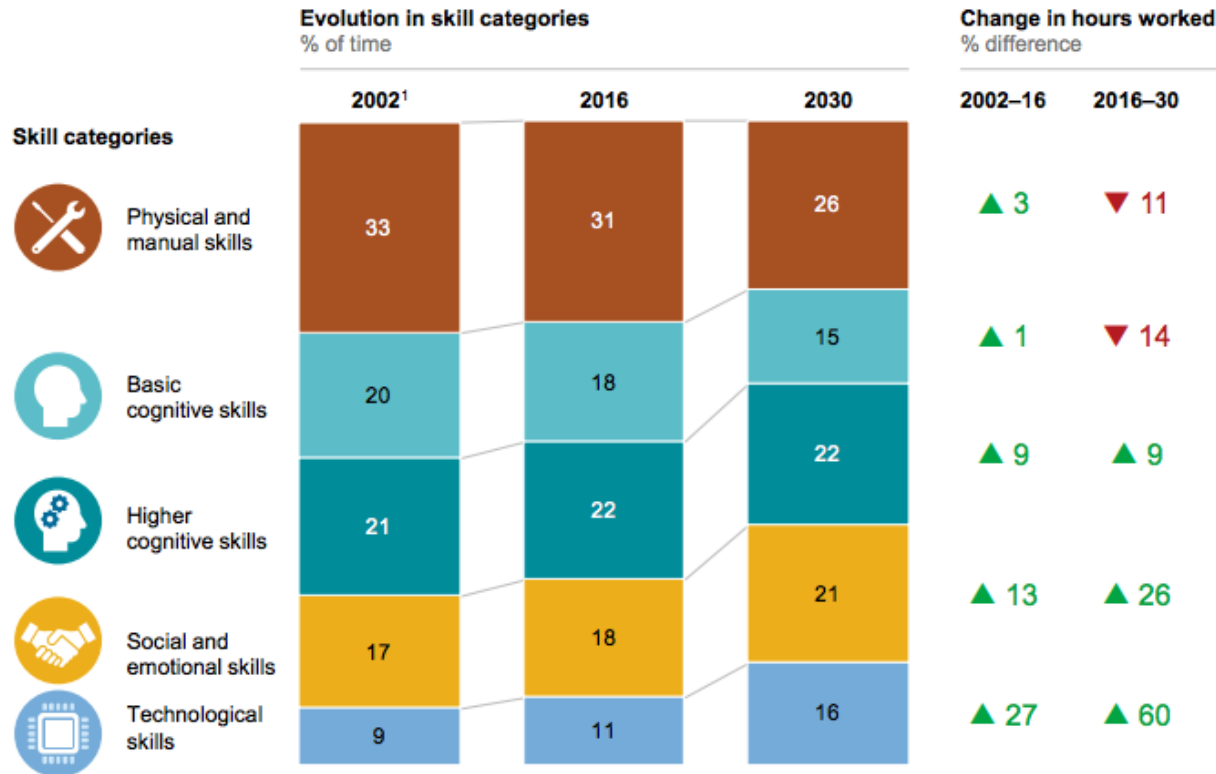
Gender difference in university enrolments and completions, 2016



5. Skills for growth industries of the future

Automation and AI will accelerate skill shifts.

Based on McKinsey Global Institute workforce skills model
United States, all sectors, 2002–30



¹ Calculated using the 2004 to 2016 CAGR extrapolated to a 14-year period.
NOTE: Based on difference between hours worked per skill in 2016 and modeled hours worked in 2030. Numbers may not sum due to rounding.

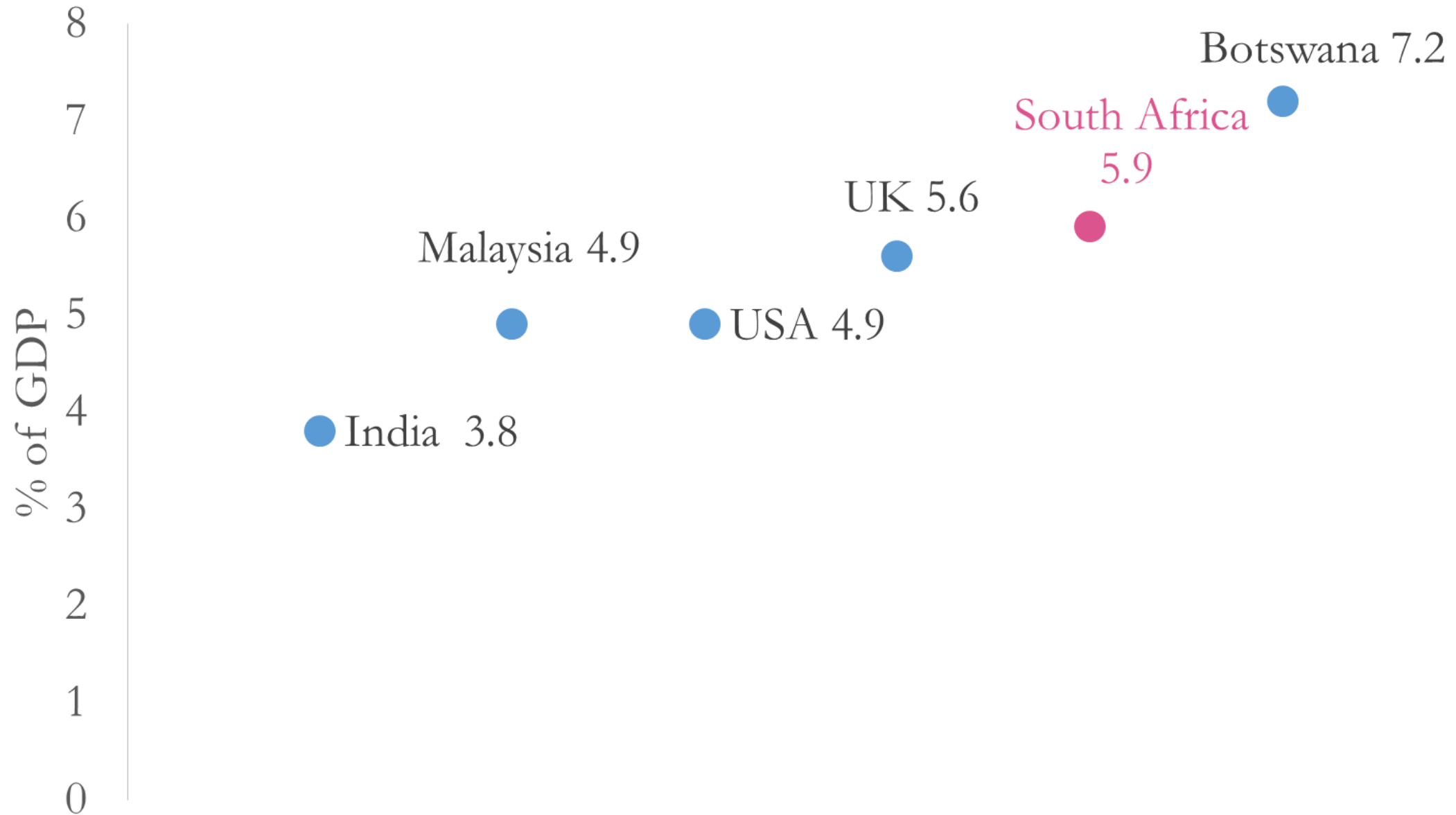
SOURCE: U.S. Bureau of Labor statistics; McKinsey Global Institute workforce skills model; McKinsey Global Institute analysis

- Examples: Green & Blue Economy, Square Kilometre Array Telescope, Information Communication Technologies, AI machine learning and Fourth Industrial Revolution.
- New industries depends on high Science & Tech skills.
- Reading, Writing, Numeracy, Reasoning are the still the core skills to build from.
- These industries will lead to increased inequalities - challenge is to manage a dual economy.

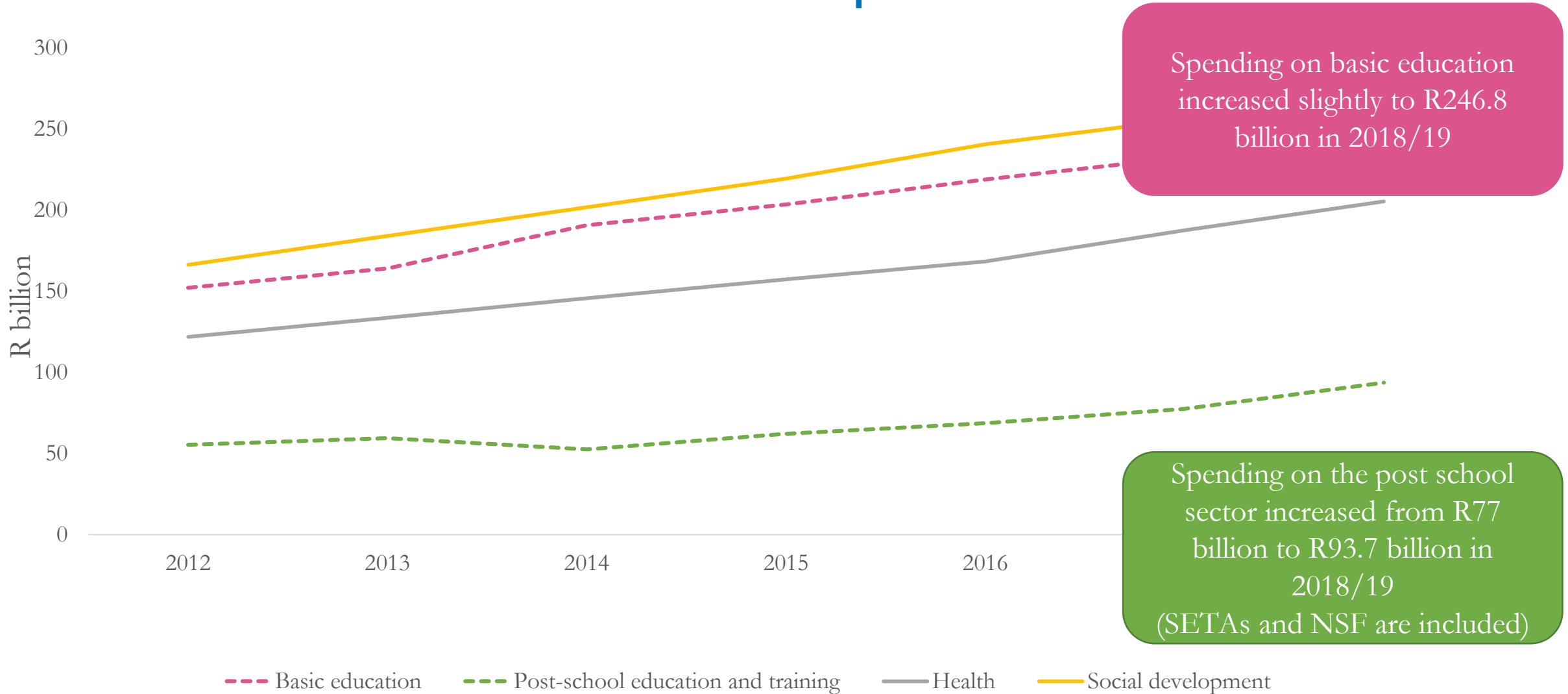
6. Planning for education and training system

- Government must estimate and anticipate the skills required to support societal development and a productive and inclusive economic growth
- Will require continued analysis of the society, skills demand for the economy and changing nature of workplaces
- Education and skills planning requires strong co-ordination across government departments - DBE, DHET, DST, DTI, EDD etc – it is a societal issue.

International expenditure on education:% of GDP, 2016



Trends in government expenditure on education and other main expenditures



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