Seminar on linking sector evidence to decision-making April 2017

The s*eminar on linking evidence in the education sector to decision-making* was held on April 25 2017 at ISIbalo House (Statistics South Africa Head office). Over the past five years, Statistics South Africa (Stats SA) stimulated the appetite and increased the ability of society to use statistics. The institution is now gearing up its consultative process related to the products we produce. Statistics South Africa thus hosted the first in a series of symposia on linking evidence to decision-making in April 2017. The seminar focused mainly on education statistics. The aim of the seminar was to delineate how policy-relevant research and data can be used to assist policymakers, with emphasis on the use of research and data to inform policy and programming decisions. The purpose of policies is to craft interventions that counter the normal economic development patterns in order to prevent inequality, or in the case of South Africa, to address past inequalities by redistributing national wealth. The role of researchers and officials involved in the monitoring and evaluation space is to measure whether these interventions generate the required impact.

In South Africa, information linkages are limited and appear to be ad hoc; hence, we need to be able to increase and formalise data linkages. For this purpose, education data emanating from various data sources need to be evaluated and compared. The purpose of the seminar was to collaboratively contribute to an improved education statistics system that would in turn contribute to better policy implementation and outcomes. The seminar was also aimed at linking existing efforts in the country and creating a synergy between national education statistics producers. Education data producers and users were able to use this forum to present their data production initiatives, and to discuss their experiences and the major limitations they face. More specific objectives of the seminar included:

- Identifying specific data priority issues;
- Efforts to supplement Statistics South Africa data with other sources;
- Identifying common needs and better methods of data dissemination; and
- Developing the education research agenda.

The seminar gathered government policymakers, users of education data, and researchers producing empirical evidence.

Download the Programme: here

Session 1: Key note address

Dr Pali Lehohla (Statistics South Africa): **Reflections on South Africa's Education Landscape – 1994 to present.** The presentation identified the values of official statistics in terms of their use for planning and policymaking. Credible statistics can be obtained through the existence of a National Statistics System, but the statistical value chain needed to be revised in order to respond better to the data needs of users, integrate the statistical products that are disseminated, and improve the quality of the data that are being produced. The presentation highlighted the significant changes observed in the education sector between 1996 and 2016, especially in the attainment of secondary schooling. However, the apartheid legacy continues to reflect in current statistics for post-school education. In particular:

- Although there are near universal school attendance in the age group 7—15 years, there is a noticeable representation of learners who are older than the ideal graduation age in primary and secondary schools; 14% of learners are not yet in some form of structured education by age 5; 6% of children are not in education at age 15; and at age 21, more learners attend secondary school than university and TVET colleges combined.
- In spite of a dramatic growth in no-fee schools, lack of money is still one of the main reasons for not being in school.
- Black Africans spend on average the shortest time in schooling (8,3 years); while whites spent the longest period at an educational institution, with an average of 11,4 years of schooling.

Dr Lehohla's presentation also showed that educational progression is visible, but uneven. Although the majority of black Africans (13,4 million) reached secondary-education level, there are still a large number among this population group who dropped out of school with some level of primary-education (3 million). On the other hand, whites and Indians have the highest proportion of post-secondary graduates. Furthermore, the benefits of further education are clear within the labour market, with close to 90% of graduates being employed. Graduate unemployment falls rapidly after age 25. Tertiary education has remained elusive for the majority of the population, as the presentation shows that for black Africans and the coloured population, an initial increase in throughput or attainment ratios was observed for both qualifications in the period 1950 to the mid-1980s. This increase started to reverse gradually during the mid-1980s, until it reached its current levels, which are even lower than what was achieved in the 1950s. The challenges to achieving a demographic dividend were linked to poverty, especially among the youth, as their low educational attainment was the major contributor to their poverty situation.

Session 2: Key findings of the Education Series Volume III report

Dr Seble Worku (Statistics South Africa): **Education Series Volume III – Educational Enrolment and Achievement.** The report was mostly based on the Community Survey 2016 results, with additional information sourced from the General Household Survey data series 2002–2015, the Censuses of 1996 and 2011, as well as various administrative data sources. The National Development Plan (NDP) is at the core of educational policymaking and planning. The Medium Term Strategic Framework (MTSF) reflects the commitment to implement the NDP. A number of targets that need to be achieved by 2017 were highlighted. These include:

- All children between the ages of 7 and 18 should be in school and 65% of learners should be in class groups appropriate to their age;
- The number of learners qualifying for university entrance should be 250 000;
- The number of students enrolled at TVET colleges to increase to 1,238 million;
- The number of students enrolled at university to increase to 1,07 million.

Time plots were used to present higher educational attainment ratios. The time plot concept follows Feeney's (2009) method using large-sample or census data and where a population experiences a life event, e.g. educational achievement. The method exploits the notion that educational attainment remains with the holder for life and assumes an average age at which this event is achieved. Progression ratios are then calculated by e.g. dividing those who completed at least Grade 9 by those who completed at least Grade 3. Various progression ratios were presented. These include:

- Progression ratio plots for individuals who completed Grade 9 after completing Grade 3, by population group, for 2001, 2011 and 2016: The gap in throughput between whites and Indians declined dramatically between 1950 and 2016; black Africans started from the lowest base, and even though their rate of catching up mirrors that of the coloured population as evidenced by the similar gradient of their lines, they remain behind when computing attainment ratios for Grade 9 after completing Grade 3.
- Progression ratios of persons who completed Grade 7 after they had completed Grade 3 by population group, Census 2011: A significant improvement is noted for black Africans with near parity with the coloured population reached in 2011.
- Progression ratios of persons who completed Grade 9 after they had completed Grade 3 by population group, Census 2011: Progression ratios for black Africans are lower than those for all other population groups.
- Progression ratios of persons who completed Grade 12 after completing Grade 3 by population group, Census 2011: Similar, albeit slightly higher progression ratios have been found for black Africans than for coloureds.
- Progression ratio plots for completion of at least a certificate and at least a Bachelor's degree after completing Grade 12, by population group, Census 2011: The possibility of completing at least a certificate after completing Grade 12 has been consistently higher than that of completing at least a Bachelor's degree after completing Grade 12 for all population groups; throughput for a Bachelor's degree was equally low for black Africans and for coloureds.

Various educational trends were presented. These include a higher uptake of Grade 1 enrolment from 2010 to 2015 compared to Grade R attendance; 69% growth of individuals who achieved Matric as their highest level of education between 2001 and 2011; Gauteng has the highest percentage of individuals with post-secondary education; the youth were more likely than other age groups to have completed an upper secondary qualification (FET bands 10, 11 and 12). Furthermore, the presentation highlighted that whites have 3,678 times greater odds of high levels of educational attainment compared to black Africans; and Tshivenda speakers have 1,470 times greater odds of high levels of educational attainment than IsiZulu speakers. Moreover, among black African university graduates, while 58% had a degree, the rest (42%) either had diplomas or certificates, while close to 73% of white graduates had degrees and only 27% had lesser qualifications. The gross enrolment ratios at Early Childhood Development (ECD) centres show that more white children enrol in such institutions compared to the other population groups; gross enrolment rates at primary and secondary schools show the highest number of enrolments for black African learners outside the school-age range. Black Africans spend on average the shortest time in schooling (8,3 years), while whites spent the longest period at an educational institution, with an average of 11,4 years of schooling.

Individuals aged 15–24 with household heads with post-secondary qualifications were more likely to attend an educational institution. A comparison of the educational attainment of parents with those of their adult children (aged 20–34) shows that while 14,5% of parents did not have any schooling, the proportion of children in this category is five times less at 2,7%. For children who completed secondary schooling, the majority (70%) attained education levels better than those of their parents, while 23% maintained levels similar to the educational levels of their parents.

Session 3: Critical engagement with the key findings of the report

Dr Stephen Taylor (University of Stellenbosch): **Comments on Education Series Volume III report.** The big story of the South African education system is that major racial and socioeconomic inequalities in educational attainment still persist. But the proportions and absolute numbers of learners completing Grade 9, Grade 12 and university are all increasing, although the speed of change is slow. Further expansions of secondary and post-secondary completion are limited by weak learning foundations, as evidenced from longitudinal studies that link Grade 8 performances to matric results. Data from the Trends in International Mathematics and Science Study (TIMSS), the Progress in International Reading Literacy Study (PIRLS), and the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) point to low and unequal achievement. The presentation critiqued the time plotting method utilised in the Stats SA education report, as it may be open to misinterpretation and may contribute to misdiagnosis of the problem. The improvement in matric attainment among black African and coloured youth may have been larger than the improvement in degree attainment among black African and coloured youth, but there have been big improvements in both. Dr Taylor further argued that the problem may be the speed of change in attainment levels, but the country certainly has not regressed according to his own analysis. He pointed out that the denominator in the calculation of the proportion of youths who completed university degrees after completing Grade 12 is based on matriculants, and not on the entire black African and coloured population. This causes the different patterns that differ from the ones in the report. Additionally, the presentation outlined examples of the bad press received following Stats SA's publication, such as:

- "Black youth less educated now than 20 years ago" – Business Day
- "Stats SA claims black youth are less skilled than their parents" – Daily Maverick
- SG is quoted by News24 as saying that in the 1980s, "for every black graduate there were 1.2 white graduates. Currently, for every one black person who graduates from university, there are six white people who make it through successfully".

The presentation concluded with research findings that countered the preceding newspaper quotation, "while the HE system produced 7.9 white graduates for each black graduate in 1986, by 2012 it produced 1.8 black graduates for every single white graduate" – Van Broekhuizen et al. (2016). Dr Taylor also suggested stopping the use of Feeney's methods, as these are not widely used in education statistics.

Dr Martin Gustafsson (University of Stellenbosch): **Comments on Education Series Volume III report.** Dr Gustafsson started his presentation by commenting that good statistical practice calls for strong collaboration between the national statistical agencies and education ministries, as the latter are major collectors of social data. The presentation showed a marked improvement in education quality, quoting data from TIMSS and SACMEQ. Comments were also made on lower values of post-secondary gross enrolment ratios published, using a larger age range in the denominator. Because of inherent methodological limitations in calculating such indicators, the presentation suggested a closer collaboration between the data producing agencies in estimating these indicators. Although the General Household Survey data are a good source for enrolment indicators (as it can provide both the numerator and denominator), the in-depth examination of inconsistencies between official population estimates and age-specific education data suggested that the former were as much as 15% too high for the compulsory school-going ages.

Session 4: Administrative-based statistics – the case of LURITS

Mr Bheki Mpanza (Department of Basic Education): **The Use of Administrative Records in Education Statistics: Evaluation of LURITS as a Source of Education Statistics.** The conceptualisation of the Education Management Information System (EMIS) was based on the pre-1994 system that drew data from an annual school survey data collection process. This approach was relevant at the time and suited the prevailing environment, and was largely influenced by resource constraints. In recent years, there was more

pressure to have a fully integrated EMIS that would produce relevant indicators and information. There was more emphasis on the strategic relevance of information systems. Hence, the National Education Information Policy was gazetted on 27 August 2004. This policy created a framework that allows for the coordinated and sustainable development of education information systems. As part of the EMIS improvement vision, the Department of Education conceptualised the development of a national Learner Unit Record Information and Tracking System (LURITS) in 2006.

- The National Education Information Policy was Gazetted in August 2004 (No. 26710) in terms of section 3(4)(a) of the National Education Policy Act (NEPA), 1996 (Act No. 27 of 1996).
- In terms of the EMIS Policy, section 29: The DG must designate a national EMIS Officer. Section 30 further states that each provincial department head must designate an EMIS Officer.
- The EMIS Policy was amended in August 2010 to include the appointment of the EMIS Officers at district and school levels.
- The policy is currently being amended to accommodate the collection of unit record information.

The intention of the national learner tracking system is to collect the unit record data of each learner in the country from Grade R to Grade 12, and to track the movement of each learner from school to school throughout the learner's school career. The database is created by mostly using the school administration and management system (SA-SAMS) data capturing system. The system has 17 modules that include:

1. General school information;
2. Human resource information;
3. Learner and parent information;
4. Learner listing;
5. Governance information;
6. Standard letters and forms;
7. Export data;
8. Annual National Assessment;
9. Financial assistance;
10. Curriculum related data;
11. Timetabling assistance;
12. Physical resources;
13. Library module;
14. Security and database functions; and
15. LURITS approval module.

An intergovernmental protocol agreement was signed between the Department of Basic Education and the Department of Home Affairs to enable the triangulation/verification of data from the DBE's LURITS and National Senior Certificate (NSC) System with the DHA's National Population Register (NPR) to verify the living/deceased status of learners as well as educators. The system is also used to link data with the Department of Social Development's Social Pension System (SOCPEN) to identify the school attendance by children of school-going age who are beneficiaries of the child support grant. The system currently contains data of 25 574 public schools, 12 932 565 learners and 418 611 educators. Close to 92% of the learners in the system have IDs that are verifiable by the NPR system.

Session 5: Administrative-based statistics – the case of HEMIS

Ms Jean Skene and Dr Whitty Green (Department of Higher Education and Training): **Challenges in higher education data: Undergraduate cohort studies for public higher education institutions.** In 1982, the former Department of Education introduced the South African Post-Secondary Education (SAPSE) system which was an aggregated dataset in the form of specific data tables. The Higher Education Management Information System that was implemented in 2000 is a unit record database and enables

validation and cleaning of data to be done at the universities before submitting their data to the department. This has reduced the time lags, and enables the Department of Higher Education and Training (DHET) to work with the data in many ways.

Cohort studies are the study of first-time entering undergraduate students, who are tracked over a 10-year period to determine the percentage of students that have dropped out from their studies or who have completed their studies. Records are extracted from the Higher Education Management Information System (HEMIS) database for the base year and filtered to render the first-time entering undergraduate students. Only South African students are tracked and all records containing non-valid SA identity numbers are removed from the dataset. The data for the base data year consist of data fields for race, gender, field of study, graduation status, qualification type and the SA identity number. Subsequent years do not need all these fields, and only include graduation status, qualification type and SA ID.

- The graduation status reflects a finish within the logical period of three years or four years depending upon the qualification type, not earlier.
- Graduation rate was defined as the number of graduates divided by the number of enrolments in a particular academic year.
- Tertiary drop-out rate according to DHET, excludes those who leave university and later on re-enter the system to complete their studies.
- Success rates are calculated as full-time equivalent (FTE) passes divided by FTE enrolments using the same credit values for each category of courses for those students who passed the courses.
- An earlier finish indicates a non-first-time entering student that was wrongfully enrolled as a first-time entering student, and the record is removed from the tracking process.
- Where there are multiple fields of study, one is selected by choice should both records seem legitimate.
- Dropouts are calculated counting all blank fields that represent no student record.
- 2014 undergraduate dropout rates in year 2: 18,4%; 2013 undergraduate dropout rates in year 3: 24,6%.
- 2013 graduation rate in year 3: 17,6%; 2012 graduation rate in year 3: 14,6%; and 2012 graduation rate in year 4: 33,6%.
- 2014 succession rate: Contact universities = 82%; distance education = 67%; and overall = 78%.
- High dropout rates are observed for distance mode of tuition and problems exist with the throughput for students undertaking a 3-year diploma.

In her presentation, Ms Skene indicated that the department works with an audited unit record database received from the universities of their actual enrolments and actual graduate numbers; growth in graduate outputs over the 10 years between 2005 and 2015 was observed with a total number of 120 385 graduates recorded in 2005 compared to 191 524 in 2015; black Africans amounted to 66 614 in 2005 and 127 237 in 2015. She further explained that this growth in raw numbers is in sharp contrast to the narratives pursued in the Stats SA enrolment ratios analysis. She also argued that the cohort data that they have, shows good improvement in demographic participation as well as in student success, albeit not at the pace or at the level at which it needs to be, informing the need for increased effort in these areas. Hence, the department is currently involved in policy development for extended curriculum programmes (foundation provisioning programmes).

Discussions and resolutions

- A more comprehensive analysis needs to be undertaken so as to get a better understanding of the state of education in South Africa. This story then needs to be told so that the findings are understandable and usable.
- It will be good to include the quality of education in the report; quality of education can be quantified using standard deviation (SD) as a measure.
- Information is needed about the university degree completion rates of those aged 22-50 years.
- Information is needed on field of study by race, and which skills are on high demand in the labour market.
- Information on output of secondary school completion versus input in university; how likely are those learners who passed their matric with average results, to complete tertiary as opposed to those who passed with flying colours in their matric results.
- Concepts and definitions as well as terminology must be constant throughout educational reports (e.g. post-school (DHET) and post-secondary (Stats SA) by these mean the same thing).
- Future focus should be on better ways to disseminate education statistics.
- Closer collaboration with each of the departments in the sector to identify data gaps, improve data quality and joint publications is needed.
- Administrative record data emanating from DHET (HEMIS), from SAQA (information on foreign qualifications), and from DBE (LURITS) can be used as education statistics data sources.

Participants

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