EDU005 Measuring accessibility of accountancy programmes at public higher education institutions in South Africa

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Abstract

South Africa is currently in the midst of a financial skills shortage with a severe scarcity of accountants in particular. The shortage of accountants in South Africa could possibly be addressed if the accessibility to accountancy programmes is measured continuously and the public higher education institutions that offer them are ranked based on the results. This study attempted to measure the accessibility of accountancy programmes offered at public higher education institutions in South Africa by making use of four accessibility indicators, namely participation, educational attainment, educational equity and gender parity. Due to lack of data in the South African context, only the participation rate and educational attainment rate could finally be measured. Although accessibility indicators are often measured at a high level for higher education both in South Africa as well as internationally, these indicators are not often used to measure accessibility of certain scarce skills professions such as that of accountancy. This study aimed to fill this gap by measuring accessibility and providing subsequent rankings of the public higher education institutions in South Africa in terms of accountancy progammes offered. The results could provide the Department of Higher Education and Training (DHET), the South African government and other stakeholders with information on where possible accessibility issues are experienced in order to address these issues in a timely manner. Based on the combined accessibility assessment, the Cape Peninsula University of Technology and the University of Stellenbosch ranked the highest overall, being therefore the most accessible institutions for accountancy programs. Measures should be taken to learn from these universities and to take note of plans that they have put in place to address their overall accessibility to the accountancy programmes that they offer.

1. Introduction

South Africa is currently in the midst of a global "war on talent" for financial skills (SAIPA, 2014). Individuals with financial skills have the ability to make more sensible and effective decisions regarding financial and other economic resources (Kurihara, 2013). The current financial skills shortage experienced in South Africa thus has the potential to seriously hamper economic growth (SAICA, 2008). South Africa is faced with an increasing gap between the financial skills needed to ensure economic growth and the supply thereof; a situation that is in desperate need of government interventions (Fin24, 2013).

The poor pass rates achieved for Grade 12 Mathematics further contribute to the now critical level of financial skills shortage in South Africa and scarce skills occupations such as

accountancy are some of the worst affected (Molefi, 2014; Marshall, 2014). The accountancy profession featured at 12th position on the National Scarce Skills List: Top 100 occupations in demand which was published by the Minister of Higher Education and Training in 2014 (South Africa. DHET, 2014). The South African Institute of Chartered Accountants (hereafter referred to as SAICA) conducted research from 2007 to 2008 and found that there was a shortage of 22 000 qualified accountants and that the shortage was bound to increase in coming years (SAICA, 2008).

Universities in South Africa also currently experience capacity constraints which affect their ability to produce graduates with the much needed financial skills (Marshall, 2014). Odendaal and Joubert (2011) are of the opinion that in order to address the severe shortage of accountants in South Africa, sufficient numbers of students have to enrol and graduate from professional institutes and higher education institutions in South Africa. It is thus up to all stakeholders to investigate solutions to address the shortage (Odendaal and Joubert, 2011).

The Department of Higher Education and Training (hereafter referred to as DHET) emphasise that public higher education institutions (hereafter referred to as public universities) should increase their accessibility by taking into account the scarce skills, which includes that of accountants, in South Africa (DHET, 2013). As part of the process to improve student access to public higher education in South Africa, the DHET aims to have a participation rate at the public universities in South Africa of 25% (headcount enrolments of approximately 1.6 million) by 2030. Access to public higher education has been a long-standing aim of the South African government as is evident from the National Plan for Higher Education where a participation rate, based on the Gross Enrolment Rate, of at least 20% in public universities for the 20-24 year age group by 2016 is envisaged (Ministry of Education, 2001). Accessibility of public higher education should thus be improved together with student success and higher throughput rates. The White Paper for Post-School Education and Training (hereafter referred to as the White Paper) stresses that the challenge of increasing accessibility must become a priority for both national policy as well as for each of the public universities in South Africa (DHET, 2013). The Strategic Plan 2010/2011 – 2014/2015 of the DHET also set a target of a throughput rate of at least 20% by 2014 for higher education in South Africa (DHET, 2010).

It is however not sufficient to only state that accessibility to public universities should be increased. Special emphasis should be placed on the monitoring thereof as it is crucial in order to assess the progress made in this regard. If South Africa is to address the severe shortage of scarce financial skills and specifically that of accountants, the accessibility of accountancy programmes offered at the public universities in South Africa should be closely monitored and regularly measured.

Following in section 2 is a short description on the manner in which accessibility of higher education has been defined and measured in other local and international studies. This is followed with sections 3 and 4 which provide the purpose and research methodology of the study

before section 5 highlights the limitations of the study. Section 6 describes the results of the measurement of accessibility across the 23 universities of South Africa based on the identified four accessibility measurements with section 7 concluding the paper with some reflection on the results obtained in section 6.

2. The measurement of accessibility of higher education

Accessibility of higher education is defined in the Global Higher Education Rankings 2005: affordability and accessibility in comparative perspective report (hereafter referred to as the Global Rankings report 2005) as the ability of persons from all backgrounds to gain access to higher education on a relatively equal basis (Usher and Cervenan, 2005; Usher and Medow, 2010). This report, as well as the follow-up Global Higher Education Rankings 2010 report (hereafter referred to as the Global Rankings report 2010), set out to measure accessibility of higher education and rank countries in terms of the results thereof. Four indicators were used in these two reports to measure the accessibility of higher education namely (Usher and Cervenan, 2005; Usher and Medow, 2010):

1. Participation rate;
2. Educational attainment rate;
3. Educational Equity Index; and
4. Gender Parity Index.

Similar indicators were used in the Accessibility and affordability of tertiary education in Brazil, Colombia, Mexico and Peru within a global context report (Murakami and Blom, 2008) as well as in the Measuring up 2008, the national report card on higher education report (The National Center for Public Policy and Higher Education, 2008). Although there is consensus amongst most of the authors regarding the four major indicators, there are differences in the manner in which the various indicators are calculated.

3. Purpose of the study

As set out in the introduction to this study, certain targets were set for public universities in South Africa relating to increased accessibility and improved throughput rates. Meeting these targets will advance the process of addressing the skills shortage in South Africa and it is thus important that the public higher education institutions be closely monitored in terms of accessibility.

In order to address the severe financial skills shortage and the current need for accountants specifically, it is however not sufficient to measure participation and throughput rates only at a high level for the public universities. The accessibility of accountancy programmes offered by public universities should be measured and closely monitored. A more defined set of

measurement criteria should thus be set to measure the accessibility of accountancy programmes offered by these public universities and to rank them based on the results. These rankings could possibly put pressure on the public universities to improve on not only their overall accessibility but specifically the accessibility of their accountancy related programmes in order to address the financial skills crisis in South Africa.

The measurement of the accessibility of accountancy programmes offered by the public universities and the subsequent rankings of these universities based on the results, could provide the DHET, relevant stakeholders and the South African government with a better indication of where possible problems in terms of accessibility are experienced in order to address them.

4. Research methodology

In this study, quantitative facts and figures obtained to support the measurement of accessibility indicators of accountancy programmes offered at the public universities in South Africa are considered to be objective and independent of the researcher. It is for this reason that the philosophical stance of the natural scientist was adopted in this quantitative study (Saunders, Lewis and Thornhill, 2007). Secondary data sources were mainly used in this study, derived from various sources such as enrolment data [DHET, 2014 (a)] and graduation data [DHET, 2014 (b)] obtained from the DHET as well as population statistics obtained from Statistics South Africa (Statistics South Africa, 2013). Saunders, et al., (2007) explain that secondary data can consist of any published summaries.

The positivism research philosophy will be reflected with characteristics of the deduction research approach as this study will use a structured methodology that can be replicated by other researchers. The methodology facilitates the collection of quantitative facts and figures relating to the measurement of the accessibility indicators that can be analysed independently of the researcher and is therefore considered to be objective and free of bias (Saunders, et al., 2007). The principle of reductionism will be followed, whereby accessibility of accountancy programmes offered at the public universities in South Africa will be broken down into various smaller measurable indicators.

5. Delimitations of this study

This study attempts to pave the way for future studies of a more sophisticated nature, depending on data availability. Due to data unavailability such as age-specific synthetic cohort data and specific data on full-time or part-time undergraduate students, certain of the methods used to calculate accessibility indicators, could not be used for purposes of this study. This is further discussed in section 6 of this study.

The relationship and trade-off between participation rates and educational attainment rates are not discussed in this study. Students that stay in the system for a number of years, fluctuating enrolments and different durations of qualification types are only some of the factors that affect the relationship between participation rates and educational attainment rates. These factors have not been investigated in this study.

This study ranked the public universities in South Africa based on the results of the measurement of certain accessibility indicators for accountancy programmes offered by these universities. The study did however not distinguish in the results between residential and distance learning universities. The University of South Africa, which is considered to be the largest open distance learning university in South Africa, was thus measured against residential universities which could distort the results.

Other factors that could possibly influence the accessibility of accountancy programmes offered by the public universities in South Africa have not been discussed in this study. These include factors such as high tuition costs, the lack of sufficient financial aid to students, certain capacity constraints experienced by public universities and a general lack of state funding for higher education institutions.

6. Measurement of accessibility of accountancy programmes offered at the public universities in South Africa

This section will set out how the measurement of the accessibility of the accountancy programmes offered by the public universities in South Africa will be performed per indicator as well as how the ranking of the public universities will be done, based on the results of each indicator measured. This section will also provide the results of the measurement of the selected accessibility indicators with remarks and subsequent rankings per indicator. Although there are various methods for measuring the accessibility indicators, this study will, however, only make use of one method per indicator. This will be explained per indicator as set out in the following paragraphs.

Based on the results of the measurement of the accessibility indicators for the accountancy related programmes as set out earlier, the South African public universities will be compared to each other and an overall ranking of the universities will be done. The selected accessibility indicators will be measured for the period 2009 to 2012, in order to identify trends and establish whether progress was made during this period. In terms of headcount enrolment figures as well as graduation rate figures, the following qualification types were taken into account:

- Occasional students;
- Undergraduate diplomas and certificates (with a duration of one to two years);
- Undergraduate diplomas and certificates (with a duration of three years);

- General Academic First Bachelor's degrees (with a duration of three years);
- Professional First Bachelor's degrees (with a duration of four or more years);
- Post-graduate diplomas and certificates;
- Post-graduate Bachelor's degrees;
- Honours degrees;
- Masters' degrees; and
- Doctorate degrees.

For these qualification types, the accounting (0401) Classification of Educational Subject Matter code was used as obtained from the Higher Education Management Information System (hereafter referred to as HEMIS).

6.1 Participation rate

Kaiser and O'Heron (2005) as well as Steyn (no date) set out possible methods of calculating participation rate, namely:

1. Gross Enrolment Rate is one of the most well-known and widely used methods of measuring participation rate internationally (Kaiser and O'Heron, 2005) and in South Africa (Steyn, no date). In terms of higher education, Gross Enrolment Rate is calculated as the total of all enrolled students in higher education as a percentage of the number of persons in the five-year population age group starting from the official secondary school graduation age. This is in line with the calculation thereof as used by the United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2014) as well as by Steyn (no date) in the *Measuring student participation in the higher education sector in South Africa* report.
2. Net Enrolment Rate is calculated as the number of students in a particular age group enrolled for a certain level of education as a percentage of the number of persons in the population in that same age group. Although Steyn (no date) made use of this indicator in his study, this indicator is mainly used to measure primary and secondary school participation rates and will therefore not be measured in this study.
3. Net Entry Rate, calculated by Steyn (no date) as well as Kaiser and O'Heron (2005) making use of a synthetic cohort where a snapshot is taken in a particular year of the age distribution of higher education new entrants compared to the age distribution of the population. This method will not be used in this study due to the fact that the secondary data obtained from the DHET did not provide age-specific synthetic cohort data.
4. Initial Participation Rate. This indicator calculates the participation rate making use of only full-time undergraduate students. This method will not be used in this study as the secondary data obtained from the DHET does not provide specific data on full-time undergraduate students.

5. Varying Pathways Participation rate. This indicator measures participation on a basis similar to that of the Initial Participation Rate method, but takes all undergraduate students into account. Due to the fact that this method is not a well-known method, it will not be used in this study.
6. Extended Participation Rate. This indicator is similar to the Varying Pathways Participation Rate, but takes into account the seven largest age groups in enrolment as opposed to the four largest age groups in enrolment. This is also not a well-known method and will therefore not be used in this study.

Based on the previous paragraphs, the Gross Enrolment Rate is the best known and most widely-used method for measuring participation rate and will thus be used to measure participation rate for accountancy programmes offered at the public universities in South Africa. The five-year age group used in the calculation will be the 20-24-year age group as this is in line with that used by the Council on Higher Education in South Africa (CHE, 2013) as well as with that used by the DHET (Ministry of Education, 2001). Gross Enrolment Rate will be calculated as follows:

$$\frac{\text{Total number of headcount enrolments } \textbf{\textit{at each}} \text{ of the public universities in SA in terms of accountancy related programmes}}{\text{Population size in the 20-24-year age interval in SA}} \times 100$$

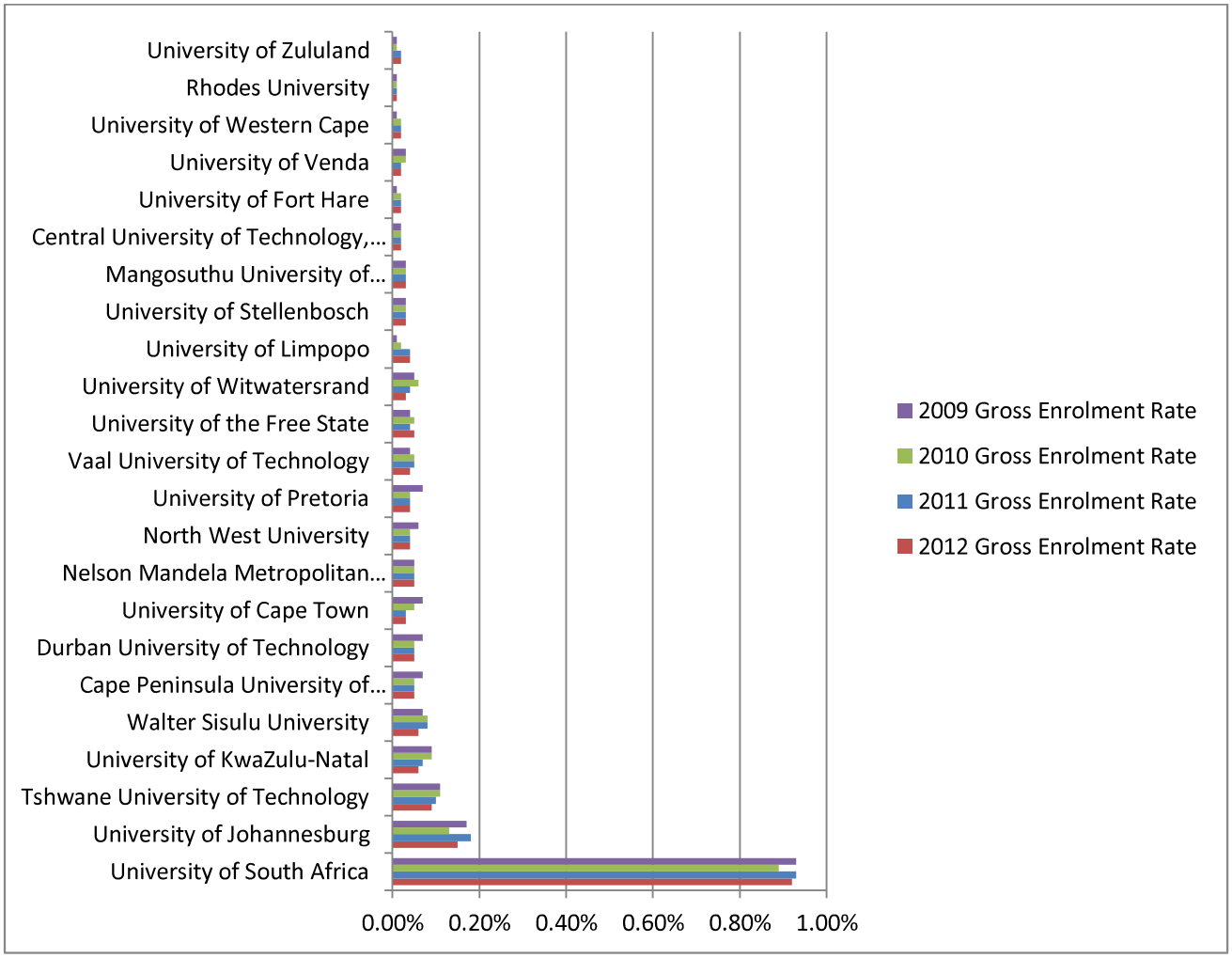
and

$$\frac{\text{Total number of headcount enrolments at public universities in SA in terms of accountancy related programmes } \textbf{\textit{in total}}}{\text{Population size in the 20-24-year age interval in SA}} \times 100$$

Based on the results of the measurement of the Gross Enrolment Rate for the public universities in terms of accountancy programmes offered, rankings will be provided for each year (2009 to 2012) as well as on the average for the entire period. The results of the measurement of the Gross Enrolment Rate for the period 2009 to 2012 will now be provided.

Figure 1 on the next page presents Gross Enrolment Rates for the public universities in South Africa for each year (2009 to 2012) based on actual headcount enrolment numbers for accountancy related programmes offered by the various universities and the population numbers in the 20-24-year age group. Table 1 in the annexure provides specific rankings of the public universities for each year and average rankings for the universities for the period 2009 to 2012. Table 2 reflects the population numbers in the 20-24-year age group for each year.

FIGURE 1: GROSS ENROLMENT RATES OF PUBLIC UNIVERSITIES IN TERMS OF ACCOUNTANCY PROGRAMMES: 2009 – 2012



(Source: Authors' own calculations)

The Gross Enrolment Rate based on headcount enrolments for accountancy programmes offered by each of the 23 public universities was measured for the period 2009 to 2012. Based on the results, a ranking was assigned for each individual year as well as on the average Gross Enrolment Rate over this period. As can be seen in figure 1 and the results set out in table 1 in Annexure A, the University of South Africa ranked number 1 with the highest Gross Enrolment Rate for each of the individual years as well as on average for the period. The Gross Enrolment rate of the University of South Africa is far greater than even that of the University of Johannesburg which consistently ranked number 2. This is a clear indication of the immense contribution the University of South Africa is making in terms of headcount enrolments for accounting related programmes and also in making higher education more accessible to students wanting to pursue an accounting career.

Over the period 2009 to 2013 an average of 95,204 students enrolled for accounting related programmes at the 23 public universities in South Africa. The University of South Africa contributed 46.78% (total average headcount enrolments of 44,539) of this average. It is however worrying to note that the total headcount enrolments for accounting related programmes at the public universities in South Africa dropped by 4.24% (4,140 students) from 2009 to 2013 even though the University of South Africa managed to increase its headcount enrolments by 2.99% (1,324 students) over the same period. In order to address the financial skills shortage and especially the scarcity of accountants in South Africa, these decreases in headcount enrolments should be identified and investigated for each public university as well as on an overall basis.

6.2 Educational attainment rate

Educational attainment comparisons are a well-known concept and measuring thereof is a valuable indicator of the accessibility of higher education (Steyn, no date). The Organisation for Economic Co-operation and Development (hereafter referred to as OECD) makes use of four methods to measure the level of education pertaining to individuals, certain groups of individuals and countries. In their annual Education at a Glance, 2013 edition (OECD, 2013), the indicators are as follows:

1. Level of attainment is measured for higher education as the total number of persons aged 25-64 years with International Standard Classification of Education (hereafter referred to as ISCED) 1997 type 5A, 5B and 6 qualifications as a percentage of the population in the same age group. It is also calculated on a similar basis for the 25-34-year age group. The data obtained for this study did not provide the age data required to calculate this method and therefor the level of attainment was not calculated for purposes of this study.
2. Graduation rate is also used as a method to calculate educational attainment as it provides an indication of what throughput rates are likely to be. Graduation rate is calculated as the total number of graduates in a particular academic year as a percentage of the total enrolments for that same year (DHET, 2013). This is in line with the method used in the Higher Education Monitor: The state of higher education in South Africa, released by the Council on Higher Education (CHE, 2009) as well as the method as set out in the National Plan for Higher Education (Ministry of Education, 2001).
3. Estimated percentage of young adults expected to successfully graduate from a certain level of education in their lifetimes. This relates to the estimated percentage of persons from a specific age cohort that will complete their higher education over their lifetimes based on current levels of graduation. Due to the unavailability of age cohort data, this method was not calculated for this study.
4. An estimation of the percentage of students that enter a programme and complete that programme successfully in a given period of time. This is calculated as the percentage of

new entrants into a specific level of education who graduate with a minimum of a first degree at this level. Again cohorts are mainly used and were not available and thus this method was not used in this study.

Based on the limitations of the methods as set out previously, the graduation rate was selected as the only method to calculate educational attainment for this study and will be calculated as follows:

$$\frac{\text{Total number of } \textbf{\textit{graduates at each}} \text{ of the 23 public universities in SA in terms of accountancy related programmes}}{\text{Total number all } \textbf{\textit{headcount enrolments at each}} \text{ of the 23 public universities in SA in terms of accountancy related programmes}} \times 100$$

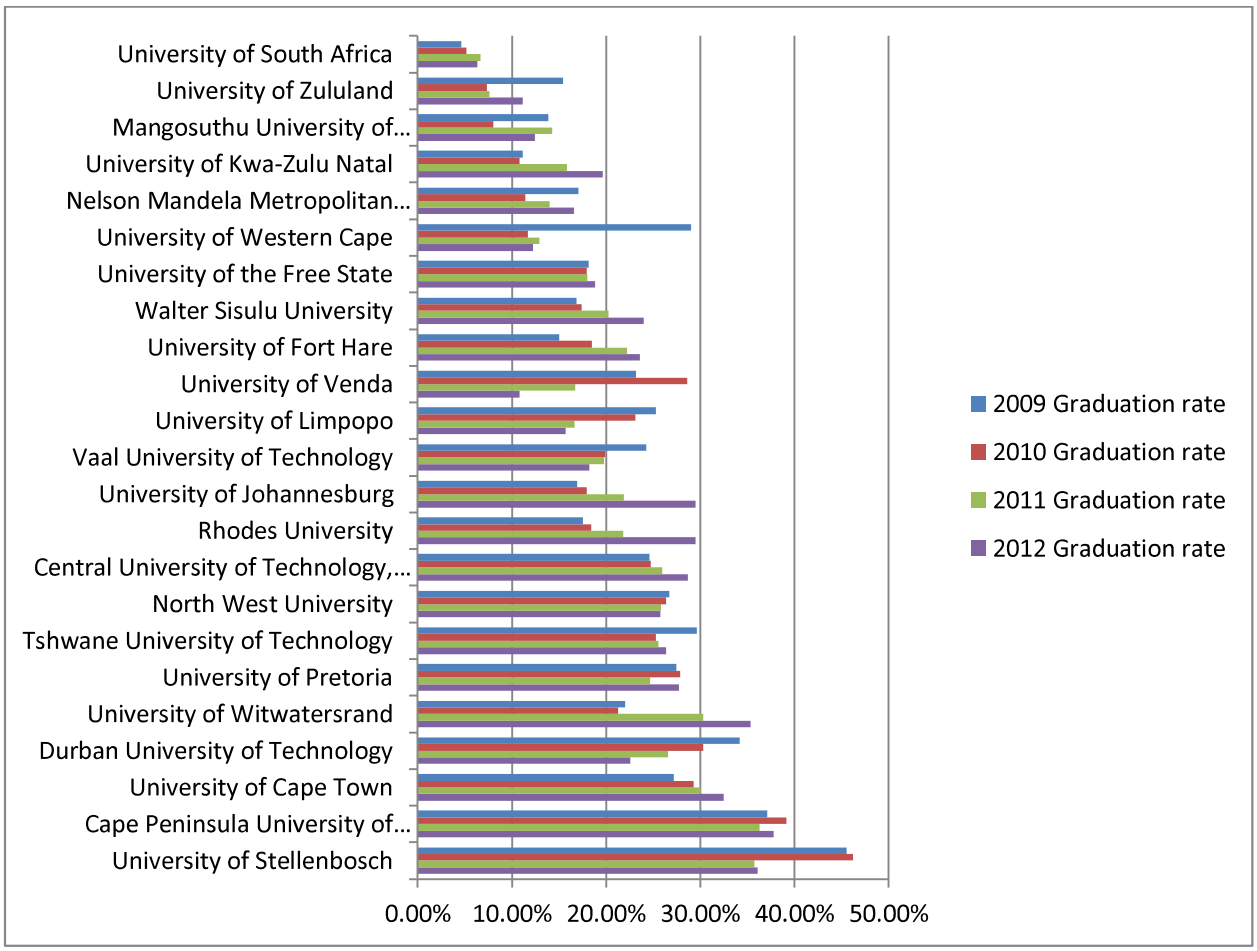
and

$$\frac{\text{Total number of } \textbf{\textit{graduates}} \text{ at public universities in SA } \textbf{\textit{in total}} \text{ in terms of accountancy related programmes}}{\text{Total number all } \textbf{\textit{headcount enrolments}} \text{ at the public universities in SA } \textbf{\textit{in total}} \text{ in terms of accountancy related programmes}} \times 100$$

Based on the results of the measurement of the graduation rates for accountancy related programmes offered at the public universities, rankings will be provided for each year (2009 to 2012) as well as on the average for the entire period. The results of the measurement of the graduation rate for the period 2009 to 2012 will now be provided.

Figure 2 (supported by table 3 in the annexure) provides the results of the measurement of the graduation rate for each of the 23 public universities in South Africa for the period 2009 to 2012.

FIGURE 2: GRADUATION RATES OF PUBLIC UNIVERSITIES IN TERMS OF ACCOUNTANCY PROGRAMMES: 2009 – 2012



(Source: Authors' own calculations)

From table 3 in the annexure it can clearly be seen that the average graduation rate for the 23 public higher education institutions in South Africa in terms of accountancy programmes has increased from 2009 (at 14.96%) to 2012 (at 15.65%). Despite the increase in the graduation rate over this period, these rates however remain very low. Although the University of South Africa ranked low in respect of graduation rates, the importance of this university in increasing access to higher education in South Africa cannot be forgotten. In terms of the relative numbers of graduates that this university produces, it plays a vital role in improving access to accountancy programmes in South Africa.

Although the University of Stellenbosch ranked number 9 overall for the Gross Enrolment Rate, it managed to rank almost consistently number 1 in terms of graduation rates. The opposite is unfortunately true for the University of South Africa which ranked number 1 overall for the Gross Enrolment Rate but almost consistently ranked number 23 in terms of the graduation rates. This is indeed worrying as only 2,788 (average for the period 2009 to 2012) students from an average enrolment of 44,539 (for the same period) in accounting related programmes at the

University of South Africa managed to successfully complete their qualifications. The focus of increasing accessibility of accountancy programmes offered at public universities and ultimately meeting the financial skills demand in South Africa cannot merely be that of increasing headcount enrolments. There has to be a stronger focus on increasing the graduation rates of accountancy programmes offered at these public universities in South Africa.

6.3 Educational Equality Index

Equity in education is almost never without barriers. Mdepa and Tshiwula (2012) explain that this is even more so for persons from disadvantaged backgrounds in African countries where these persons are faced with numerous obstacles in terms of educational opportunities. Students from disadvantaged backgrounds are generally not well represented in higher education institutions. It is therefore clear that a student's socio-economic background most likely plays a major role in access to higher education opportunities. Parental occupation, parental education level, social class, socio-economic status, race, average parental income, among others, are all metrics that could be used as proxies to measure educational inequality (Educational Policy Institute, 2004). A well-known proxy that can be used to measure educational inequality is parental education level, which measures the extent to which students from a higher socio-economic background are better represented in higher education than those from a lower socio-economic background (Usher and Medow, 2010; Usher and Cervenan, 2005; Murakami and Blom, 2008). The Global Rankings report for 2005 and 2010 made use of the proxy of parental education level to measure the Educational Equality Index and measured it as:

$$\frac{\text{The percentage of all males 45-65 with a higher education degree}}{\text{The percentage of all students at a higher education institution whose fathers have higher education degrees}} \times 100$$

Although the Educational Equality Index, based on various proxies, is an internationally used indicator for measuring accessibility of higher education, the information needed to calculate parental education levels for accountancy related programmes offered at the public universities in South Africa could not be obtained and therefore the Educational Equality index could not be calculated for purposes of this study.

6.4 Gender Parity Index

This indicator is mostly used to measure gender inequality internationally and is considered to be an indication of the progress made towards gender parity in educational opportunities and participation (OECD, 2011). It is measured by dividing the female value of a certain indicator by the male value of that same indicator. A Gender Parity Index score of 1 indicates parity between females and males whereas a score of less than 1 indicates disparity in favour of males. A score of more than one indicates disparity in favour of females (UNESCO, 2014). Gender Parity Index is mostly calculated on the basis of on Gross Enrolment Rates (Usher and Medow, 2010; Usher and Cervenan, 2005; Murakami and Blom, 2008; UNESCO, 2014) but can, however, be measured on level of attainment as well. Gross Enrolment Rate is also used in the calculation of Gender Parity Index in South Africa (The National Coordinating Committee, 2013) in order to measure progress made towards the Millennium Development Goals. The Gender Parity Index will, however, not be measured for purposes of this study.

6.5 Overall assessment

The four indicators that were measured in the Global Rankings report for 2005 and 2010 (Usher and Cervenan, 2005; Usher and Medow, 2010) were assigned certain weightings based on their importance according to the researchers in these reports. These weightings were assigned as follows:

1. Participation rate: 25%
2. Educational attainment rate: 25%
3. Educational Equity Index: 40%
4. Gender Parity Index: 10%

As the Educational Equity Index and the Gender Parity Index were not measured for this study, the participation rate (Gross Enrolment Rate) and the educational attainment rate (Graduation Rate) were both assigned a weighting of 50% for purposes of this study as they are considered to be equally important. The weightings assigned to accessibility indicators (Usher and Cervenan, 2005; Usher and Medow, 2010; Murakami and Blom, 2008) are relatively subjective in nature and the weightings were purely assigned in this study in order to draw overall conclusions and provide rankings based on accessibility of accountancy programmes. The weightings assigned in this study are therefore purely a departure point and not cast in stone. The rankings are however of crucial importance and therefore future research could be conducted on the various weightings that the public universities, the DHET and various other stakeholders would assign to the

methods and indicators that are used to measure the accessibility of higher education in South Africa. Based on the weightings of 50% for participation rate and 50% for educational attainment rate, an overall ranking is calculated for the 23 public universities in South Africa in terms of accountancy related programmes. This overall accessibility ranking of the public universities in South Africa in terms of accountancy programmes offered is set out in table 4 in the annexure.

7 Discussion and conclusion

This study provides valuable information on two important accessibility indicators measured for accountancy programmes offered by public universities in South Africa. From the measurement and the subsequent rankings, the DHET, the South African government and other relevant stakeholders can assess which public universities have problems in terms of accessibility that needs to be addressed. Increased headcount enrolments and equally high graduation rates can narrow the gap between the demand and supply of accountants in South Africa which in turn will assist in addressing the current financial skills shortage experienced.

Table 4 indicates that the Cape Peninsula University of Technology consistently ranked number 1 for each of the respective years as well as on average over the period 2009 to 2012. This university performed relatively well in terms of high Gross Enrolment Rates for accountancy programmes but performed exceptionally well in terms of graduation rates. The University of Stellenbosch ranked number 2 in 2010, 2011 and on average and ranked number 3 in 2009 and 2012. Although this university did not have the highest enrolment figures, the graduation rates were excellent (ranking number 1 in 2009, 2010 and on average). Much can be learnt from these two universities and the measures they have taken over the last few years for increased accessibility. The University of Zululand ranked in last place for 2010, 2011 and on average over the period. With low enrolment rates as well as low graduation rates this is not surprising.

The University of South Africa, although ranking number 1 consistently in terms of Gross Enrolment Rates, did not perform well overall on the rankings due to its low graduation rates. If these low graduation rates at the University of South Africa are addressed as a matter of urgency, there is no doubt that this university could make an immense contribution in the supply of accountants and the financial skills shortage. This university provides an opportunity to students with financial constraints as students can study on a part-time basis and work to pay their tuition fees. It also provides an opportunity to those who are geographically removed from residential universities such as those students living in rural areas, townships or informal settlements. Although this university obtained an average ranking, it still makes a remarkable contribution towards overall accessibility of accountancy programmes in South Africa.

The ranking of the public universities in South Africa based on accessibility of accountancy programmes provides an indication of how each university is performing in the task of addressing the financial skills crisis, specifically relating to accountancy, in South Africa. It not only gives each individual university an indication of how it is performing but makes it possible to compare the public universities with each other based on accessibility indicators. By providing the results of the accessibility indicators over a period of time, as was done in this study, progress can be closely monitored by governing bodies such as the DHET and corrective measures can be implemented pro-actively where problems are identified.

Although headcount enrolments across the public universities in terms of accountancy related programmes do not seem too low, the graduation rates are a cause for concern.

It is strongly recommended that accessibility of scarce skills occupations, particularly that of accountancy in South Africa, be measured regularly on an overall basis as well as for each public university. It is also recommended that specific targets should be set by the DHET for these accessibility indicators, specifically for scarce skills occupations such as accountancy, to measure the performance of public universities in South Africa.

If South Africa wants to compete in a global economy and meet the demand of financial skills required to do so, the measurement of accessibility indicators for accountancy programmes offered and the ranking of the public universities based on the results should become priority. Problems relating to the accessibility of higher education or the scarce skills shortage cannot be ignored. Structured plans and overview processes are desperately needed whereby the public universities in South Africa can be regularly measured and ranked which could subsequently force them to address serious accessibility problems in terms of accountancy related programmes.

ANNEXURE

TABLE 1: GROSS ENROLMENT RATES AND RANKINGS FOR PUBLIC HIGHER EDUCATION INSTITUTIONS IN SOUTH AFRICA IN TERMS OF ACCOUNTANCY PROGRAMMES FOR THE PERIOD 2009 TO 2012

Higher education institution	Gross Enrolment Rate (%)	Ranking	Gross Enrolment Rate (%)	Ranking	Gross Enrolment Rate (%)	Ranking	Gross Enrolment Rate (%)	Ranking	Average GER for 2009 - 2012 (%)	Ranking based on average GER
University of South Africa	0.93%	1	0.89%	1	0.93%	1	0.92%	1	0.92%	1
University of Johannesburg	0.17%	2	0.13%	2	0.18%	2	0.15%	2	0.16%	2
Tshwane University of Technology	0.11%	3	0.11%	3	0.10%	3	0.09%	3	0.10%	3
University of KwaZulu-Natal	0.09%	4	0.09%	4	0.07%	5	0.06%	4	0.08%	4
Walter Sisulu University	0.07%	5	0.08%	5	0.08%	4	0.06%	4	0.07%	5
Cape Peninsula University of Technology	0.07%	5	0.05%	7	0.05%	6	0.05%	5	0.06%	6
Durban University of Technology	0.07%	5	0.05%	7	0.05%	6	0.05%	5	0.06%	6
University of Cape Town	0.07%	5	0.05%	7	0.03%	8	0.03%	7	0.05%	7
Nelson Mandela Metropolitan University	0.05%	7	0.05%	7	0.05%	6	0.05%	5	0.05%	7
North West University	0.06%	6	0.04%	8	0.04%	7	0.04%	6	0.05%	7
University of Pretoria	0.07%	5	0.04%	8	0.04%	7	0.04%	6	0.05%	7
Vaal University of Technology	0.04%	8	0.05%	7	0.05%	6	0.04%	6	0.05%	7
University of the Free State	0.04%	8	0.05%	7	0.04%	7	0.05%	5	0.04%	8
University of Witwatersrand	0.05%	7	0.06%	6	0.04%	7	0.03%	7	0.04%	8
University of Limpopo	0.01%	11	0.02%	10	0.04%	7	0.04%	6	0.03%	9
University of Stellenbosch	0.03%	9	0.03%	9	0.03%	8	0.03%	7	0.03%	9
Mangosuthu University of Technology	0.03%	9	0.03%	9	0.03%	8	0.03%	7	0.03%	9
Central University of Technology, Free State	0.02%	10	0.02%	10	0.02%	9	0.02%	8	0.02%	10
University of Fort Hare	0.01%	11	0.02%	10	0.02%	9	0.02%	8	0.02%	10
University of Venda	0.03%	9	0.03%	9	0.02%	9	0.02%	8	0.02%	10
University of Western Cape	0.01%	11	0.02%	10	0.02%	9	0.02%	8	0.02%	10
Rhodes University	0.01%	11	0.01%	11	0.01%	10	0.01%	9	0.01%	11
University of Zululand	0.01%	11	0.01%	11	0.02%	9	0.02%	8	0.01%	11
	2.05%		1.94%		1.96%		1.88%			

Source: Headcount enrolments in higher education for 23 public universities: DHET as extracted from HEMIS (DHET, 2014a). More detail on the calculations can be obtained from the author.

TABLE 2: POPULATION IN 20-24-YEAR AGE GROUP, 2009-2012

Year	Population in 20-24-year age group in South Africa
2009	**4 770 069**
2010	**4 827 824**
2011	**4 896 792**
2012	**4 966 691**

Source: Statistics South Africa, 2013.

TABLE 3: GRADUATION RATES AND RANKINGS FOR PUBLIC HIGHER EDUCATION INSTITUTIONS IN SOUTH AFRICA IN TERMS OF ACCOUNTANCY PROGRAMMES FOR THE PERIOD 2009 TO 2012

Public Higher education institution	2009 Graduation rate (%)	2009 Ranking	2010 Graduation rate (%)	2010 Ranking	2011 Graduation rate (%)	2011 Ranking	2012 Graduation rate (%)	2012 Ranking	Average graduation rate for 2009 - 2012	Ranking based on average graduation rate
University of Stellenbosch	45.55%	1	46.20%	1	35.73%	2	36.11%	2	40.90%	1
Cape Peninsula University of Technology	37.12%	2	39.15%	2	36.31%	1	37.77%	1	37.59%	2
University of Cape Town	27.22%	7	29.30%	4	30.03%	4	32.48%	4	29.76%	3
Durban University of Technology	34.20%	3	30.33%	3	26.57%	5	22.55%	13	28.41%	4
University of Witwatersrand	22.04%	13	21.25%	11	30.34%	3	35.37%	3	27.25%	5
University of Pretoria	27.50%	6	27.84%	6	24.69%	9	27.72%	8	26.93%	6
Tshwane University of Technology	29.62%	4	25.31%	8	25.56%	8	26.40%	9	26.72%	7
North West University	26.75%	8	26.36%	7	25.81%	7	25.76%	10	26.17%	8
Central University of Technology, Free State	24.61%	10	24.75%	9	26.00%	6	28.70%	7	26.02%	9
Rhodes University	17.51%	15	18.41%	14	21.82%	12	29.52%	5	21.81%	10
University of Johannesburg	16.91%	17	17.95%	15	21.91%	11	29.51%	6	21.57%	11
Vaal University of Technology	24.28%	11	19.89%	12	19.76%	14	18.23%	16	20.54%	12
University of Limpopo	25.27%	9	23.15%	10	16.68%	17	15.72%	18	20.20%	13
University of Venda	23.18%	12	28.61%	5	16.76%	16	10.83%	22	19.84%	14
University of Fort Hare	15.01%	20	18.49%	13	22.23%	10	23.59%	12	19.83%	15
Walter Sisulu University	16.87%	18	17.44%	17	20.26%	13	24.03%	11	19.65%	16
University of the Free State	18.17%	14	17.94%	16	18.01%	15	18.85%	15	18.24%	17
University of Western Cape	29.04%	5	11.72%	18	12.90%	21	12.21%	20	16.47%	18
Nelson Mandela Metropolitan University	17.08%	16	11.45%	19	14.04%	20	16.56%	17	14.78%	19
University of Kwa-Zulu Natal	11.16%	22	10.82%	20	15.82%	18	19.63%	14	14.36%	20
Mangosuthu University of Technology	13.89%	21	8.03%	21	14.28%	19	12.45%	19	12.16%	21
University of Zululand	15.43%	19	7.36%	22	7.62%	22	11.16%	21	9.84%	22
University of South Africa	4.65%	23	5.14%	23	6.70%	23	6.35%	23	6.26%	23
	14.96%		15.14%		15.02%		15.65%			

Sources: Headcount enrolments in higher education for 23 public universities: DHET as extracted from HEMIS (DHET, 2014a). More detail on the calculations can be obtained from the author.

Graduates for 23 public universities: DHET as extracted from HEMIS (DHET, 2014b).

TABLE 4: OVERALL ACCESSIBILITY RANKINGS OF PUBLIC UNIVERSITIES IN SOUTH AFRICA IN TERMS OF ACCOUNTANCY PROGRAMMES FOR THE PERIOD 2009 TO 2012

Higher education institution	2009 Gross Enrolment Rate Ranking	2009 Graduation rate Ranking	2009 50% GER + 50% grad rate	2009 Overall ranking for 2009	2010 Gross Enrolment Rate Ranking	2010 Graduation rate Ranking	2010 50% GER + 50% grad rate	2010 Overall ranking for 2010	2011 Gross Enrolment Rate Ranking	2011 Graduation rate Ranking	2011 50% GER + 50% grad rate	2011 Overall ranking for 2011	2012 Gross Enrolment Rate Ranking	2012 Graduation rate Ranking	2012 50% GER + 50% grad rate	2012 Overall ranking for 2012	2009-2012 Ranking based on average Gross Enrolment Rate	2009-2012 Ranking based on average graduation rate	2009-2012 50% GER + 50% grad rate	2009-2012 Overall ranking for 2009 -2012
University of South Africa	1	23	12.0	**13**	1	23	12.0	**11**	1	23	12.0	**14**	1	23	12.0	**13**	1	23	12.0	**8**
University of Johannesburg	2	17	9.5	**8**	2	15	8.5	**6**	2	11	6.5	**5**	2	6	4.0	**2**	2	11	6.5	**3**
Tshwane University of Technology	3	4	3.5	**1**	3	8	5.5	**3**	3	8	5.5	**3**	3	9	6.0	**6**	3	7	5.0	**2**
University of KwaZulu-Natal	4	22	13.0	**14**	4	20	12.0	**11**	5	18	11.5	**13**	4	14	9.0	**10**	4	20	12.0	**8**
Walter Sisulu University	5	18	11.5	**12**	5	17	11.0	**9**	4	13	8.5	**9**	4	11	7.5	**8**	5	16	10.5	**6**
Cape Peninsula University of Technology	5	2	3.5	**1**	7	2	4.5	**1**	6	1	3.5	**1**	5	1	3.0	**1**	6	2	4.0	**1**
Durban University of Technology	5	3	4.0	**2**	7	3	5.0	**2**	6	5	5.5	**3**	5	13	9.0	**10**	6	4	5.0	**2**
University of Cape Town	5	7	6.0	**5**	7	4	5.5	**3**	8	4	6.0	**4**	7	4	5.5	**5**	7	3	5.0	**2**
Nelson Mandela Metropolitan University	7	16	11.5	**12**	7	19	13.0	**13**	6	20	13.0	**16**	5	17	11.0	**12**	7	19	13.0	**10**
North West University	6	8	7.0	**6**	8	7	7.5	**5**	7	7	7.0	**6**	6	10	8.0	**9**	7	8	7.5	**4**
University of Pretoria	5	6	5.5	**4**	8	6	7.0	**4**	7	9	8.0	**8**	6	8	7.0	**7**	7	6	6.5	**3**
Vaal University of Technology	8	11	9.5	**8**	7	12	9.5	**7**	6	14	10.0	**11**	6	16	11.0	**12**	7	12	9.5	**5**
University of the Free State	8	14	11.0	**11**	7	16	11.5	**10**	7	15	11.0	**12**	5	15	10.0	**11**	8	17	12.5	**9**
University of Witwatersrand	7	13	10.0	**9**	6	11	8.5	**6**	7	3	5.0	**2**	7	3	5.0	**4**	8	5	6.5	**3**
University of Limpopo	11	9	10.0	**9**	10	10	10.0	**8**	7	17	12.0	**14**	6	18	12.0	**13**	9	13	11.0	**7**
University of Stellenbosch	9	1	5.0	**3**	9	1	5.0	**2**	8	2	5.0	**2**	7	2	4.5	**3**	9	1	5.0	**2**
Mangosuthu University of Technology	9	21	15.0	**15**	9	21	15.0	**15**	8	19	13.5	**17**	7	19	13.0	**14**	9	21	15.0	**12**
Central University of Technology, Free State	10	10	10.0	**9**	10	9	9.5	**7**	9	6	7.5	**7**	8	7	7.5	**8**	10	9	9.5	**5**
University of Fort Hare	11	20	15.5	**16**	10	13	11.5	**10**	9	10	9.5	**10**	8	12	10.0	**11**	10	15	12.5	**9**
University of Venda	9	12	10.5	**10**	9	5	7.0	**4**	9	16	12.5	**15**	8	22	15.0	**17**	10	14	12.0	**8**
University of Western Cape	11	5	8.0	**7**	10	18	14.0	**14**	9	21	15.0	**18**	8	20	14.0	**15**	10	18	14.0	**11**
Rhodes University	11	15	13.0	**14**	11	14	12.5	**12**	10	12	11.0	**12**	9	5	7.0	**7**	11	10	10.5	**6**
University of Zululand	11	19	15.0	**15**	11	22	16.5	**16**	9	22	15.5	**19**	8	21	14.5	**16**	11	22	16.5	**13**

Source: Author's own calculations

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