Research article

The contours of inequality: The links between socio-economic status of students and other variables at the University of Johannesburg

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Abstract

The low level of student success in South Africa is an intractable problem, with levels of success differing between the various groups that make up South African society. One of the major constraints influencing student success involves the socio-economic status (SES) of newly entering students. In the South African context, with its very high levels of SES inequality and other social stratifications, a better understanding of issues related to SES would allow them to be addressed in targeted ways that lead to improved student success. This study was conducted at the University of Johannesburg and used data collected between 2010 and 2015. In this study, the SES of students was determined by measuring their self-reported Living Standards Measure (LSM) level. The relationships between the SES level and various socio-demographic variables were then tested using the chi-square test with standardised residuals. The trends that emerged can assist institutions to gain a more nuanced understanding of SES and its impact in the South African context. Three clear clusters emerged each with their own distinguishing attributes and risk profiles.

Keywords

Higher education, inequality, social stratification, transformation, University of Johannesburg, South Africa.

Introduction

Students in South African higher education find it difficult to succeed. South Africa's combination of a low participation rate and a high dropout rate has been called a "low participation, high attrition" system (CHE, 2013, p. 52). Not only are South African students and institutions failing to create a situation in which students have a reasonable chance of success, the net effect of the current situation is that only 5% of African and Coloured young people are succeeding in higher education (CHE, 2013). This state of affairs is worrying and has led to a lot of attention being focused on a variety of issues related to student success and equity of outcomes. The terms Coloured, White, African and Indian in this study refer to self-identified classifications according to nationally used equity criteria.

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Many students who fail are poor and, as Scott, Yeld and Hendry (2007) point out, the concept of student under-preparedness is often used to discount these poor students. This simplistic view is, however, not tenable. Issues such as social capital, schooling and a lack of career guidance are directly related to poverty and are known to play important roles in determining student success. The divided and unequal state of the socio-economic status (SES) distribution in South Africa has a crucial impact and, according to Walton, Bowman and Osman (2015), crystallises in the student protests about funding on many South African campuses. This also leads to a questioning of the concept under-preparedness (CHE, 2013, p. 17) and an acceptance that "a gap can be closed from either side" (from the student/societal or the institutional sides).

Schreiber, Leuscher-Mamashela and Moja (2014, p. vii) point out that the most important modern theorist on student academic persistence (Hausmann, Schofield and Woods, 2007), Vincent Tinto, links pre-entry attributes to student integration. They further identify the whole idea of integration as especially important in a context with "fragmented social structures" and "deepened social cleavages". Tinto (2014) framed his South African discussions as part of the Quality Enhancement Project by pointing out that there is a performance gap between relatively rich and relatively poor students in the USA and that this gap seems to be growing over time. As Tinto (2014, p. 6) stated during his South African visit: "Providing students access without support is not opportunity. Without support, academic, social, and financial, too many students do not complete their programmes of study. It is my view that once an institution admits a student, it becomes obligated to provide, as best it can, the support needed to translate the opportunity access provides to success". Walton, Bowman and Osman (2015) found that finance plays an enabling role allowing students admitted to university also to succeed.

The link between the financial resources available to a student and his or her ability to persist has been made by many researchers, including Astin (2005); Berkovitz and O'Quin (2006); Isaak, Graves and Mayers (2006); Kreysa (2006); and Veenstra (2009). In the South African context, the link between SES and student persistence has been confirmed by De Beer (2006); Manik (2014); and Van Zyl, Gravett and De Bruin (2012). Reason (2009) found that SES was the second most powerful predictor of student success (after previous academic performance) in the United States. Poor students often have a combination of factors that puts them at a higher than normal risk of non-completion (Van Rooyen, 2001; Wessel et al., 2006).

Many authors, including Caison (2005) and Kuh et al. (2007), have found that poorer students often do not have the necessary skills and support to manage on their own. These students tend to have a variety of complex risk factors present in their background and demographic characteristics (Johnston & MacLeod, 2004; Kuh et al., 2007). McLoughlin (2012) and Williams, Leppel and Waldauer (2005), for example, identify SES as an important factor in student career choice; lower levels of academic preparedness; general academic performance; and ability to complete their studies. Lower-SES students are often first-generation university entrants; have poorer high school education; and have access to very low levels of financial support and other socio-cultural factors (Jones et al., 2008;

Wessel *et al.*, 2006). McLoughlin (2012, pp. 12–13) also suggests that low–SES students experience higher education differently from their richer colleagues. This includes their perceived ability to make friends and "fit in", their experiencing pressure more acutely, and the fact that they experience pressures to access basic necessities. Such students often also lack the ability to make the necessary social links needed for academic success (Astin, 2005).

Breier (2010) points out that "financial constraints" in some contexts refer to temporary financial problems with which institutions are often able to assist students. As a result, internationally, low SES is often identified as a secondary cause for student early departure and/or dropout. The concept "financial constraints" can, however, often have a very different meaning depending on the context within which it is used. Breier (2010, p. 669) uses the words "deprivation" and "extreme poverty" to indicate the deeper level of financial constraints faced by students in the South African context. When someone is poor in South Africa, it often means they do not have access to many relatively basic life requirements. A lack of finances tends to impede their academic success more acutely and the wide range of serious financial side effects might cause them to drop out at any point during their academic career. Breier (2010) found that "financial constraints" have a greater and a more continuous effect on poorer students in South Africa than on their richer counterparts.

South Africa still suffers from deep economic fragmentation linked to the country's history, clearly illustrated in one of the highest Gini coefficients in the world (0.63 in 2011 compared to 0.41 in the USA). This deep level of poverty prevalent in South African society is illustrated in the publication *Poverty trends in South Africa* (Statistics South Africa, 2014). In this document, it was reported that 45% of the South African population (approximately 23 million people) were classified as "poor" with 20.2% (10.2 million people) living in "extreme poverty". Not only is there an exceptionally wide division between rich and poor (as reflected in the Gini coefficient), that division is still strongly delineated according to race (Manik, 2014). This is illustrated by the fact that 54% of black Africans are classified as poor and only 0.8% of Whites are so classified (Statistics South Africa, 2014). According to Breier (2010), these patterns of poverty continue to reflect the country's racially divided past. This has led Letseka, Breier and Visser (2009, p. 25) to apply the concept of "two nations" living simultaneously in South Africa to the South African context. When students from the very poor SES groups enter university, they often struggle to meet the basic financial requirements of university studies; any unforeseen expenses exacerbate the problems they face.

It is therefore clear that many talented students in South Africa find themselves constrained by finances and, as a result, unable to translate their potential into actual performance. Yorke and Longden (2004) also point out that making progress in the area of student success in a relatively poor country, like South Africa, is a far greater challenge than in richer countries with more resources available to them. This makes it very important to unpack the various socio-economic status levels by looking into their constituents. As Reason (2009) points out, such an understanding would allow institutions the benefit of being able to target interventions at specific sub-groups.

Research method and analysis

To address the above questions in the context of one university in the South African context, this paper presents research conducted using a sample of 21 037 student responses collected using the Student Profile Questionnaire (SPQ) between 2010 and 2015 at the University of Johannesburg (UJ). UJ is a merged institution that came into existence in 2005, with four campuses, each with its own history. The demographic characteristics of the participants in this study closely matched the demographic profile of the institution (South African National Census 2011 data given in brackets; Statistics South Africa, 2012), with 82.1% (79.2%) of the sample being black African; 3.5% (2.5%) Indian; 3.6% (8.9%) Coloured; and 10.8% (8.9%) White. This is broadly representative of the demographic profile of South Africa. A total of 9 011 (42.8%) male students and 12 026 (57.2%) female students took part in this study and the four campuses and nine faculties of the university were proportionally represented in the sample.

Variables

To investigate the relationship between SES and other variables, it was decided to use the Living Standards Measure (LSM) instrument that was developed and refined by the South African Advertising Research Foundation (SAARF) (Martins, 2006). The LSM measure was used as a recognised SES measure to investigate links to other student data obtained from the Student Profile Questionnaire. The original LSM instrument was created in the 1980s; the updated universal Living Standards Measure came into use in, and was refined from, 2001 (Martins, 2006). The LSM subdivides the population into 10 LSM categories, which, for the purpose of this study, have been grouped into five groups. The development and testing of the SPQ is described in Van Zyl (2010) and van Zyl *et al*. (2012). The relationships between 21 socio-demographic and academic variables with the five SES levels created from the LSM scores were investigated. The LSM levels were typified as Low, Medium Low, Medium High, High and Very High. Classification was done based on the LSM level divisions as per the SAARF website (www.saarf.co.za).

Data analysis

Both variables in this study were categorical and, as a result, the chi-square test was selected to investigate the statistical association between them (Agresti & Finlay, 2009). The chi-square test assumes that no relationship between the variables exists and then tests that assumption statistically. The Pearson chi-square value was used (Pallant, 2005) to test if a statistically significant relationship between the two variables existed. While analysing the cross-tabs, a significance level of $p = < 0.05$ was used in selecting significant variables and Cramer's V was calculated to determine the effect size of the variables.

The results obtained from the analyses for the whole group using LSM and selected socio-demographic variables are shown in Table 1.

Table 1: Chi–square results for all variables with LSM level

Variable	χ^2	df	P	Cramer's V
Gender	11.674	4	0.020	0.024
Population group	2 485.712	12	<0.001	0.199
Campus	236.303	12	<0.001	0.063
Did you visit a campus before coming to university?	15.876	4	0.003	0.027
Why are you studying?	49.010	28	0.008	0.024
Which role does your family play in your studies?	54.740	16	<0.001	0.026
How easy will making friends be?	219.359	12	<0.001	0.059
Have you considered changing course?	45.976	8	<0.001	0.033
Self-rated English level	799.421	12	<0.001	0.113
How many books were there in the house in which you grew up?	1 592.084	20	<0.001	0.215
How many books have you read for fun in the past year?	355.544	12	<0.001	0.117
Rate your English teacher's English level	417.644	12	<0.001	0.130
For how many hours did you study at school?	112.952	16	<0.001	0.037
NBT Quantitative Lit. level	436.270	8	<0.001	0.175
NBT Academic Lit. Level	486.653	8	<0.001	0.188
Distance from campus	359.715	16	<0.001	0.065
Where will you stay?	585.630	20	<0.001	0.083
Are you worried about money stopping your studies ?	3 868.258	4	<0.001	0.429
How are you financed?	433.151	16	<0.001	0.072
Which level of education does the parent with the highest level have?	288.936	20	<0.001	0.060
First-generation status	422.394	20	<0.001	0.071

Note: Statistically significant pre-entry attributes on the p ≤ 0.001 level shown in bold face

Standardised residuals

Chi-square results indicate a statistically significant relationship, but do not indicate where within the variables the relationship resided. By calculating standardised residuals for all instances where a statistically significant chi-square result was found, it was possible to see where in the variables the relationship was located (see Table 2). The general rule for standardised residuals is that an absolute value of 2 or greater (or −2 or less) implied that there is a 95% chance that the variation had been caused by the one variable's influence on the other. Any standardised residual of 3 or more (or −3 or less) moved the level of certainty up to the 99% level (Hinkle *et al.*, 1988). A positive standardised residual indicated that the

observed frequency in that cell was higher than would be expected if no relationship was found. A negative residual indicated that the cell had a lower frequency than would be expected if no relationship existed.

Table 2: Standardised residuals LSM and socio–demographic factors

LSM level	Low	Medium Low	Medium High	High	Very High
Factor					
Population group					
White	−8.1	−14.7	−14.0	−10.3	35.1
Indian		−9.8	−4.8	−4.5	12
Coloured	4.6	−3.8	−4.1		2.0
African	2.1	7.5	6.9	5.0	−15.6
Campus					
Campus 1 (City, degree focus)	−3.3	−3.8			6.9
Campus 2 (City, diploma focus)	3.8				
Campus 3 (Inner city, diploma)		3.3			−3.8
Campus 4 (City/informal)	2.0	4.5	4.9		−8.0
Visit campus					
No					−2.9
Why study?					
Because I really want to				−2.4	2.2
Family role					
Shows some interest, not very involved	3.2			2.0	−3.9
Making friends					
Very tough		−3.5			3.8
Somewhat difficult	3.2	3.9	3.4		−8.5
Very easy	−5.0				6.7
Considered changing course					
No	−2.0				3.1
Yes, but I did not change it					−3.4
Yes, and I changed it to something else	2.3				−2.8
English level					
First language		−9.1	−8.4	−7.3	17.1
Second language		6.7	6.0	5.5	−12.4
Books in house					
None	−11.3	−4.6		3.2	23.6
1	−4.6			2.6	4.9

LSM level	Low	Medium Low	Medium High	High	Very High
2 to 10	−8.4	2.9	5.0	6.1	
11 to 20	3.4				−6.9
21 to 50	8.9		−3.7	−3.9	−7.7
More than 50	14.2	−2.1	−4.7	−8.2	−7.6
Books read					
None	−4.2	−4.0	−2.2		15.2
Fewer than 5					−5.0
Fewer than 10					−4.9
English teacher					
First language	9.9	−3.1	−4.5	−7.9	
Second language (good)	−9.4	3.5	4.9	7.0	
Third language (reasonable)	−4.6			4.4	
Fourth (poor)				2.4	
Previous study habits					
Fewer than 5 hours per week		2.3		−3.8	3.9
Between 15 and 20 hours per week					−2.7
More than 20 hours per week			2.0	2.1	−6.0
NBT Quantitative Lit.					
Basic	4.3	3.8	3.7		−10.8
Intermediate	−2.7				5.9
Proficient	−4.0	−5.1	−4.5		12.6
NBT Academic Lit.					
Basic	5.6	4.3	3.6		−10.8
Proficient	−4.6	−5.3	−6.6		14.4
Distance from campus					
On campus		−2.8			2.6
Within easy walking distance		4.8	4.2	4.2	−9.4
Less than 20 minutes' drive away				−2.4	3.6
Between 20 minutes and one hour's drive		−3.4	−4.8	−2.4	7.7
More than one hour's drive	2.1	2.7	2.0	2.7	−7.3
Place of residence					
At home		−6.4	−6.6	−6.3	12.9
Institutional accommodation	−2.2	2.2	4.1	3.9	−5.1
Private accommodation (students only)		5.8	5.0	3.9	−10.9

LSM level	Low	Medium Low	Medium High	High	Very High
(students and non–students)					−2.0
Not at home but with family or friends					−2.0
Other	−2.0			3.5	
Worried about money					
Yes	27.0			−5.3	−19.9
No	−41.3	2.7		8.2	30.5
Financial options					
Parents will pay		−5.0	−4.9	−4.8	10.1
Loan		4.6	5.4	4.9	−10.9
Bursary	−4.2	3.8	3.7		−2.4
Combination of answers	2.0				
Parental qualifications					
Some schooling (not Grade 12)			3.1	2.0	−2.5
Completed Grade 12	−3.0	2.5	2.5	2.2	−2.2
Fewer than three years of study after Grade 12					−2.4
A three-year qualification	4.0				−3.2
More than tree years of study after Grade 12		−5.6	−6.4	−2.1	9.6
First-generation status					
First in family			2.0		−3.0
Both parents to university		−2.5	−3.3		3.5
Parents not but a brother or sister		5.9	4.1		−8.2
Many members of family attended		−6.3	−6.4	−2.6	10.8

Discussion

The results above contain a variety of interesting trends. Some confirm findings in other studies and others (especially amongst the Low SES [LSES] and the Very High SES [VHSES] groups) seem anomalous and require further investigation. Using the standardised residuals to identify the details of the location of statistically significant relationships, three main groups emerged from the results above: The Low SES group displayed a number of distinguishing attributes (Group 1); the Medium Low SES (MLSES), Medium High SES (MHSES), and High SES (HSES) groups have a lot in common (Group 2); and, the VHSES group emerges as distinct in some ways (Group 3).

As was found by Manik (2014, p. 159), and confirmed in Groups 1 and 2 (as discussed below), the various types of "deprivations" suffered by poor students were not mutually exclusive and, as a matter of fact, tended to overlap. In the case of Group 3, the various types

of advantage were also found to overlap. The findings also support the position of Visser and Van Zyl (2013) with regard to the linking of population groups to relative advantage and/or disadvantage in the South African context. Moreover, the findings support Kuh *et al*. (2007), who found a statistically significant link between the finance methods students use and academic performance.

The three groups that emerged from the analyses were, then, as follows:

Group 1: Low–SES students

The LSES group consisted mostly of African students who tended to congregate on specific campuses of the University of Johannesburg. This group of students used a combination of funding sources and in many cases they had to try any means they could to access the required funds. As a result, this group tended to be worried that a lack of funding would stop them from completing their studies. Such students were also less likely to be able to access relatively costly institutional accommodation; as a result, they often had to travel for more than one hour to get to campus. On a social level, these students tended not to have a lot of parental support, confirming Modipane's (2011) notion that relative socio-economic status was linked with the likelihood that parents would support their children towards academic success. Group 1 students also expected it to be difficult to make friends in the new environment. Many of these students had to change their intended course of study at a late stage – indicating that they are likely not to be enrolled for their first-choice course. These students were also the most poorly prepared group academically, being more likely to have an academic literacies (AL) and quantitative literacy (QL) National Benchmark Test (NBT) score in the basic band (and less likely to be in the proficient band).

It is clear that students in this group have many risk factors and seemingly insurmountable obstacles in their way, but they still manage to gain entrance to university. The seemingly anomalous findings of this paper might give an indication of some of the enabling factors that allow students to make this heroic leap. These factors include that such students come from homes with many books, which is likely to indicate a reading culture and a value placed on education. These students were also likely to have read a number of books during the previous year and their parents seem to have tried to access further education. Another enabling factor seemed to be that Group 1 students had been taught English by someone who, in their perception, is an English first-language speaker. In summary, a literacy culture and value of education at home and a good English foundation seem to be enablers to get these very poor students into higher education.

Group 2: Medium-low, Medium-high and High-SES students

The second group consists of students from the MLSES, MHSES and HSES groups. This "middle group" has a lot in common and tended to show very similar patterns. This group consisted mostly of African students who tended to be distributed more evenly (less so for MLSES) amongst the four campuses of the university. Socially, they expected some difficulty in making friends, but they did not have a propensity to change their course at a

late stage. This group tended to come from homes with a moderate number of books and they were likely to have read at least a few books in the previous year. Students were likely to report that English was not their first language and that the main person who taught them English was not an English first-language speaker. These students also tend to report that they worked relatively hard at school, but they tended to be more likely to be in the basic band (and less likely to be in the proficient band) for both the NBT AL and QL tests. These students tended either to stay in institutional accommodation or in communes relatively close to campus; they were less likely to stay at home. This meant that students in this group tended either to be able to walk to campus or had to travel for more than one hour to get to campus. Students tended to be less worried about money and they either used a bursary or a loan to fund their studies. It is likely that many of these students qualified for, and were able to access, National Student Financial Aid Scheme (NSFAS) loans. The parental education of students in Group 2 tended to be up to Grade 12 level, with few students having parents with more than a three-year qualification after school – as a result, these students also tended to be first-generation university entrants.

Group 3: Very-high-SES students

The last group were from the VHSES group and tended to represent the privileged minority. They were less likely to be African and were unevenly distributed amongst the institutional campuses. Students in Group 3 tended to report that they wanted to study, but contrary to the findings of Modipane (2011), their parents were not very involved in their studies. Socially, students either expected it to be very easy or very difficult to make friends, and they were not likely to have considered changing course. These students were much more likely to be English first-language speakers, and they tended to be more likely to score in the proficient NBT bands. Group 3 students tended to stay at home or on campus and have a moderate (less than one hour) commute to get to class. On the financial front, students tended not to be worried about money, and their main funding source was their parents (they were less likely to use a loan or a bursary). These students also tended to come from homes where higher education was something normal and where many members of their family had gone before them.

The analyses of the VHSES group also contained some seemingly anomalous findings, which put their seemingly strong position to succeed in higher education (explained above) at risk. More so than expected, VHSES students reported having no or one book in the house where they grew up and fewer than expected reported that they had more than 10 books (all categories). More students than expected in this group reported not having read any books for fun in the previous year, and fewer than expected reported having read 10 or fewer books. More students than expected in this group reported having studied for fewer than five hours a week at school and fewer than expected reported studying for 15 or more hours a week. These results seem to suggest that the advantaged background of VHSES students allows them easier access to higher education, but at the same time their poor literacy and study habits put them at risk of finding the transition into higher education particularly difficult.

Conclusion

Although it is difficult for institutions to address the financial problems that students experience directly, detailed early advice may be one possible strategy to lessen the impact of a lack of financial resources on student success. Students who anticipate the financial struggles they could encounter before they arrive are a lot more likely to persist when compared with those who are surprised by this challenge (Hawley & Harris, 2005, p. 133).

Although it is a well-known fact that SES in South Africa is unequally divided and still strongly delineated along racial lines, these conclusions in themselves can often obscure the truth about the challenges that students from different SES groups face. It is clear that both poverty (and its effects) and wealth (and its effects) create very high levels of inequality in an entering cohort, as well as in their experiences of higher education.

From these findings, it becomes clear that each of the broad SES groups brings its own strengths and weaknesses to the higher education endeavour. Students from the very low SES band come with many obstacles, but they also have unexpected strengths (such as literacy-friendly home and school environments). These students are most likely to drop out because of financial reasons and they seem to have less access to NSFAS than groups that are slightly higher on the SES ladder. Students in the middle group tend to be less worried about money and able to access external funding, but they seem to be less well prepared from social background, schooling and academic perspectives. Students in the VHSES group, on the other hand, seem to bring potential strengths, but their academic and literacy habits as well as parental support and commitment seem to be lacking.

These different descriptions – drawn from the University of Johannesburg – clearly show why a one-size-fits-all approach to student support and development will not work. This also holds important implications for many other South African institutions, as their student populations are increasingly representative of the country's population. As is the case with regards to many other attributes, students from different SES levels clearly have different needs, and institutions of higher learning should customise their interventions to the identified needs of these groups.

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