Students' Internal Efficiency in Public Day Schools in Ngoma Sector, Huye District of Rwanda

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Abstract

This study aimed to estimate students' internal efficiency in Public Day Schools implementing Nine Year Basic Education (9YBE)[1] policy in Ngoma Sector, Huye District of Rwanda. Since the Government of Rwanda embarked on the implementation of 9YBE policy, the remarkable increase has been achieved in students' enrolments at both primary and secondary education levels. But, little is known about the extent to which the policy has improved the indicators of internal efficiency such as duration of studies, years-input per graduate, survival and wastage rate. Through a descriptive design, data on students' enrolments and graduation at lower secondary education for the cohort 2013/14 and 2017/18 were gathered from all 2 public day schools in Ngoma Sector by use of statistical survey questionnaire. A reconstructed cohort analysis of 1000 students for both cohorts was computed and compared. The findings provided evidence that during the school years 2013/2017 there had been an increase in indicators students' internal efficiency. Nevertheless, dropouts and stagnation have continued to be hindrances to high school internal efficiency at this level of education. The findings suggest further investigation of the causes of students' stagnation and dropout and workable interventions that consider the context of 9YBE policy.

Keywords: *Internal efficiency, student-years, cohort, reconstructed cohort, basic education*

Introduction

Since the middle of the 20th century, investment in human capital development has increased drastically. People have been considered as the most important factor of production and economic growth. The level of access to and participation in education, therefore, becomes an indication of human capital accumulation which may lead to rapid economic growth. Consequently, countries have put in place education policies to guide the provision of education to ensure that everyone has the right to and participate in education (UNESCO, 2013; Olaniyan & Okemakinde, 2008).

The Latin American and Asian countries adopted a compulsory and free education policy implementable to children aged 6 to 14 both at primary and lower secondary school levels (Gropello, 2006). In India a compulsory and free education policy to ensure that every child has access to the elementary and fundamental stage of schooling (Pandit, 2016). In Africa, many countries adopted Universal Primary Education (UPE) policy along with abolition of school fees in the 1960s right after the independence

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[1] 9YBE is an acronym given to Nine-Year Basic Education. According to the Ministry of Education, it is defined as " all children to be able to get an education in nine years, this is made up of six years of primary education and three years of the general cycle of secondary education without paying school fees."

(World Bank, 2009). In East Africa, for example, Kenya adopted Free Day Secondary Education policy to ensure increasing transition rate to secondary schools of pupils graduating from primary schools (Muganda, Simiyu, & Riechi, 2016).

The Nine Year Basic Education (9YBE) policy was adopted by the government of Rwanda in 2008 to guide on compulsory and free from primary to lower secondary education for children of 6 to 15 years old   (Ministry of Education, 2013). The overall expectation from the implementation of basic education policies has been to ensure that no one is left behind in accessing and participating in education until completion (UNESCO, 2013).

Education wastage is said when there is an imbalance between education inputs compared to corresponding outputs (UNESCO, 2013). One of the aims of implementing basic education policy has been to ensure that 100 per cent of children that are admitted in primary education in the same school year remain in school until they complete secondary education within the pre-established years (UNESCO, 2013; Ministry of Education, 2013). This means that in a perfect situation the rate of wastage would be equal to one. However, the existence of dropouts and repetition causes some children to go beyond ideal years of schooling a given level of education and consequently increases the rate of wastage.

The study on 'Wastage of secondary education in Ekiti south senatorial district of Ekiti state' indicates an average of 7.5 students - years for one student to complete secondary school instead of 6 students - years. Thus, the wastage ratio at Ekiti state was 1.3 while the internal efficiency was at 76.92% (Adeoye & Olumide, 2014). This implies that policies that are put in place should enable an environment for controlling and minimizing the power of factors contributing to dropout and stagnation of students. A study by Mumina establishes evidence that Free Day Secondary education policy has decreased wastage rates from 44 per cent in the 2006 cohort to 19 per cent in the 2007 cohort in secondary schools in Kathonzweni District in Kenya (Mumina, 2011).

Building on how other policies are performing to diminish the rate of students' wastage, and increasing the rate of internal efficiency this study has a purpose to estimate the internal efficiency in Nine Year Basic education schools. The provision of Nine Year Basic Education (9YBE) aimed at accommodating a big number of successful completers from primary schools and retaining them until they complete the lower secondary education level and reduce students' wastage rate in terms of dropout and stagnation rates and then increase school internal efficiency   (Ministry of Education, 2013).

This study, therefore, sought (i) to determine the rate of internal efficiency for the cohort 2013/14 and 2017/18 and (ii) to find out whether the provision of basic education up to nine years of schooling affected the rate of internal efficiency.

Materials and Methods

The study was a descriptive survey design using quantitative methods to describe the study variables. The target population which was entirely taken as the sample of the study was 2 public day schools implementing 9YBE in Ngoma Sector, Huye district of Rwanda [Sector Education Report, 2019]. Statistical data on students' enrolments and graduation for the cohort 2013/14 and cohort 2017/18 were collected from Ngoma Sector Education Office by use of survey questionnaire.

The analysis of data collected from the field started by grouping data on enrolments, repetitions and graduations into tables and then analysed by computing students flow rates. To arrive at the rate of internal efficiency, the reconstructed cohort flow analysis based on 1000 student registrations was performed and interpreted through the consideration of rates existing promotion, repetition and dropout rates (Chang, 2006).

Results

This section presents the findings of the study. The first part is about students' enrolment flow rates for the cohort 2013/14 and cohort 2017/18. The second part treats indicators of internal efficiency for both cohorts 2013/14 and 2017/18.

Students' enrolments and flow rates for 2013/14 and 2017/18 cohorts

Table 1 Students' Enrolments in 2013/14 and 2017/18 in 9YBE schools in Ngoma sector

Enrolment	S 1	S2	S 3	Graduates
Enrolment 2013	279	199	154	146
Enrolment 2014	204	192	153	
Repeaters 2014	17	11	1	
Enrolment 2017	151	168	178	173
Enrolment 2018	168	132	123	
Repeaters 2018	8	8	0	

Source: Adapted from Sector Education Office Reports, 2019

The data in Table 1 indicate students' enrolments in 2013/14 and 2017/18 school years. In 2013/14 enrolments decreased as higher grades are concerned. In contrast, enrolments increased with a higher grade in the school year 2017. The latter is an indication of either transfer or come back students in that year. In 2018 school year, enrolments decreased with higher grades. The general observation is that the increase in the number of students in higher grades compared to low grades is an indication of some transfers (ingoing) from other schools or the comeback students. The decrease in enrolments is then attributable to stagnation and dropout or transfer (outgoing) to other schools. The number of repeaters at the end of 2013 was higher than that of 2017/18.

Table 2: Students' Flow rates in 2013 and 2017

Flow indicators	S1 to S2	S2 to S3	Graduate rate
Promotion 2013	68.8	76.9	94.8
Repetition 2013	6.1	5.5	0.6
Dropout 2013	25.1	17.6	4.5
Promotion 2017	87.42	73.21	97.19
Repetition 2017	5.30	4.76	0.00
Dropout 2017	7.28	22.02	2.81

Source: Research, 2019

The findings in Table 2 revealed the following: (i) a high rate of promotion at the end of senior 1 in 2017 than that of 2013; (ii) a high rate of dropout in 2013 compared to that in 2017; the comparison of flow rates at the end of senior 2 indicates good performance in 2013 for both promotion rate and dropout rates compared to the same indicators in 2017. For the rate of graduates, a better performance was observed in 2017 than in 2013.
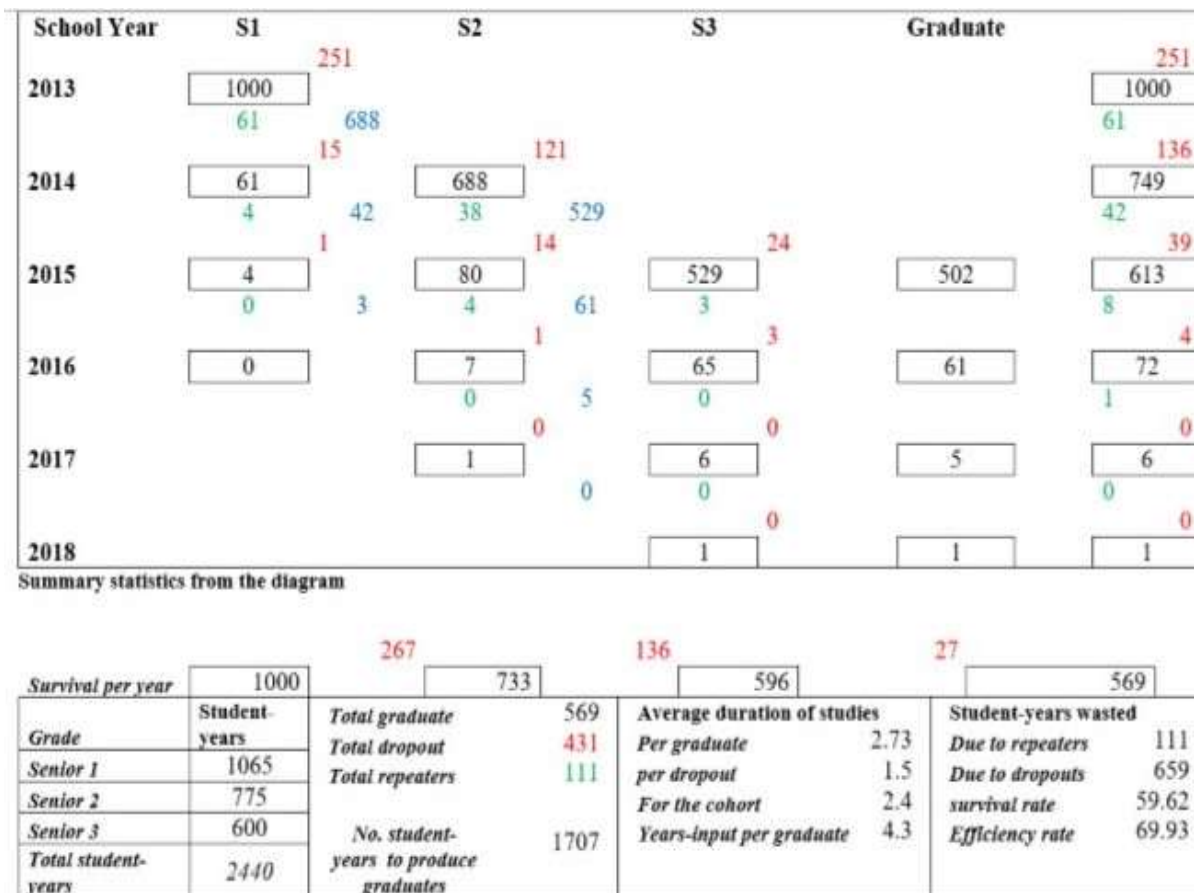

Summary statistics from the diagram

Survival per year	267	1000		733	136	596	27	569

Grade	Student-years		Total graduate	569	Average duration of studies		Student-years wasted	
Senior 1	1065		Total dropout	431	Per graduate	2.73	Due to repeaters	111
Senior 2	775		Total repeaters	111	per dropout	1.5	Due to dropouts	659
Senior 3	600				For the cohort	2.4	survival rate	59.62
Total student-years	2440		No. student-years to produce graduates	1707	Years-input per graduate	4.3	Efficiency rate	69.93

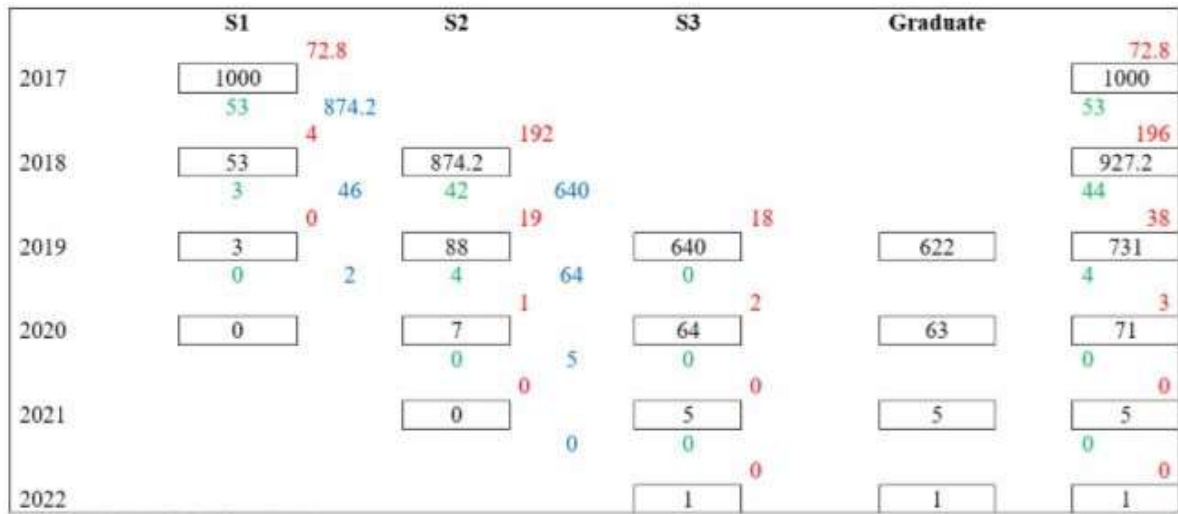**Figure 1.** Diagram of reconstructed cohort flow analysis for 2013/14 cohort

From the above diagram, on the initial 1000 students enrolled in senior one, 502 graduated from the cycle without any repetition; 61 graduate with one year of stagnation, 5 with two years of delay, and 1 after having repeated three times. The survival rate of the cohort was, for example, 733 of the 1000 students of the cohort reached Senior 2 and 596 reached Senior 3. With this, the survival rate of the cohort was 59.62%.

By making the sum of the dropouts of each grade, the results indicate 431 students who gave up the cycle without completing lower secondary education[2]Thus out of 1000 students in the cohort, they were only 569 who completed the lower secondary cycle. The ideal number of student-years to produce the graduates were 1707 whilst the actual number of student-years which were used by the cohort was 2440. Thus, the wastage rate was 1.43 and coefficient of efficiency of the cohort was 0.6993. This finding revealed that public day schools implementing 9YBE policy in Ngoma sector were efficient at 69.93%. In addition to that, the number of the cohort years-input per graduate was 4.3; student-years wasted due to

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[2] Caution has to be taken due to an unknown number of students who transferred to other schools. Here were considered dropping out.

repeaters were 111, and that due to dropouts were 659. The average duration of studies per graduate was 2.73; per dropout was 1.5 and for the cohort was 2.4.

The indicators of internal efficiency were also examined for the cohort 2017/18 as presented in Figure 2 below:

Figure 2: Diagram of reconstructed cohort flow analysis for 2017/18 cohort

The results from diagram of reconstructed cohort flow analysis for 2017/18 cohort revealed on the initial 1000 students enrolled in senior one 690 who graduated from the cycle without any repetition; 63 graduated with one year of repetition, 5 with two years of delay, and 1 after having repeated three times. The survival rate of the cohort was 923 of the 1000 students of the cohort who reached Senior 2 and 710 managed to reach Senior 3.

The survival rate of the cohort was 70.96% which was higher than that of previous cohort 2013/14. By making the sum of the dropouts of each grade, the results indicate 310 students who gave up the schooling system without completing lower secondary education. Thus out of 1000 students in the cohort, they were only 690 who completed the lower secondary cycle. The ideal number of student-years to produce the graduates were 2070. The actual number of student-years who were used by the cohort was 2735. As results, the wastage rate was 1.32 which was less than that of 2013/14. The coefficient of efficiency of the cohort was therefore 0.7567. This means public day secondary schools in Ngoma sector were able to raise internal efficiency to 75.67% in 2017/18 from 69.93% in 2013/14. In addition to that, the number of the cohort years-input per graduate are 4.0, student-years wasted due to repeaters are 102, and due to dropouts are 593. The average studies per graduate is 2.59, per dropout is 1.9 and for the cohort is 2.7.

Discussion

The findings of this study provide evidence that during the school years 2013/2017 there had been an increase of 11.36 points in survival rate, 12.1 points in graduate rates and 5.74 points in school internal efficiency. This implies that over the period under which the 9YBE policy had been on the implementation there had been an improvement in students' retention, completion and time used by students to graduate lower secondary education.

Besides the findings agree with (Muriithi & Oluoch, 2018; Mumina, 2011; Japanese International Cooperation Agency, 2012) that the provision of day schools accompanied with the removal of school fees, in particular, had decreased the incidence of factors contributing to students' dropout and stagnation, hence the increase in efficiency rate. Students' enrolment and internal flow rates have increased due to different intervention put in place during the implementation of basic education policy.

The study validates the results from a systematic review by Snilstveit, and Muriithi and Oluoch which confirm a positive effect of interventions centred on children, household and school on both enrolment and efficiency rate in the delivery of basic education in low and middle-income countries. These interventions include but not limited to the removal of school fees, provision of meal at school, construction of new schools and classroom to accommodate graduates from primary education, flexibility in students' progression principle from one grade to the next grade etc. (Snilstveit et al., 2015; Muriithi & Oluoch, 2018).

Conversely, the findings are in agreement with other studies on the persistence of dropout and stagnation despite the provision of free and compulsory basic education (Belfield & Levin, 2007; Adeoye & Olumide, 2014; Kaume-Mwinzi, 2017).

Conclusion

Upon the findings of this study the following conclusions were drawn:

i.   For the cohort 2013/14, the number of the cohort years- input per graduate was 4.3, the survival rate was 59.62%, the graduation rate was 56.9%, the average studies per cohort was 2.4. Thus the internal efficiency was 69.93%.

ii. For the cohort 2017/18, the number of the cohort years- input per graduate was 4.0, the survival rate was 70.96%, the graduation rate was 69.0%, the average studies per cohort was 2.7. Thus the internal efficiency was 75.67%.

iii. The comparison of the characteristics of the two cohorts provides evidence that over the period (2013/2017) of the provision of basic education up to 9 years of schooling, there had been an increase in school internal efficiency with 5.74 points, graduate rates increased with 12.1 points and survival rate with 11.36 points.

iv. The school system continues to suffer from dropouts and stagnation, especially at the end of senior 1 and senior 2.

Recommendations

Regarding the findings, the following are suggested:

i.   Reinforcing school record-keeping system in a way that it enables data availability and distinguish the number of students who transferred to other schools from dropouts, the number of newly admitted or proposed in a given level from the come-back students

ii. Strengthening all interventions that reduce the number of stagnation and dropouts without deflating the quality of education

iii. Establishing a regular assessment of school internal efficiency as one of quality control measures.

iv. Investigating the causes of students' stagnation and dropout   and possible interventions for high school internal efficiency

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