

**HIDDEN COSTS AND THEIR IMPACT ON STUDENTS'
PARTICIPATION IN BASIC EDUCATION, RWANDA**

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DECLARATION

This thesis is my original work and has not been presented in any other university/institution for any certification. The thesis has been complemented by referenced sources duly acknowledged. Where data, text, graphics and tables have been borrowed from other works including the internet, the sources are specifically accredited through referencing in accordance with anti-plagiarism regulations.

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DEDICATION

I am dedicating this thesis to beloved people who have meant and continue to mean so much to me: my dear wife Yvonne Dusengumuremyi; my son Duke Clerik Blessing; my daughters Ruth Neilla Ineza Chloé Ashely Ineza; my Mother Thamar Nyirabaritonda; my Sister Jeanne d’arc Nyiransabimana; my sister-in-law Marie Goretti Nyirandabaruta and my brothers and Sisters David, Bosco, Jackson, Jean de Dieu and Marie Claire.

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ABBREVIATIONS AND ACRONYMS

12YBE	: Twelve Years Basic Education
9YBE	: Nine Years Basic Education
A'	: Advanced cycle of 12YBE in Rwanda
DEO	: District Education Officer
EAC	: East African Community
EDPRS	: Economic Development and Poverty Reduction Strategy
EFA	: Education for All
ENR	: Enrolment Rate
ESSP	: Education Sector Strategic Plan
FGD	: Focus Group Discussion
GIR	: Gross Intake Rate
GMC	: Global March Children
GoR	: Government of Rwanda
HT	: Headteacher
IPAR	: Institute of Policy Analysis and Research
MDG	: Millennium Development Goals
MDGR	: Millennium Development Goals Regions
MINEDUC	: Ministry of Education
MINECOFIN	: Ministry of Finance and Economic Planning
NDPR	: National Development and Planning Research
NIR	: Net Intake Rate

NISR	: National Institute of Statistics of Rwanda
O'	: Ordinary cycle of 12YBE in Rwanda
OECD	: Organization for Economic Co-operation and Development
P'	: Primary cycle of 12YBE in Rwanda
P4	: Primary four
PTA	: Parent Teacher Association
PTC	: Parent Teacher Committee
S1	: Senior Two
S4	: Senior Four
SEO	: Sector Education Officer
UIS	: United Nations' Institute of Statistics
UNESCO	: United Nations Educational, Scientific and Cultural Organization
UNICEF	: United Nations Children's Fund
UPE	: Universal Primary Education
USA	: United States of America
WHO	: World Health Organization

ABSTRACT

Implementation of Fee-Free Schooling Policy is Rwanda's strategy to ensure equity and access to basic education. However, since the implementation of this policy, thousands of students have failed to participate in basic education hence exposing the Rwanda Educational System to wastage. The literature showed some hidden costs could be related to students participation. The purpose of this study was to investigate the hidden costs and their impact on students participation in basic education in Rwanda. The research objectives of this study were to determine the impact of home-based costs on students intake rate in basic education in Rwanda; to examine the influence of home-based costs on students transition rate in basic education in Rwanda; to establish the impact of school-based costs on students intake rate in basic education in Rwanda and to assess the effect of school-based costs on students transition rate in basic education in Rwanda. The study was guided by the Education Production Function Model. It used the convergent parallel mixed method design. The target population comprised 31445 parents and 30 headteachers of 12YBE. The sample size comprised 394 parents. All headteachers of 12YBE in Kicukiro and Kirehe districts were included in the study. The data collection tools were parents' questionnaire, headteachers interview guide and school document checklist. A pilot study was used on 2% of the respondent to reveal deficiency in the design and content of research tools. Each tool was tested for content validity using supervisors' and lecturers' inputs. Cronbach's Alpha coefficient for internal consistency reliability tests of the parents' questionnaires was 0.81. To ensure reliability of the interview guide and document checklist, the study used clear procedure that could be understood by respondents. A multiple regression analysis was used for quantitative data whereas, qualitative data were analyzed in themes and reported in narrative. The study found that: (i) The home-based costs such as school uniform ($R^2 = 0.85$), school materials ($R^2 = 0.92$) and transport ($R^2 = 0.89$) were important predictors of students intake rate in A' level (ii) Home-based costs such as school uniform ($R^2 = 0.82$), school materials ($R^2 = 0.93$), home-coaching ($R^2 = 0.81$) and transport ($R^2 = 0.91$) had significant impact on students transition rate in O' level (iii) The school-based costs such as for supporting school activities ($R^2 = 0.58$) and participating in examinations ($R^2 = 0.89$) had more impact on students intake rate in O' level of 12YBE whereas costs of participating in co-curricular activities ($R^2 = 0.08$) and school feeding ($R^2 = 0.00$) had insignificant impact on students intake rate in that level (iv) School-based costs for participating in examinations ($R^2 = 0.91$) and supporting school activities ($R^2 = 0.58$) accounted for some variations in students transition rate in O' level, whereas, costs for school feeding ($R^2 = 0.00$) and participating in extra-curricular activities ($R^2 = 0.09$) had less impact on students transition rate in O' level of 12YBE (v) The capitation grant and parental involvement were policy strategies in place which had not secured full students participation in all tiers of basic education. The study concluded that hidden costs accounted for some variations in students participation in 12YBE. Thus, the study recommended that education stakeholders should ensure that identified hidden costs are addressed to allow full participation in tiers of basic education.

CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction

This chapter presents the background to the study, statement of the problem, purpose of the study, research objectives, significance of the study, limitations and delimitations of the study, assumptions of the study, theoretical framework, conceptual framework and operational definition of key terms.

1.2 Background to the Study

Education is a process of teaching and learning whose primary purpose is to develop individuals' knowledge, skills and behaviour (Burke, Lawrence, El-Sayed, & Apple, 2009). This process can fairly be compared to that of reforming people, whereby people can be reformed perhaps by preventive detention like in police or by reading the Bible like in churches (Campbell & Sherington, 2002). People can similarly be educated through reading books, excursion, exploring their environment or even by attending classes (Peters, 2010). Furthermore, processes in education are viewed as tasks related to achievement; that is to refer to what people can consequently achieve in terms of production at individual, national and international levels (UNESCO, 2006).

It is within these premises that the importance of education can be attached to its role in guaranteeing sustainable socio-economic development in countries. Arguably, nations with educated people are likely to achieve strong social cohesion and exhibit remarkable economic growth based on productivity. On the other hand, the lack of education leaves nations stranded in illiteracy and with low or no productivity (Campbell & Sherington, 2002). In the same angle of discussion, UNESCO and

UNICEF (2007) contend that the better the adopted education policy, the more the education system will be productive. Thus, countries have established different policy frameworks to ensure basic education for every citizen to eradicate poverty and improve production in different sectors. As put by UNESCO (2006), nations have a quest to provide learning environments that are economically, socially, culturally and physically accessible for all children. It is, therefore, for this quest that countries keep adapting and updating their basic education policies.

From the global perspective, UNESCO (2015) reported that countries have adopted policies on lengthening the compulsory schooling to make their basic educational environments more conducive. For example, Asian countries such as Japan and Korea have adopted a policy that lengthens the compulsory education from age 6 to 15 in Japan and from age 6 to 14 in Korea. Similarly, South and North American countries such as Mexico, United States of America (USA) and Canada have extended the compulsory education from age 4 to 15 years, 4 to 17 years and 5 to 18 years respectively (Bruns, Mingat, & Rakotomalala, 2003). Likewise, OECD (2015) established that European countries such as Finland, France, Germany, Iceland and Sweden have respectively opted to offer compulsory education from age 6 to 17 years, 6 to 16 years, 5 to 15 years, 6 to 16 years and 7 to 16 years respectively. Besides, in these countries, local and central governments support the funding of the compulsory education. In Africa, countries have adopted different education policies to support the funding of compulsory education. For example, South Sudan has adopted a policy strategy related to increasing resources to basic education by involving the community in financing their children's education (Brophy, 2003). In the view of Akyeampong (2006) and Alhassan and Mensah (2010), Ghana has adopted four main strategies to

ensure that all children are prepared to participate in primary education. These strategies include the School Fee Abolition Policy, the Nutrition and School Feeding programme, the Gender Parity Policy, and establishment of Early Childhood Education.

In the East African Community (EAC) region, Sabates et al (2010) observe that in the last decade, Uganda, Tanzania and Kenya have used two major policy strategies to ensure universal access to primary education. First, *capitation grant policy strategy*, which ensures direct provision of money to schools with reference to the number of students in order to boost the teaching and learning; and second, *school feeding programme*, which is meant to increase children's participation in school for the primary education period.

In Rwanda, there are three overarching frameworks to ensure children participation in basic education. First is the Rwandan constitution, which emphasizes that every child has a right to education and be helped to complete a full course of basic education. The second framework is the country's Vision 2020, which accentuates Rwanda's commitment to reach universal Education for All (EFA). The third is Rwanda's Economic Development and Poverty Reduction Strategy (EDPRS), which promotes access to quality, equitable and effective education for all Rwandese (GoR, 2012; MINECOFIN and NDPR, 2012).

Williams, Abbott and Mupenzi (2014) observe that, to be able to work under these three frameworks, from 2006, the Rwanda education system has introduced a Fee-Free Schooling Policy in basic education. From 2009, the Fee-Free Schooling Policy was covering the first 9 years of basic education (MINEDUC, 2008). From 2012 onward, its coverage was extended to the first 12 years of basic education (MINEDUC, 2013).

Notably, the fee-free schooling policy was meant to boost students participation in basic education. According to the International Institute of Educational Planning (IIEP), the dimension of students participation is based on two indicators: students intake and students transition rates (IIEP, 2010). Students intake basically refers to the admission of learners into learning institutions. In the context of this study, students intake refers to the percentage of students who get admitted into levels of basic education in Rwanda. The transition rate, on the other hand, refers to the percentage of learners who successfully complete and move through levels of basic education. In the context of this study, transition rate refers to the percentage of students who successfully complete primary basic education and are admitted for lower secondary education in Rwanda and those who successfully complete lower secondary education and are admitted for upper secondary education in Rwanda.

The Rwanda's Fee-Free Schooling Policy was meant to remove all financial barriers likely to impede students intake and transition in basic education). With this regard, all forms of school fees are covered by the government of Rwanda and punitive measures are planned for parents who stop their children from schooling (Mutesi & Paxton, 2012). Furthermore, Bentaouet (2006) identified that this policy is supported by community works, commonly known as *Umuganda*, and the national budget. The two, *Umuganda* and the national budget, help in building sufficient classrooms and other infrastructure required for all school-age children to be admitted and participate through levels of basic education in Rwanda.

From global view, estimates of UNESCO Institute of Statistics (UIS) indicates that from 2008 onward, the adopted education policies have made some changes in students

participation in terms of students intake and transition rates in basic education (UIS, 2009). Table 1.1 indicates the gross intake rate in basic education from global perspective.

Table 1.1: Global Gross Intake Rate in Basic Education

Years	2008	2009	2010	2011	2012	2013	2014
Africa	113.1	110.7	109.5	113.3	113.8	115.0	115.8
Asia	117.3	112.0	113.7	111.2	110.1	108.5	106.5
Europe	100.8	100.5	101.1	101.3	100.6	99.4	98.9
North America	113.2	110.5	107.5	106.4	105.6	105.1	106.2
South America	104.4	99.4	94.7	92.3	87.7	90.5	91.4
World (Estimates)	114.1	110.1	110.3	109.6	108.8	108.2	107.4

Source: UIS, 2015

Table 1.1 shows that the students Gross Intake Rate (GIR) from 2008 to 2014 was exceeding 100%. According to UIS education indicators of 2009, having GIR exceeding 100% means that there were under and/or over-age students who joined basic education system when countries embarked on the implementation of advantageous education policies (UIS, 2019). In Addition, Table 1.1, shows that the global estimate of GIR decreased from 114.1% in 2008 to 107.4%. Particularly, in this period, UNESCO regions (global continents) such as Asia, Europe, North America and South America experienced a decrease in GIR. As opposed to other UNESCO regions, Table 1.1 indicates that in Africa, the GIR increased considerably from 113.1% in 2008 to 115.8% in 2014. This increase can be accredited to the fact that many African countries were implementing different education policies to boost basic education (UNESCO, 2015). According to WHO (2015), in Sub-Saharan countries like Burundi, there was an approximate increase of 53% and 50% in Mozambique. In Rwanda, according to

MINEDUC (2013), the Net Intake Rate (NIR) increased from 90.4% in 2008 to 130.2% in 2014 because of the adopted favourable strategies.

Arguably, increasing students intake rate is a great achievement to celebrate, however, the magic happens when changes in students intake rate and students transition rate take the same direction. Table 1.2 indicates the students transition rate in basic education from a global perspective.

Table 1.2: Students Transition Rate from Primary to Lower Secondary Education

Year	2008	2009	2010	2011	2012	2013	2014
Africa	77.1	77.6	77.9	78.2	77.6	77.5	77.2
Asia	93.6	93.6	93.7	94.1	92.8	92.5	93.7
Europe	97.6	97.6	97.6	97.6	97.6	97.8	97.1
North America	93.0	92.9	92.9	92.7	92.7	92.9	92.8
South America	95.8	95.9	95.9	95.8	96.3	96.4	96.3
World (Estimates)	91.3	91.3	91.3	91.4	90.5	90.3	90.8

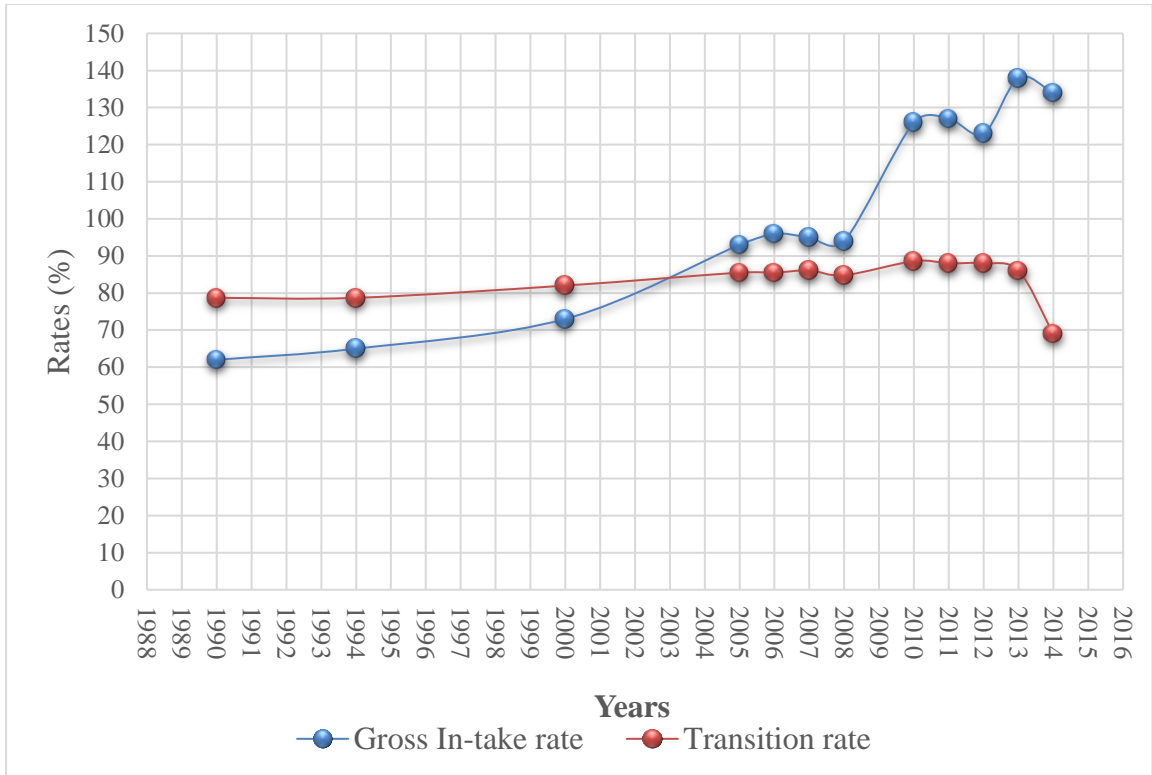
Source: UIS, 2015

Table 1.2 shows that the students transition rate from 2008 to 2014 remained stable but below 100%. Practically, we can observe that the world estimate on this indicator slight decreased from 91.3% in 2008 to 90.8%, which means that the world could count thousands of children not attending basic education. In Africa, despite an insignificant increase in this indicator from 77.1% in 2008 to 77.2% in 2014, the students transition rate was still far below the global estimate from 2008 to 2014. Rwembeho (2009) estimated that 18% of lower secondary school-aged children could not timely move through levels of basic education.

It is, therefore, important to note that, despite achievements in increasing the global Gross Intake Rate in basic education, thousands of school-age students are still out of school globally. In addition, UIS (2013) observes that in high income countries, above

95% of students who start primary education survive to the end of it, whereas only 55.1% of students from low income countries can transit from one level of basic education to another. In addition, UNICEF (2014) confirmed that in 2014, the transition rate in northern African countries was 84.38% whereas in Sub-Saharan countries it was 59.23%. Therefore, it can be deduced that transition rate is more problematic in Sub-Saharan countries, where Rwanda is located.

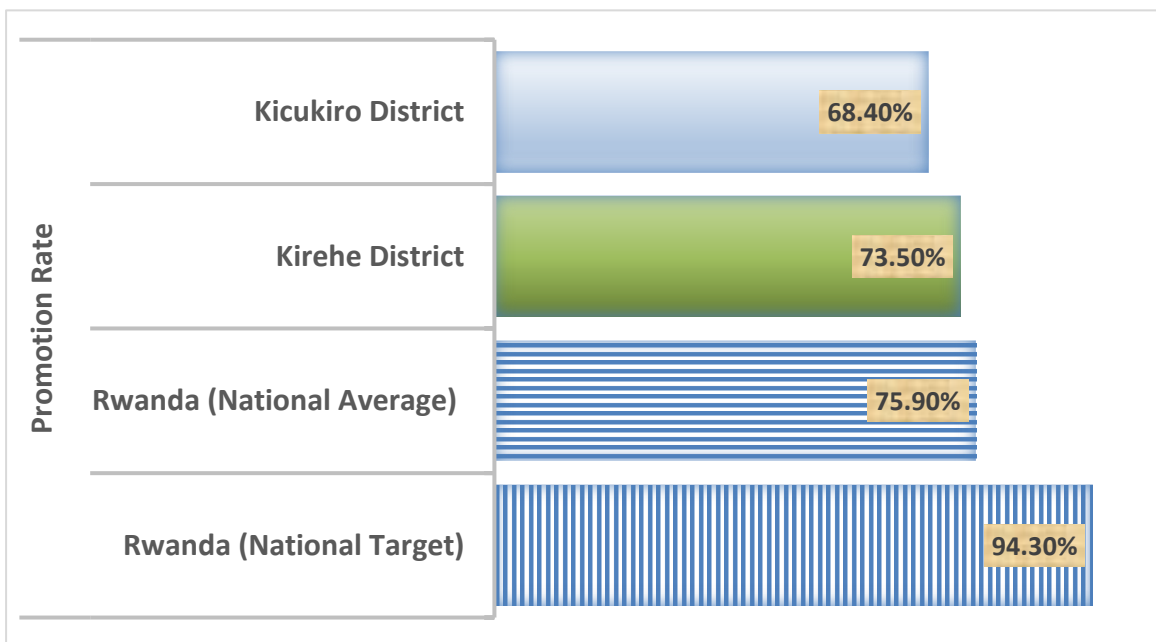
The government of Rwanda has abolished any form of school fees in basic education. In 2008, Rwanda set a 9-year free basic education policy which was extended to a 12-year free basic education policy (MINEDUC, 2013). Under this policy, all forms of school fees are covered by the Government of Rwanda. In addition, the Rwanda Education Sector Policy expressed plans for some punitive measures for parents who stop their children from schooling (Williams, Abbot & Mupenzi, 2014). Figure 1.1 compares trends in students intake and transition rates in Rwanda's basic education since 1990, but specifically for the period from 2006 onward.



Source: MINEDUC, 2011; 2012; 2013; 2014; NISR, 2015; UIS, 2015

Figure 1.1: Trends in primary education gross intake rate in comparison to transition rate in Rwanda, from 1990 to 2014

Figure 1.1 shows that the GIR continued to increase exponentially from 2008 to 2014. In this period, the students transition rate increased slightly 2009 when the 9-years basic education became free, thereafter it decreased exponentially from 2009 to 2014. The overall transition rate has not reached the 2014/2015 ESSP targets of 94.3% due to students who dropout before they complete all levels of basic education (MINEDUC, 2013). For the most affected districts in 2014, NISR (2015) identified Kirehe district in the eastern province and Kicukiro district in Kigali city. Figure 1.2 shows the students promotion rates in Kirehe and Kicukiro district against the National average and the Target figure in Rwanda.



Source: MINEDUC, 2014; NISR, 2015

Figure 1.2: Comparison between promotion rates in Kirehe and Kicukiro Districts against National average and target promotion rate.

Figure 1.2 displays that the promotion rates through levels of basic education were below both the National target and average values. This implies that thousands of Rwandese children are still out of school despite the provision of funds to support the implementation of the fee-free schooling policy. Particularly, the promotion rates were 73.5% and 71.8% in Kirehe and Kicukiro districts respectively which shows a high level of vulnerability in these districts.

In line with the implementation of the fee-free schooling policy in basic education, the government of Rwanda has defined sources for funding. IPAR points out two main sources of the government funding in basic education (Mutesi & Paxton, 2012). The first is through capitation grant which is paid directly to schools. The capitation grant provides 3,500 Rwandan Francs (RWF) to every pupil per year. In addition, 50% of

this capitation grant is directed towards purchasing school materials such books, 35% to school maintenance and 15% to teachers' trainings. The second is providing teachers' incentives per year where each teacher is given 12,500 RWF per year basing on his/her performance. Both types of government funding are provided to ensure the proper functioning of schools.

From an international perspective, In Pakistan, Imitiaz (2014) observes that most of the children who prematurely stop schooling are from poor households which find it difficult to provide basic needs for their children and, therefore, prefer to involve the children in projects that generate money immediately rather than sending them to school. Rumberger (2011) adds that in USA, some students dropout from schools because they cannot find money charged by schools. In Kenya, King'ori (2015) confirmed that students are sent back home to collect money for food, school development, school uniform among others. Again, in a study conducted in Lesotho, Malawi Kenya, and Gambia, Galloway et al (2009) revealed that the feeding programmes being implemented in low in-come countries had resulted in causing low student's attendance because of some hidden costs.

From a national perspective, in Rwanda, despite the government of Rwanda's efforts to make basic education free, MINEDUC (2014) and NISR (2015) shows that in Rwanda, the transition through levels of basic education is approximately 75.9%, indicating an approximate of 24% wastage. The fee-free schooling policy is in place. Studies have shown that some schools are still charging some costs. Since these costs are not within this policy, they can be referred to as hidden costs. According to Kingori

(2015), hidden costs can be defined as expenses on education which are not covered by any policy.

In this study, the concept of hidden costs counts for two dimensions: school-based and home-based costs which are incurred despite the implementation of fee-free schooling policy in Rwanda (Williams, Abbot & Mupenzi, 2014). The school-based costs are directly collected by schools from students or households for the support of teaching, learning and administration processes. They are indicated by costs of supporting school process and practices, participating in different examinations, participating in co-curricular activities and school feeding programme which are not covered by the capitation grant. The home-based costs are costs incurred by households when they send their children to school. They are indicated by costs of purchasing school uniforms, school materials, home-coaching and transport to and from schools (Kingori, 2015).

1.3 Statement of the Problem

With the current policy of fee-free schooling in 12YBE in Rwanda, every Rwandan school-age learner should be enrolled and timely complete education in all tiers of basic education in Rwanda. However, despite the fee-free schooling policy, records in Rwandan basic education schools, especially in Kirehe and Kicukiro districts, show a continued low level of students participation in Rwanda's 12YBE. Evidence showed that parents are still incurring some school and home-based hidden costs for their children's participation in tiers of basic education. In 2014, Kirehe district showed a low level of students transition rate (73.5%) whereas the intake rate was 112.4%. Likewise, in Kicukiro district, the students transition rate (68.4%) was below the

national average whereas the intake rate counted for 124,2%. Evidence showed that thousands of children have failed to participate in basic education. Could this be due to some hidden costs? If this is so, how would educational investment in Rwanda help all children participate in all tiers of the 12 year basic education? This study was, thus, aimed at answering these and other bothering questions as regards to the influence of hidden costs on students participation in basic education in Rwanda.

1.4 Purpose of the Study

The purpose of this study was to investigate the impact of hidden costs on students participation in basic education in Rwanda.

1.5 Objectives of the Study

This study sought to:

- (i) Determine the impact of home-based costs on students intake rate in the 12 years of basic education in Rwanda;
- (ii) Examine the impact of home-based costs on students transition rate in the 12 years of basic education in Rwanda;
- (iii) Establish the impact of school-based costs on students intake rate in the 12 years of basic education in Rwanda;
- (iv) Assess the impact of school-based costs on students transition rate in the 12-years of basic education in Rwanda;

1.6 Research Questions

The study sought to answer the following research questions:

- (i) To what extent do home-based costs affect intake rate in the 12 years of basic education in Rwanda?

- (ii) What is the impact of home-based costs on students transition in the 12 years of basic education in Rwanda?
- (iii) How do school-based costs affect intake rates in the 12 years of basic education in Rwanda?
- (iv) What is the impact of school-based costs on students transition in the 12 years of basic education in Rwanda?

1.7 Significance of the Study

This study may be significant to the following categories of individuals:

- (i) *Education scholars*: Findings of this study will help the world of scholars to enrich their literature about the impacts of hidden costs on students participation in basic education.
- (ii) *Basic education administrators and parents*: the study findings will benefit both parents and school administrators by describing hidden costs that are likely to influence students registration and transition in basic education, especially in Rwanda.
- (iii) *Government of Rwanda*: the study findings will help the government of Rwanda to identify gaps in the existing policy interventions as related to students participation in basic education.
- (iv) *Education Policy Makers*: the study findings will guide education policy makers in the adoption of the best education policies to enable all school-age children to register and transit in all levels of basic education.

1.8 Limitations of the Study

This study was limited by the following factors:

- (i) The study collected data from headteachers who may have very limited time due to their nature of work and positions. To minimize this limitation, the researcher allocated enough time for interviews with headteachers to accommodate the little time they could have for interview.
- (ii) As a method of data collection, the study made a review of secondary sources of data on students participation rates. There were limited secondary documents with specific students intake and transition statistics and this was likely to affect insights of the researcher as pertains to the problem under study. This limitation was minimized by checking different documents from the school level, sector level and the district level up to the national level. As such, triangulation of information from different sources helped the researcher to get real figures about students participation statistics.

1.9 Delimitations of the Study

The scope of this study was defined as follows:

- (i) The concept of home-based costs could not cover the concept of opportunity costs because of uncertainty in quantifying it in education;
- (ii) The concept of students participation in this study was only related to students intake and transition rates in basic education;
- (iii) This study was carried out in two districts of Rwanda which have low students participation rate in basic education;
- (iv) The study only considered secondary data from 2013 to 2015, the period in which the fee-free schooling policy was enforced in 12YBE in Rwanda; and

- (v) The concept of school-based costs does not cover tuition fees because this study was carried out in schools where education had been made free and the government contributes to the free participation of students in basic education.

1.10 Assumptions of the Study

In this study, the following assumptions were made:

- (i) Sampled parents were of quasi similar financial background;
- (ii) Sampled parents were of quasi similar social background to maintain consistency in their answers;
- (iii) Sampled schools ensured conducive environment for this research; and
- (iv) All parents sampled were responsible and aware of the financial implications to students participation in basic education.
- (v) The convergent parallel mixed methods design could help the researcher to triangulate qualitative and quantitative information from respondents.

1.11 Theoretical Framework

This study used the Education Production Function Model. According to Bowles (1970), this is a model that can be used to relate educational inputs to outputs in terms of development of productive capacity or personal earning. This model is essential in measuring and estimating the school's outputs in relation to its inputs directed towards achieving them.

School outputs can be measured in terms of academic achievements such as selection and socialization. This can be justified by the fact that people get educated with the target to be selected for a particular function (Selection) or for children to play some adult roles (socialization). The measurement of educational outputs is, therefore,

associated to the multiplicity of achievements that one gains as a result of attending school. For example, school output can be measured in terms of students participation rate in some specific academic years.

On the other hand, this model is defined by estimating school inputs needed to achieve some school outputs. These inputs can be categorized in terms of three types of variables. First, there are variables measuring the school environment such as the cost of teaching services, the cost of school physical facilities, the opportunity costs of time students spent at school among others. Second, there are variables measuring the environmental influence on learning, outside the school. For example, households' economic status, parents' educational attainment among others. Third, there are variables representing a student's ability and initial level of academic achievement (Bray, 1999).

Therefore, Bowles (1970) has mathematically expressed this model as follows:

$$A = f(X_1, \dots, X_m, X_n, \dots, X_v, X_y, \dots, X_z + \epsilon r) \quad (1)$$

Whereby:

- A is the dependent variable (output) defining the overall achievement score of the output, such as academic achievement;
- f is the structural parameter of the production function to be estimated;
- X_1, \dots, X_m , are independent variables (inputs 1) herewith regarded as school environment such as the cost of teaching activities;

- X_n, \dots, X_V , are independent variables (inputs 2) which comprise the cost of environmental influence on learning outside the school;
- X_y, \dots, X_z , are other independent variables (inputs 3) which explain the students initial ability to influence educational output;
- $\mathcal{E}r$ is the error term which defines the amount at which the equation may change during empirical analysis

In this study, the researcher sought to estimate students participation rate as an educational output that could be influenced by educational inputs such as home-based costs (environmental influence on learning outside the school) and school-based costs (school environment). By assuming that there were no students initial abilities that could influence their participation, the mathematical expression (1) above becomes:

$$P = f(S_1, \dots, S_m, H_n, \dots, H_V + \mathcal{E}r) \quad (2)$$

Whereby:

- P is the dependent variable (output) defining the students participation rate to be measured in terms of intake and transition rates in this study;
- f is the structural parameter of the production function to be estimated;
- S_1, \dots, S_m are independent variables (inputs 1) herewith regarded as school-based costs;
- H_n, \dots, H_V are independent variables (inputs 2) which comprise the home-based costs.
- $\mathcal{E}r$ is the error term

Since this study sought to establish the impact of home-based and school-based costs on students participation, the mathematical expression (2) above can be transformed into a regression equation (3) that can be used to calculate the coefficient of determination. Thus:

$$P = f_0 + f_1X_1 + f_2X_2 + f_3X_2 + f_4X_4 + \dots + f_nX_n \quad (3)$$

Whereby:

- P is the a measure of students participation, f are constants and X_n are measures of inputs in terms of home-based and school-based costs.

Education Production Function model was appropriate to this study because of the following reasons: first, the study sought to relate inputs (hidden costs) to outputs (students participation); second, this model helped in analysis by setting regression equations (3) between hidden costs and students participation; third, this model justified the calculation of the coefficient of determination to explain the variability of hidden costs in influencing students participation.

1.12 Conceptual Framework

In this study, the conceptual framework in Figure 1.2 describes a diagrammatic representation of the interrelationship between hidden costs (independent variables) and students participation rate (dependent variable). Regarding the Education Production Function model, this study's conceptual framework explains the interaction between independent and dependent variables that can be explained by the regression Equation (3), as indicated by Bray (1999).

FEE-FREE SCHOOLING HIDDEN COSTS

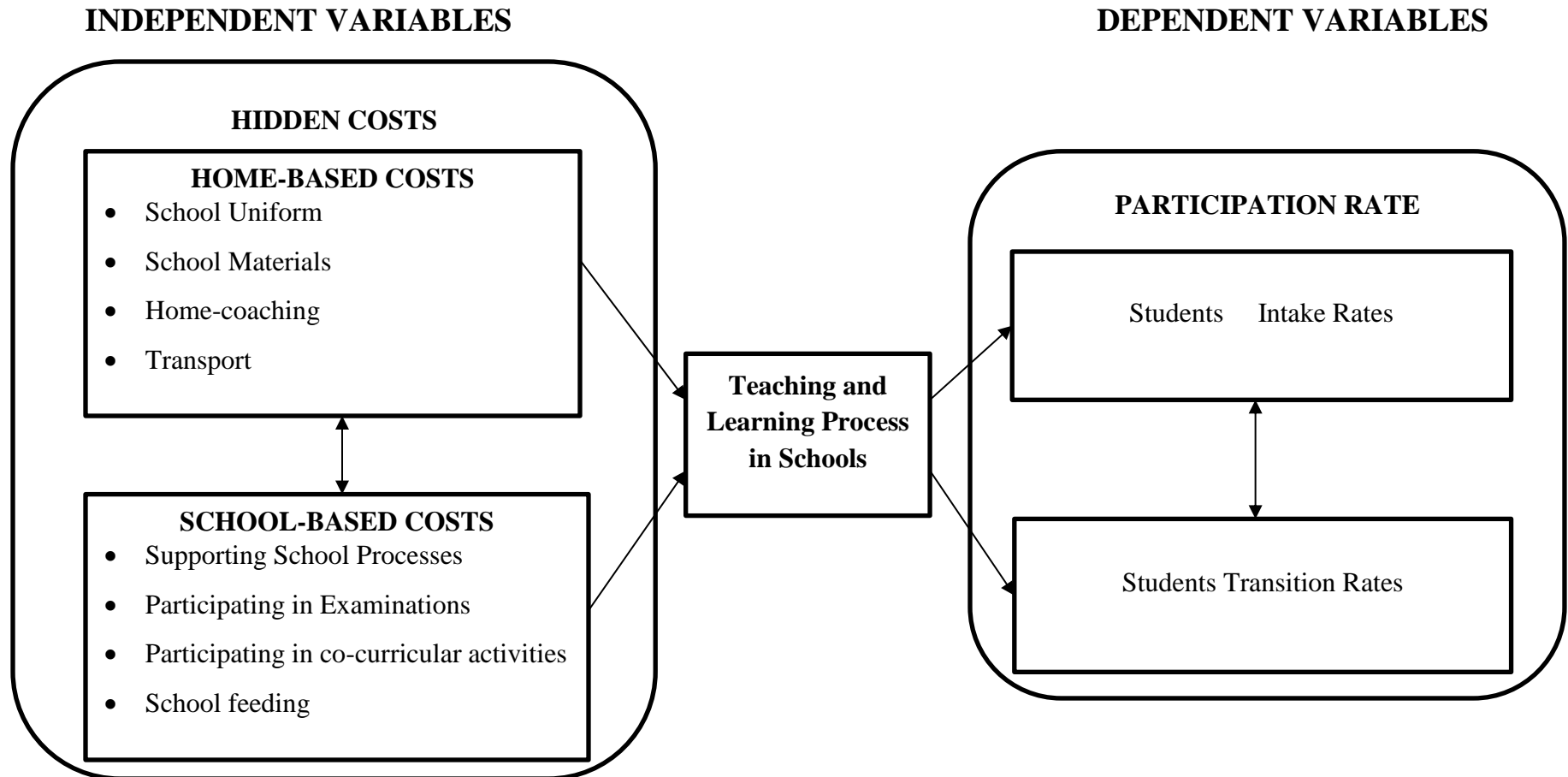


Figure 1.3: Conceptual framework of the relationship between hidden costs and students participation rate in basic education in Rwanda

Figure 1.3 explained graphically the relationships between independent and dependent variables under this study. The former variable is hidden costs comprising home and school-based costs. The latter variable is students participation comprising students intake and participation rates.

This conceptual framework explains the impact of home-based costs on teaching and learning process in schools. In this view, costs for school uniform, school materials, home-coaching and transport can affect the process of teaching and learning in school and thus reduce or increase the students intake and/or transition rates.

School uniform costs are normally imposed to students as a way of ensuring homogeneousness among students. Figure 1.3 connects it to the process of teaching and learning. The lack of financial capacities to buy school uniform can affect the process of teaching and learning and therefore, lead to students dropout hence affecting their intake and/or transition rates.

School material costs are important in the process of teaching and learning. Students need writing utensils and notebooks for their learning. This implies that these materials are directly connected to the teaching and learning process through which they indirectly connect with variation in students intake and transition rates.

Home-coaching costs are regarded as independent variables under home-based costs. These costs are normally incurred by households when looking for their children's better performance. Therefore, children from families whose financial capacities cannot afford these costs, are exposed to poor performance in class. Figure 1.3 connects directly costs

for home-coaching to the process of teaching and learning through which they can be indirectly connected to students intake and transition rates.

Transport costs are regarded as an independent variable under home-based costs. These costs are normally significant for children covering long distances from home to school. Children whose families cannot afford these costs travel by foot, reach school tired and sometimes not mentally prepared for the process of learning. Thus, in Figure 1.3, costs for transport are indirectly connected to students intake and transition rates.

Like home-based and school-based costs can have impact on the process of teaching and learning in school. In Figure 1.3, school-based costs are regarded as independent variables. They include costs for supporting school processes and practices, participating in different examinations, participating in co-curricular activities and school feeding, which can affect the process of teaching and learning and consequently reduce or increase the students intake and/or transition rate.

Costs for supporting school processes and practices are connected to the process of teaching and learning. They include costs incurred by schools for developmental purposes such as building new classrooms. For schools without other alternative income-generating activities, these costs are imposed on students who sometimes fail to afford. In Figure 1.3, these costs are indirectly connected to students intake and/or transition rates.

Costs for participating in different examinations are directly connected to the process of teaching and learning. These costs include, costs for students registration in sector, district and national examinations. They also include costs for accommodation and food during the examination period. Since examination is part and parcel of the teaching and learning

process, the lack of these costs may lead to students failure to attend hence, leading to decreased intake and/or transition rates.

Costs for participating in co-curricular activities are the other variables that can affect the teaching and learning process. These costs include costs of involving students in activities not supported by the capitation grant, but which are important for the teaching and learning process. Figure 1.3 shows that these costs can be indirectly connected to students intake and/or transition rates.

Costs for school feedings are directly connected to the process of teaching and learning too. These costs are incurred by students or households to access food at school. This school feeding programme is helpful especially for students living far from schools. Therefore, as it is shown in Figure 1.3, the failure to afford these costs may indirectly lead to students intake and/or transition rate.

1.13 Operational Definitions of Key Terms

Basic Education: This is an educational framework policy designed to meet basic learning needs for students in primary, ordinary and advanced cycles of education in Rwanda. It is made of 12 years of fee-free schooling established in 2012 by the Government of Rwanda as a policy strategy to ensure Education for All.

Fee-free schooling: The Rwanda government's initiatives to provide all school-age students with free education. This policy is applied in 12YBE basic education.

Hidden costs: Household's expenditure on education which is not covered under Rwanda's fee-free schooling policy. These costs can be home-based or school-based and can influence the low participation rate amongst students.

Home-based Costs: These are costs incurred by the household by sending their children at school. In this study, these costs are hidden because with existing fee-free schooling policy, households should not incur any costs for their children's participation in tiers of basic education.

Household: This is a set of people in a family who dwell together and can contribute to the educational wellbeing of the school-age members. These include: parents, children, guardians and relatives.

Housework: Household activities such as cleaning the house, preparing meals, washing, fetching water or wood for cooking among others.

Over-age students: Students studying in a particular grade of basic education but whose age exceeds that expected in that grade. For example, a 10-year old student studying in grade 1, which normally should have learners with 7 years.

Participation: Students active engagement in an educational system. Specifically, the concept of participation comprises students intake and transition in an education system.

School-based costs: there are costs collected from the household for supporting schools operations. These costs are hidden because with existing fee-free schooling

policy, households should not incur any costs for their children's participation in tiers of basic education.

School Materials: These are tools necessary for the students to attend school. These include pens, notebooks, papers etc.

School-age children: These are children aged between 7 and 18 years and are supposed to be enrolled for basic education.

Umuganda: It is a Kinyarwanda word meaning coming together for a development activity. In Rwanda, every last Saturday is Umuganda day where all Rwandese and non-Rwandese living in Rwanda come together and work on improving public infrastructure or vulnerable people's infrastructure such as building houses for homeless Rwandans. It is in this activity that the GoR mobilizes people to build schools for basic education.

Under-age students: Students studying in a particular grade of basic education and yet their age is below that expected in that grade. For example, a 5-year-old student studying in grade 1.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter examines literature from different sources, which is directly or indirectly related to this study. In the context of fee-free schooling policy, literature related to school-based and home-based hidden costs are reviewed with an attempt to examine their impact on students participation rate. Related literature has been reviewed from a global perspective to a local perspective. To bring a multi-facet analysis of the literature, specific sub-topics under the subject of concern have been introduced as indicated below in order to tackle specific sub-areas of the issue of hidden costs vis-à-vis the fee-free basic education policy.

2.2 Home-Based Costs and Students Participation

The home-based costs refer to costs incurred by the household by sending their children at school. These include: costs of school uniforms, costs of school materials, costs of home-coaching and costs of transport to or from schools. These costs are hereunder discussed on their impact on students participation in basic education.

2.2.1 Costs of School Uniform and Students Participation

Home-based costs can pull and/or push students from schooling. For example, in a monograph study conducted by Ananga (2012) in Ghana, a few issues were identified in respect to this idea. The study, to begin with, had three objectives. The first was to determine internal and external factors pulling or pushing students to or out of school. The second was to investigate reasons why some students failed to return to school. Finally, the

study sought to establish how schools responded to high student dropout rate. Findings established that the household failure to provide school uniforms was among home-based factors that can have an impact on students transition and intake rates. In this regard, the study recommended that the free and compulsory basic education be revised and implemented in all schools; that parents be involved in their children's education and the monitoring and evaluation of compulsory basic education be strengthened. However, this research remained inconclusive about the following points: first, the study intended to establish that costs for school uniform could weaken students participation, but it could neither show the amount incurred by each stakeholder nor describe the extent to which this could affect students participation. Second, the study asked parents to get involved in their children's education without quantifying what they (the parents) had to pay. Therefore, the present study sought to bridge this knowledge gap by determining the extent to which costs collected from households in terms of school uniform costs can affect students participation in terms of transition and intake rates in basic education.

A study by Davies (2015) was carried on parents/care-takers of children in state-funded schools in England. This study used a telephone survey to investigate the cost of school uniform. Findings revealed that 99% of children were required to wear school uniform. Furthermore, parents confirmed that costs of uniform increase as students move from primary to secondary level because in the latter level, students required some specialized school uniform items. However, the same study failed to relate the cost of school uniform and students participation rate. In addition, the study findings needed to be confirmed by school administrators who could really examine their impact on the teaching and learning process for the purpose of ownership and authentication. The present study sought to

connect the cost of school uniform and students participation rate, filling that gap. It triangulated ideas from parents and teachers to figure out the possible impact of these costs on students participation rate in tiers of 12YBE.

Gentile and Imberman (2015), investigated on the effect of school uniform on students achievement and behaviour of students in middle and high schools in USA. This study used models that included student and school-fixed effects along with school-specific linear regression trends. Findings revealed that school uniforms could generate improvement in attendance and test scores in both middle and high schools in USA. The research concluded that school uniform could be used as a tool for retaining students at school. This implies that the lack of school uniform can lower the students transition. However, keeping students at school does not define all it requires for students participation. Since students achievement is a combination of different indicators, this study used the multiple regression model to investigate the impact of school uniform costs as incurred by parents on students intake and transition rates.

Reed (2011) used a mixed method research design to examine the effect of a school uniform policy on an urban school district. As opposed to Gentile and Imberman (2015), Reed (2011) indicated that school uniform could not be correlated with academic achievement. However, in contradiction, the study concluded that school uniform could be highly correlated with students behaviour. This implied that school uniform could be one of the causes of misbehavior at school which could lead to low participation in class. Therefore, this study triangulated information from parents and school administrators to justify the correlation between the cost of school uniform and students participation.

2.2.2 Cost of Transport to and From Schools and Students Participation

Transport costs may lead to low student's attendance. Especially, for children from areas where transport is necessary, particularly, those from low economic backgrounds may not afford these expenses. Different studies have related transport costs to students participation rates (Mason & Roselle, 1998).

The cost of transport was echoed as an issue by Sigei and Tikoko (2014). They adopted a descriptive research design to investigate effects of transport cost on students low attendance in public day secondary schools in Rongai, Kenya. According to this study, approximately 88% of the respondents indicated that students low attendance was mainly caused by long distances between homes and schools. Furthermore, an approximate of 80% of the respondents were of the idea that sometimes, lack of transport may lead to students low participation in secondary schools. In their recommendations, they called upon parents to play their roles towards facilitating their children to reach their respective schools. Governments were also requested to adopt best policies that keep students in school. This research, however, has two main knowledge gaps: First, the descriptive research design adopted could not help to explore all causes of students dropout. Second, it failed to identify financial causes behind registered low students participation. Therefore, this study was carried out to explore financial causes and describe the extent at which transport costs affect students participation.

Mugoro (2014) investigated the transport problems for students and their effects on attendance in community secondary schools in Dar es Salaam city, Tanzania. He used a descriptive design and collected information from students, headteachers, academic

masters/mistresses and discipline masters/mistresses. In his findings, the study established that 46% of students had been seized up to go to school as they were not supported by parents and/or guardian. However, his study was short of parents' views which could give the actual amount spent by parents for each student. The research questionnaire was more concerned with getting respondents' opinions about problems under investigation rather than investigating the quantity of transport costs that could affect students attendance. In addition, the study did not consider indicators of participation such as students intake and transition rates. Therefore, this study used views from parents or household to explain the relationship between transport costs and students participation rate.

In a study conducted in Kenya by Njoroge (2013) on the influence of hidden costs in education on academic performance in public primary schools, the cost of transport was listed among hidden costs that affect students attendance and thus, affect academic performance. In findings, headteachers expressed that long distances affect students punctuality; teachers were of the view that poverty in families do not allow children to pay for their academic trips; and only 3.3% of pupils' respondents could afford the transport costs. Even though this study used triangulated information from headteachers, teachers and students, it failed to involve parents, who could give more insights on the quantity of transport expenses. In addition, the study failed to relate transport costs with students participation rate. It was in this view that the present study regressed parents' views to regress transport costs with students participation rate in order to estimate the extent at which these costs can affect students participation.

Asahi (2014) tried to identify and quantify the effect of better transport accessibility on students performance in UK, using mathematical models. The study used fixed-effect models that account for endogeneity between students performance and distance to or from home. Findings of the study revealed that increased distance from or to home could be associated with students low scores. This implies that the more the distance to school, the less the academic performance. However, the study lacks specificities on what makes the distance to school a threat to academic performance or students participation. In addition, the mathematical model used involved neither parents' nor school administrators' views, which could have provided reliable information about home and school. Therefore, this study involved both parents and headteachers to related transport costs on students participation rate.

2.2.3 Costs of Home-coaching and Students Participation

In many research studies, the cost of home-coaching is regarded as the cost of private tutoring. For instance, in a comparative study conducted in Thailand by Bray (1999), it was established that parents whose academic levels were not good enough to enable them to assist their children were forced to hire extra teachers for private tutoring. This was also confirmed in a study conducted in India by Kingdon and Teal (2005), where household ability to pay for private tutoring at home was significantly related to students performance. This implies that children from households whose financial capacity cannot afford the cost for home-teachers tend to perform less good. Therefore, economic inequalities among households may lead to educational inequalities.

In Korea, Choi (2012) attempted to quantify the effect of private tutoring on academic outcomes. Findings from a simulation-based model revealed that discouraging private tutoring would bridge the achievement gap between higher and lower income families by 57%. If not, subsidizing by 50% for home-coaching to low income families would increase the average test scores of these students by 0.18 standard deviations and reduce gap in achievement by 47%. This implies that home-coaching has a significant relationship between students achievement, which is one of the factors for students transition from one cycle of education to another. However, the study remained inconclusive about whether costs for home-coaching could affect students intake rate. Therefore, the presents study adopted scientific approach to examine the impact of home-coaching on students intake rate.

Zhan et al., (2013) used survey and interview data to investigate the effectiveness of private tutoring in mainstream schools in Hong Kong. From students perceptions, it was shown that home-coaching by private tutors was more effective in supporting examination preparation than relying on normal classes. However, the importance of home-coaching varied with students economical background. This implies that home-coaching has some impact on students performance in examinations. The study failed to include parents who would have insightfully explained the cost of home-coaching needed for a student to successfully participate in basic tiers of education. In addition, the study did not show the quantifiable relationship between home-coaching and students participation. In this regard, this study sought to investigate on the relationship between home-coaching costs and students intake and transition rates in basic education.

In their research on free primary education and its implementation in Rwanda, Abuya et al., (2015) used a desk review of different published works to achieve their set objectives. Their study was aimed at: (i) reviewing the application of different policies in the context of FPE and (ii) describing the roles and impacts of teachers on the implementation of these policies. Findings of this study revealed that teachers were financially neglected in these policies and this had a danger of leading to informal collection of school fees from students in terms of incentives for home-coaching. It was therefore, recommended that the government adopt a policy that caters for financial needs of parents. However, this research failed to relate the home-coaching expenses incurred by parents to students participation in primary schools. In addition, investigation on home-coaching required primary data from parents rather than relying on secondary data from published works. Therefore, this study learned from parents about the actual costs of home-coaching and related these costs to students participation.

2.2.4 Costs of School Materials and Students Participation

The costs of school materials were investigated by Farthing (2014) in his quest on the costs of going to school, from young people's perspectives. This research used an online survey asking a series of questions about the cost of going to school. Respondents were young students from England, Scotland and Northern Ireland. Responses to this survey questions revealed that 21% of students could not get necessary books and appropriate stationery for their studies. The lack of these materials was more for students from low in-come families than those from relatively reach families. Findings to this survey established the percent of students suffering from the lack of school materials without describing the impact of related costs to students participation. In this view, this study sought to describe the impact of

school materials on student's participation by relating these costs with students intake and transition rate.

Home-based costs of schooling were also discussed by Carlos (2014) in his investigation on factors hindering parental participation in school activities in Arusha district of Tanzania. A combination of FGDs and interview guides was used to answer the following research questions: What are existing policies and regulations that motivate parental contributions in schools? How can parental contribution be improved in schools? And what are the social-economic factors which hinder parental contribution to education? Findings revealed that most of parents do not know their role in their children schooling. It was also noticed that most of them were not providing sufficient scholastic materials for their children. The qualitative methods used in this research limited the researcher to conclude on the extent at which costs for scholastic materials was affecting students participation. Furthermore, it would have been better to use a research method that helps the prediction of students participation as predicted by the cost of these materials. Therefore, the present study combined both qualitative and quantitative methods to describe the extent at which costs for school materials affect students participation rate.

Paulson (2012) examined non-academic factors that can influence successful students transition to college-level coursework for underprepared community college students. She used secondary cross-sectional data about students progression in cycles of colleges. In this study, it was found that financial means to buy school materials had a significant effect on students transition. However, this study did not consider family's income which would determine costs of school materials for a student to transit in cycles of colleges. Therefore,

referred to possible households' expenses allocated to purchasing school materials and also regress these costs with students participation in order to determine the extent at which the former affect the latter.

2.3 School-Based Costs and Students Participation

Indicators to school-based costs include: Tuition fees, costs of supporting teaching and learning, costs of participating in examinations, costs of participating in extra-curricular activities and costs of school feeding programme. This section discusses the impact of the aforementioned school-based costs on students participation in schools.

2.3.1 Costs of Supporting School Practices and Processes and Students Participation

A study on access and retention of girls in basic education was conducted by Gahima (2012) in Rwanda. The primary objectives were to determine stakeholders' views on clarifying causes to girls low participation across the 9YBE in Rwanda to view stakeholders' accountability in keeping girls in or out of 9YBE and to explore and propose solutions that may lead to a gender-balanced education in Rwanda.

The researcher used a qualitative approach in collecting data through interviews with teachers and school administrators. According to the findings, the commonly highlighted causes to low students participation were school-based factors such as poorly trained teachers, inadequate infrastructure for girls and inadequate school funding. Parental poverty was also echoed in this research as another significant cause of girls' low participation. More alarmingly, the study emphasized that levies asked by schools to support different activities at school caused a lot of burden to households hence leading to students dropout. The study recommended an urgent need for gender sensitization among

education stakeholders for schools to provide sufficient and appropriate sanitary facilities for girls. However, the qualitative approach used in the study was not sufficient to assess the impact of these costs on students participation. Therefore, this study sought to enrich these findings through by using mixed method approach.

Wilder (2014) made a meta-synthesis on the impact of parental involvement in students achievements. The study indicated that the relationship between parental involvement and students learning achievements was positive across all schools. The impact of parental involvement on students achievement (measured in terms of students transition from one grade to another) was strong in contributing to school different activities. However, the study failed to link this finding to students intake, which is one of the dimensions of students participation. So, this study took a step further to link parental involvement on students transition rate along with intake rate in levels of basic education.

In a survey conducted by Povey et al., (2016) on the role of school and parent organization leadership on engaging parents in schools and building parent-school partnerships, it was found that parents were important education stakeholders whom the school should work with. However, the study was weakened by the lack of precise information about which activities parents should support and what could be the impact on students transition rate. Therefore, the current study identified areas that need parents' contribution and to showed the predicted impact on students participation.

2.3.2 Costs for Participating in Examinations and Students Participation

Muthuri and Kirera, (2013) investigated the internal and external school factors hindering transition of students from primary to secondary schools in Meru County, Kenya. Their

objectives were: to establish the influence of academic performance in Kenya Certificate of Primary Education (KCPE) on transition rates to secondary schools; to determine the influence of education level of parents and students transition in secondary schools and; to establish the impact of tuition fee on students transition rates.

Findings of this study showed that most students failed to transit to secondary schools because of poor performance in KCPE. Again, it was established that students whose parents could not help in their academic endeavors failed to transit into secondary education. Finally, the study revealed that students from poor households failed to join secondary education because of the required examination fees. It was, therefore, recommended that the government should cater for students who fail to transit into secondary education; that the government should take measures that change parental attitude towards education and; that the government should allocate financial support for students from poor households. However, the study was weakened by the following knowledge gaps: It could not describe the extent to which financial needs affect students participation and intake, which were the main concerns of the current research.

An empirical study conducted in Kenya by Wamalwa and Odebero (2014) on the influence of educational costs on students academic performance used teachers' views to include the cost of national examination among factors that could influence students performance. The study described a relationship between these costs on students performance but failed to weigh the direction and magnitude of this relationship. Therefore, the current study complemented these findings by quantifying the impact of these costs on students intake and transition rates which are main indicators of students participation.

2.3.3 Costs for School Feeding and Students Participation

Williams (2013) used a qualitative research design for a case study using FGDs and interviews with children and parents to investigate on school-based costs incurred by households despite the implementation of free and compulsory basic education in Rwanda. This case study sought to answer four questions: First, what are the school level costs incurred by households? Second, in which ways can school costs affect students participation? Third, what is the effect of school costs upon households and community? Finally, how do children get financially supported? Findings of this study showed that households continued to incur costs for supporting school feeding programme. These costs had consequently affected children's participation in different tiers of education. Therefore, Williams (2013) recommended that the government should redefine the 12YBE policy, allocate budget for students who cannot afford these costs, sensitize households about the school feeding policy strategy and initiate a strong monitoring and evaluation system for the fee-free schooling policy so that students participation is not affected. The identified knowledge gaps in this study included: the case study approach used could not exhaust all costs from different areas in Rwanda; the study did not exclusively show the impact of the mentioned costs on students intake and transition in basic education and the estimated amount of costs spent by each family is by far little compared to changing prices on the market. Therefore, the present research extended these findings by learning from both school staff and non-school staff to determine the magnitude and shared contribution of these costs on students participation rate in Rwanda.

Jomaa et al., (2011) conducted a study on school feeding programmes in developing countries with an intention to assess its impact on children's health and educational

outcomes. Among the findings, the study established a positive impact on students health but remained inconclusive about the impact of school feeding on students educational outcomes. Therefore, the present study investigated on the impact of school feeding on educational outcomes such as students intake and transition rates.

Mhurchu et al., (2012) used a randomized control trial study to investigate on effects of a free school breakfast programme on children's attendance, academic achievement and short-term hunger. Findings of this study showed that there was no statistical significance between school programme and learners' achievement or any other educational outcome. The randomized control trial is subject to different weaknesses like depending mostly on human beings who are sometimes unpredictable in such a kind of research. Therefore, the present study used non-experimental methods needed to confirm these findings.

2.3.4 Cost for Participating in Extra-Curricular Activities and Students Participation

Yildiz (2016) viewed extra-curricular activities as parts of modules whose aims are to develop students mentality, social and moral values. In the view of Soe (2014), co-curricular activities are those activities that broaden the educational experience beyond the normal class schedules. Nikki (2009) investigated the impact of co-curricular activities on students. Findings of this study revealed that benefits of these activities include increasing students grades, higher educational attainment and their regularity in class among others. It was also found that these activities involve some costs, "pay-to-pray". This implies that some students may fail to be involved in these activities and hence affect their academic achievement. This study confirmed the importance of co-curricular activities on students educational attainment but failed to explain the extent to which these activities may affect

students participation. Therefore, this study was carried out to relate the costs of co-curricular activities and students participation rate.

The impact of co-curricular activities on students achievement was also raised by Mutesi and Paxton (2012) in their report on school funding and equity in Rwanda. They used a quantitative survey research design in which a survey of 61 schools from two districts in Rwanda was conducted. Interviews and mixed open and close ended questions were tools used to collect data. Research objectives included: to understand the role played by parents, guardians and NGOs in funding education; to explore the level of overall funding in different schools and school-level outcomes and; to suggest options for reforming the funding system in order to achieve greater equality of opportunity. It was found that the level of parental contribution to schooling differed widely in the two districts and that the level of public funding was still low compared to the needs. Following good ideas that schools need funding in order to involve students in extra-curricular activities, the following recommendations on needed policy options were mentioned:

First, additional funding was needed in poorer areas. Second, funding should be based on child's family economic background. Third, funding should be allocated in areas where there is a relatively high level of poverty. Fourth, there should be an equity based policy of funding basic education schools whereby donors in education are directed to support more effectively the greatest needs.

However, this research was watered down by the following: First, using survey questions only may lead to participants' difficulty of recalling the information related to them. Second, the study pointed out the possibility of collecting fees to support extra-curricular

activities without clearly describing their impact on students participation. Third, the suggested policies are only applicable in countries that have strong budgets. Lastly, the study failed to demonstrate what costs were requested by schools in the existing policy. Therefore, this study contextualized and quantified the impact of co-curricular activities on students participation.

2.4 Summary of the Chapter and Gaps Identified

Without doubt, fee-free basic education is not, after all, free education *par se*. On the surface, the fee-free basic education policy looks lucrative and attractive to both parents and learners in Rwanda. However, it is beyond argument that there are costs that come with it; costs that most parents do not foresee and in the long run, find themselves feeling duped as their children are forced to dropout of the basic education. For instance, parents still incur costs for the education of their children across the country despite the availability of this fee-free basic education policy for all school-age Rwandese children.

Various studies indicate that home-based costs such as costs of school uniform, costs of transport to and from schools, costs of home-coaching and costs of scholastic materials can make students face difficulties to continue with their schooling. Besides, due to financial problems in basic education schools, some schools decide to collect some fees from students (school-based costs) for participating in extra-curricular activities, for school feeding, for participating in examination and for supporting school practices and processes. Such strategies are opted by schools due to the unforeseen burden that free basic education ends up placing on schools which have no alternative ways of getting funds. However, the following gaps were identified in the reviewed literature.

There is a growing literature on the impact of home-based costs on students participation tiers of basic education. On one hand, reviewed literature have documented on the influence of home-based costs such as costs for school uniform, cost of transport to and from school, cost of home-coaching and cost of school materials on students participation. However, they failed to demonstrate the extent at which each cost could affect students participation and in addition, they have not shown the estimated amount of what parents can pay for each purpose.

Notably, reviewed literatures has established the connection between students participation and school-based costs such as cost of school feeding, cost of participating in extra-curricular activities and cost of supporting school practices. However, they have failed to quantify which amount of cost and for what purpose. In addition, the methodologies used did not help them to capture the extent at which each cost could influence students participation. To bridge the identified gaps, this study used a convergent parallel mixed method design to focus on establishing the estimated quantity of hidden costs existing in the basic education provision despite the fee-free schooling policy and establish the relationship that exists between these costs and students intake and transition rates in basic education in Rwanda.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter discusses the research design and methodology that was used to describe and explore the hidden costs and their impact on students participation in basic education in Rwanda. It also presents the study variables, study locale, target population, sampling techniques and sample size, research instruments, testing for validity and reliability, techniques of data collection and analysis and the logistical and ethical considerations.

3.2 Research Design

This study was guided by the convergent parallel mixed methods design. This research design is a sub-type of mixed research design. Creswell (2012) establishes that convergent parallel mixed methods design can be used to offset weaknesses in either quantitative or qualitative designs. As such, the present study specifically gives equal priorities to both qualitative and quantitative data to understand the research problem.

In this design, a four-phase process was followed. In the first phase, quantitative and qualitative data were concurrently collected using close-ended and open-ended questions respectively. In the second phase, quantitative and qualitative data were analyzed concurrently and separately. In the third step, results from the two types of data were merged and discussed for their convergence or divergence. Thereafter, qualitative and quantitative data sets were equally considered to interpret the general picture of results and expand their meaning per objective.

This design was appropriate to this study because of two reasons. First, it is used in studies that seek to relate different views drawn from both qualitative and quantitative data sets around one concept. Second, it is used in studies that use qualitative and quantitative information to show how they converge or diverge towards an understanding of a particular concept (Creswell, 2012; Fraenkel, 2009).

3.3 Variables

This study had both Independent Variables (IV) and Dependent Variable (DV). The IV was ‘hidden costs’ encompassing school-based hidden costs and home-based hidden costs in the fee-free schooling policy environment. Hidden-costs were measured in terms of their availability and quantity. The DV was ‘students participation in 12YBE’. In the present study, the indicators of students participation were the net intake and transition rates which were measured in terms of ratios.

3.4 Study Locale

This study was conducted in Kirehe and Kicukiro districts. These are two of the 30 Rwandan administrative entities with legal statuses, administrative and financial autonomy. The researcher picked on two districts because of two reasons. First, their socio-economic and climatic backgrounds are different (NISR, 2012). Second, these districts have been reported by NISR (2014) and MINEDUC (2014) as having issues related to students participation, particularly on students intake and transition rate in tiers of basic education. The promotion rate in Kicukiro (68.40%) and Kirehe (73.50%) were below the national average (75.90%) and far below the national target (94.30%). Furthermore, having urban (Kicukiro) and rural (Kirehe) districts with different socio-economic backgrounds

helped the researcher to investigate hidden costs and their impact on students participation in different socio-economic settings.

Kirehe district is a rural area located at the south-east part of the Republic of Rwanda. It borders the United Republic of Tanzania in the east, Republic of Burundi in the south, Ngoma district in the west and Kayonza district in the north. According to the NISR (2012) census, Kirehe district has a population of 229,468 and occupies an area of 1,118.5 km². It is at 2°11'43.45"S30°45'32.58". The average altitude of Kirehe is 5325ft above sea level. The climate of Kirehe district is favourable to agriculture for tropical crops, hence, its economy is based on agriculture of banana, tomato, cassava among others (NISR, 2012).

Kicukiro district is an urban area located at the centre of the Republic of Rwanda. It borders Bugesera district in the south, Rwamagana district in the east, Gasabo and Nyarugenge districts in the north and Kamonyi district in the west. With reference to the 2012 census, Kicukiro district has a population of 319,661 and occupies an area of 167.6 km². It is at 1°59'4.33"S30°6'10.89E and at 4675ft above sea level. The climate of Kicukiro district is favourable to agriculture for tropical crops. However, its economy is mainly dependent on business and trade (NISR, 2012).

3.5 Target Population

The target population of this study comprised 31,475 parents and headteachers from Kirehe and Kicukiro district. This include 31,445 parents of students in primary four, senior one and senior four students, forming a cohort that began their respective cycle of education in 2013 from Kirehe and Kicukiro districts. And, 30 headteachers of 12YBE schools in the aforementioned districts. The target population is summarized in Table 3.1.

Table 3.1: Target Population

District	P4		Parents				Headteachers	
	Male	Female	S1		S4		Male	Female
			Male	Female	Male	Female		
Kicukiro	3429	3984	1460	1678	1435	1741	11	2
Kirehe	6214	7074	1449	1600	654	727	12	5
Total	9643	11058	2909	3278	2089	2468	23	7

Source: MINEDUC, 2015; NISR, 2014

Parents were included in this study because they had children who experienced the fee-free schooling policy since 2013. As such, they were the best persons to give dependable information related to the associated hidden costs. Furthermore, these parents were well-informed about what it requires for a student to attend school regularly and on time.

Headteachers were included in the study because of their experience and knowledge about students participation in 12YBE schools. In addition, they were involved because of their managerial posts which ensure monitoring and evaluation of education policies (including the fee-free schooling policy) at school level.

3.6 Sampling Techniques and Sample Size

This section explains the sampling techniques used to reach this study's respondents. It also describes the sample size and explains how it was determined.

3.6.1 Sampling Techniques

The cluster, systematic and purposive sampling techniques were used to select headteachers and parents from 12YBE schools in Kirehe and Kicukiro districts.

For parents, a cluster sampling technique was used along with systematic random sampling to select 12YBE schools in Kirehe and Kicukiro districts. In the view of Magnani (1997),

the cluster sampling is appropriate to studies that use different geographical areas with pre-defined boundaries which is the case for Kicukiro and Kirehe districts.

In addition, Fraenkel (2009) established that the systematic sampling technique is useful when the researcher has the list of participants (UNESCO, 2005; Fraenkel & Wallen, 2008). In addition, the study was interested in parents of students of a cohort that started an education cycle in 2013, parents selected were those who had students in P4 (upper primary cycle), S1 (lower secondary cycle) and S4 (upper secondary cycle). Therefore, a list of students in this grade was used to systematically sample students whose parents were to fill the parents' questionnaire on Hidden Costs.

For 12YBE headteachers, a purposive sampling technique was used. According to Amin (2005) and Tongco (2007), a purposive sampling technique is appropriate for studies involving few subjects and when qualitative information is targeted with reference to subjects' experience or expertise. As such, this non-probability sampling technique was appropriate for this study because the researcher wanted to involve all headteachers of 12YBE in Kirehe and Kicukiro districts because of their experience and expertise in monitoring and evaluation of education policies (UNESCO, 2005). Therefore, the research got a list of headteachers from districts and organized interviews with them to get qualitative data on hidden costs and their impact on students participation in 12YBE basic education.

3.6.2 Sample Size

Sample size for parents, was determined using the Slovin's formula ($n=N/I+Ne^2$) where 'n', 'N' and 'e' stand for sample, population and confidence level respectively (Amin, 2005). Since the research wanted to be 95% ($e = 0.05$) confident that the selected sample represented the entire population, for parents' population (31,445), the calculated sample size was 395 parents which makes 1.256% of the entire parents' population. As such, this study used proportionate samples where each cluster was represented by 1.256% of parents. Table 3.2 summarizes the sample size.

Table 3.2: Sample Size

District	Primary 4		Parents				Headteachers	
	Male	Female	Senior 1 Male	Senior 1 Female	Senior 4 Male	Senior 4 Female	Male	Female
Kicukiro	43	50	18	21	18	22	11	2
Kirehe	78	89	18	20	9	9	12	5
Total	121	139	36	41	27	31	23	7

Source: Researcher (2017)

Table 3.2 shows that the sample size was 425 respondents of which 395 are parents of students in Primary 4, Senior 1 and Senior 4 and 30 12YBE headteachers from Kirehe and Kicukiro districts.

Parents were reached using cluster sampling technique followed by a systematic sampling technique. The researcher got a list of students from schools for each involved grade P4, S1 and S4 with intention to get their parents. Thus, on the list, every 10th student's parent was involved in the study.

Headteachers were sampled purposively. The researcher involved this category of respondents based on their availability and willingness to participate in the research. For schools, the researcher used a list of schools from each district, then, a simple random sampling technique was used to select schools for the study. This technique gave all 12YBE schools equal chances to be selected.

3.7 Research Instruments

The researcher used three instruments to collect data. These were: the parents' questionnaire on hidden costs, the interview guide for headteachers on hidden costs and the school document checklist guide on students participation.

3.7.1 Parents' Questionnaire on Hidden Costs

The parents questionnaire comprised three sections. Section A had respondents' demographic information. Sections B and C were made of multiple choice questions that were correspondingly related to school-based hidden costs and home-based hidden costs. Section B helped to collect data to meet the first and second objective whereas sections C collected data to meet third and fourth objectives of this research (Appendix I).

A questionnaire was appropriate for the study because of three reasons. First, both home-based and school-based costs were incurred by parents. Parents were, therefore, the right respondents to quantify these costs. Second, given the number of respondents in this category, this type of questionnaire was easy to administer and helpful to establish the quantity of hidden costs incurred by the household (Amin, 2005).

3.7.2 Interview Guide for Headteachers on Hidden Costs

In this study, interviews with headteachers were employed to collect qualitative data on hidden costs. These interviews were expected to explore and describe the impact of hidden costs on students participation. The interview guide had five questions developed according to the 5 objectives of the study. For each question, there were probing questions that helped the researcher to prompt the discussion during data collection. The guide was organized starting from the first to the fifth question of the study.

This instrument was appropriate for the study because headteachers were in charge of supervising the implementation of fee-free schooling policy. Headteachers were in close collaboration with parents and which gave them access to quality information related to hidden costs. In addition, headteachers follow up regularly the implementation of education policy such that they can understand which hidden costs can affect students transition rate. Furthermore, such type of an instrument is recommended to collect data from few respondents as it was the case in this research (Creswell, 2012).

3.7.3 School Documents Analysis Guide on Student's Participation

A document analysis guide was used as an instrument to obtain secondary data on students participation in basic education. This informed the prevalence of students intake and transition rates which are dependent variables in this study. The documents reviewed were the following: Class inspection book, school entry report, students participation report, presence register, school end of year reports, school end of semester reports and class daily books for the last three years prior to this study (Appendix III).

The document analysis guide was appropriate to this research because it informed the researcher about students participation which was the dependent variable. The selection of documents to be analyzed was made upon their authenticity, credibility, representativeness and meaning to this research. Thus, the analysis of school documents, as earlier stated, established measures of students intake and transition rates which were indicators of students participation (Mogalakwe, 2006).

3.8 Pilot Study

According to Simon (2011), a pilot study can be used as a small version or trial run in preparation for the main study. Although a pilot study does not guarantee success in the main study, it can rather be used to increase the likelihood of such success. Therefore, piloting in this study helped to reveal deficiencies in the design and in the research tools. In addition, it helped to check whether the instructions and items given in the instruments were understandable. Since all respondents of the study could not be involved in the pilot, the research used 2% of respondents in each category. Therefore, 8 parents and 2 headteachers were randomly selected from Nyarugenge and Ngoma districts because, the researcher wanted to pick from districts other than those involved in the actual study. The pilot study results showed some overlaps in the questionnaire and grammatical errors. The researcher ensured all overlaps in the questionnaire were removed and grammatical errors corrected.

3.8.1 Validity

Since the researcher used a representative sample of the population, the validity of the questionnaire was initiated at the design stage in order to check the meaningfulness,

correctness and usefulness of the inferences the researcher was to make. Validity focuses on the appropriateness, consistency and comprehensiveness of the content in the instrument (Creswell, 2012). As such, content validity was used in this test. Fraenkel and Wallen (2008) urged that the content-related evidence of validity be suitable to check the content and format of the instrument. For that reason, the researcher specified domains of indicators that were relevant to the concepts of student's participating about hidden costs and shared with supervisors. Thereafter, the researcher used comments and suggestions from the supervisors and experts in education to validate the headteachers' interview guide and parents questionnaire.

3.8.2 Reliability

The questionnaire for parents on hidden costs was subject to the reliability test. In reference to Amin (2005), scores and answers in the research should be checked for reliability. Reliability test can inform about the extent at which results in research are consistent over time and the accuracy in representation of the total population under study (Golafshani, 2003; Dennick & Tavakol, 2011). As such, the quantitative tools were subjected to the internal consistency reliability test. According to Ferketich (1990), internal consistency reliability is the most appropriate form of reliability when dealing with quantitative data, especially when variables are formed into linear composite. The following table summarizes the Statistical Package for Social Sciences (SPSS) results of a reliability test for the parents' questionnaire.

The research used the Statistical Package for Social Sciences (SPSS) to test reliability. The calculated Cronbach's coefficient alpha (α) for the parents questionnaire was .871. As advised by Christensen and Stoup (1991), any Cronbach's coefficient of above .750 can be

acceptable for an effective reliability. Since the calculated value of alpha (.871) was bigger than the recommended value (.750), it can, therefore, be conclude that the parents' questionnaire was reliable.

The interview guide on hidden costs was tested for reliability. Creswell (2014) defined reliability for qualitative research as the ability of a research study to use consistent approaches across different researchers and scholars. In this view, the researcher followed the following reliability strategies: (1) documents were reviewed following clear procedure that can be understood by readers; (2) the interview guide was checked for errors and mistakes to ensure their credibility; (3) codes were used to represent respondents and checked for consistency; and (4) there were regular meetings with supervisors and experts in education to discuss the format and construct of the interview guide.

3.9 Data Collection Techniques

The data collection process started after getting consent from all respondents. This process took place during the first term of the school calendar in the months of February and March 2017. Since this study adopted a convergent parallel mixed research design, both quantitative and qualitative data were collected concurrently and yet separately.

Quantitative data were collected from parents. Printed questionnaire was distributed to sampled parents, filled and collected back to the researcher. Thereafter, the tangerine electronic data collection software was used for data entry and data cleaning.

Qualitative data were collected using interviews with headteachers. The researcher used note taking and audio recording as techniques to collect qualitative data. The raw data were

first transcribed in Kinyarwanda, before they were translated into English. Thereafter, data were cleaned and made ready for a thematic analysis.

3.10 Data Analysis

The study had two categories of data: quantitative and qualitative data. Both categories of data were presented, interpreted and discussed per study objectives. For each objective, quantitative data were presented in tables and interpreted using the multiple regression analysis. And, qualitative data were presented in narratives, interpreted using thematic analysis. Thereafter, the convergence between qualitative and quantitative data were established and discussed using reviewed literature.

3.10.1 Quantitative Data Analysis

Quantitative data were analyzed. These data were collected from parents using a parents' quantitative survey questionnaire on hidden costs as described in Appendix I. After data collection, raw quantitative data were recorded and cleaned using the Statistical Package for Social Sciences (SPSS) version 20. This computer software enabled the researcher to generate measures of central tendencies and variability such as mean and standard deviations for each variable under this study. SPSS also helped to generate standardized and non-standardized coefficient needed to establish the multiple regression equations.

The multiple regression analysis was established between rates of students participation and quantitative data which was got from parents' questionnaire on hidden costs. School documents provided secondary data on students participation rates in terms of intake and transition rates at the three cycles of 12YBE. As such, the coefficient of determination (R^2) was generated from SPSS and helped to estimate the variances in students participation

rates that was predictable from hidden costs under this study. Using a multiple regression equation that could fit a model of a straight line, three regression equations of the kind of equations (4), (5) and (6) were established for each cycle of 12YBE. It is based on these equations that quantitative data were presented and interpreted.

$$P_P = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + \dots + B_nX_n + \varepsilon(x) \quad (4)$$

$$P_O = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + \dots + B_nX_n + \varepsilon(x) \quad (5)$$

$$P_A = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + \dots + B_nX_n + \varepsilon(x) \quad (6)$$

Where:

- P_P represents the students participation variable in Primary (P') cycle of 12YBE
- P_O represents the students participation variable in Ordinary (O') cycle of 12YBE
- P_A represents the students participation variable in Advanced (A') cycle of 12YBE
- X_n represents hidden costs variables of 12YBE
- B_0 represents the intercept with Y-axis and describes what the participation rate can be like if identified hidden costs were not required.
- B_n represents the gradients of equation and describes the relationship between identified hidden cost and students participation variable (with $n = 0, 1, 2, 3, \dots$).
- $\varepsilon(x)$ represents the error term

3.10.2 Qualitative Data Analysis

Qualitative data were collected using a head teacher interview guide described in Appendix II. Transcripts from interviews with headteachers were analyzed using thematic approaches. According to Braun and Clarke (2006), thematic approach is appropriate for qualitative data because it can help to identify, analyze, interpret and report themes or patterns within qualitative data. A combination of inductive and deductive coding was used in order to assess the data based on pre-determined categories of hidden costs as well as those that emerged from the data. Thereafter, direct quotes from interviews with headteachers were used to explain the identified themes.

3.10.3 Convergence of Quantitative and Qualitative Findings

Quantitative and qualitative findings were compared for convergence or divergence. In this view, a comparison per study objectives was established between quantitative and qualitative findings and thereafter discussed using reviewed literature.

3.11 Logistical, Legal and Ethical Considerations

The study considered the logistical aspect in terms of budgeting for all activities from proposal phase through reporting phase of the study. To ensure logistical aspect of this research, the researcher designed a detailed budget that included all costs for the study. This budget included all activities and their related costs from the time of developing proposal to the time of handing in the final thesis report.

The study considered the legal aspect in terms of complying with existing rules and regulations for conducting research. To ensure the legal aspect of this research, the researcher sought for a research permit from the Ministry of Education (MINEDUC) before he embarked on research activities. In addition, authorization from MINEDUC helped the researcher to obtain permission from Kicukiro and Kirehe districts to enable him to access the sampled 12YBE schools and talk with headteachers.

To ensure ethical aspect of this study, confidentiality was guaranteed throughout this study. Protocols were established in order to ensure that all data remain confidential. As such, respondents participating in the study were informed and signed an informed consent prior to data collection. Respondents were assured that the information they shared through questionnaire and interviews was to be accessed only by members of the research team and used only for the purpose of this study. In addition, respondents' names and other

identifying information were not required during data collection. Interviews with headteachers took place in safe and private locations where conversations could not be overheard. Individuals not directly involved in the research activities were not at any occasion permitted to be present when interviews were taking place. Further, the researcher assessed regularly the confidentiality during interviews to ensure that the safety and privacy of respondents were guaranteed.

CHAPTER FOUR

PRESENTATION OF FINDINGS, INTERPRETATION AND DISCUSSION

4.1 Introduction

This study aimed at investigating the impact of hidden costs on students participation in 12YBE in Rwanda. It was guided by four objectives namely; (i) to determine the impact of home-based costs on students intake rate in 12YBE in Rwanda (ii) to examine the impact of home-based costs on students transition rate in basic education in Rwanda (iii) to establish the impact of school-based costs on students intake rate in 12YBE in Rwanda (iv) to assess the impact of school-based costs on students transition rate in basic education in Rwanda. In addition, in this chapter, the researcher explored policy strategies that are in place to ensure all children participate in all tiers of 12YBE in Rwanda. This chapter starts by presenting the general and demographic information about the questionnaire return rates and categories of study respondents disaggregated by sex and district. Thereafter, findings, interpretation and discussions of each objective are presented to figure out the impact of hidden costs on students participation rate in 12YBE in Rwanda.

4.2 General and Demographic Information

This section describes two kinds of information: general and demographic information. The former comprises information on the actual response return rates of the questionnaire administered to the study participants while the latter focuses on actual respondents' characteristics such as categories, gender, age and level of education.

4.2.1 General Information

The study included two categories of respondents namely, parents and headteachers of 12YBE schools. For parents, the target population comprised 31,445 parents from Kicukiro and Kirehe districts among which 395 participated in the study sample from which quantitative data of this study were collected. In this study, parents were considered to be the primary education stakeholders who could provide information on hidden costs that could have an impact on students participation rate in 12YBE.

For headteachers, the target population was equal to the sample size. All headteachers of 12YBE in Kirehe and Kicukiro were involved in the study. Headteachers of 12YBE were considered to be key education stakeholders who could provide qualitative information that could explain the impact of hidden costs on students participation rate in 12YBE. According to researcher's plans, the parents' questionnaire was administered to 395 parents from Kicukiro and Kirehe districts. The interview guide was administered on 30 headteachers in Kicukiro and Kirehe districts. However, as described in Table 4.1, the actual number of study participants slightly changed.

Table 4.1: Respondents Questionnaire Return Rate

Respondents	Kicukiro		Kirehe		Return Rate
	Planned	Actual	Planned	Actual	
Parents	172	171	223	200	93.9%
Headteachers	13	13	17	16	94.1%
Total/Average	185	185	239	215	94.0%

Source: Primary data

Table 4.1 shows that this study involved both parents and headteachers as it had been planned. However, the instrument return rate was 94.0%. This rate was higher for headteachers (94.1%) than for parents (93.9%). The missing parents questionnaire was attributed to the fact that some parents (6.1%) could not hand in the filled questionnaire due to undisclosed reasons. The total number of parents who failed to return in the filled questions was 23 comprising one parents in Kicukiro and 22 in Kirehe. With regard to their gender, 13 males and 19 females could not return their questionnaire.

On the other hand, one headteacher (3.3%) left an interview session half-covered because of some urgent office duties. The researcher waited for another appointment with this head teacher but in vain. In general, the questionnaire rate of return (94.0%) was effective, since at least 70% of return rate is acceptable for social science surveys (Nulty, 2008).

4.2.2 Demographic Information

The actual number of participants under this study was 400 respondents of which 371 were parents of 12YBE students and 29 were headteachers of 12YBE schools in Kirehe and Kicukiro districts. Using a contingency table analysis, the demographic information of these respondents was described in terms of their sex, age range, level of education and economic activities.

(a) Sex of Respondents

The study considered the sex of the respondents. Sex describes the basic genetic and physiological differences among human beings (Delphy, 1993). The sex variable was significant to this research because it predicts behavioural and cognitive differences among the respondents. Table 4.2 presents information on sex disaggregated per districts.

Table 4.2: Sex of Respondents

Sex of respondents	Kicukiro		Kirehe		Total	
	n	%	n	%	n	%
Male	77	45.0	93	46.5	170	45.8
Female	94	55.0	107	53.5	201	54.2

*N = 371

Source: Parents questionnaire

The study involved both male and female participants. Table 4.2 indicates that the number of female parents (54.2%) was higher than that of male parents (45.8%). This proportion remained relatively the same for districts. The Rwanda's recent census by NISR (2014) revealed that the proportion for female was higher than that of male. As such, both female and male were proportionally represented in the study. In the view of Baskett, Donnelly, McLennan, and O'Neill (2007), each sex can have a unique contribution to research that cannot be filled by the other sex in its entirety. Therefore, having both sexes proportionally represented in the study would facilitate the generalization of findings to the wider population of this research.

(b) Age of Respondents

The study considered age of the respondents. The concept of age is defined as the extent at which a human being is aging and getting mature. Generally, age increases with the level of maturity (Sanderson & Scherbov, 2008). Therefore, it was important to consider such variables to strengthen the level of trustworthiness of respondents' responses. Table 4.3 presents parents' age disaggregated per district.

Table 4.3: Age of Respondents

Age range	Kicukiro		Kirehe		Total	
	n	%	n	%	n	%
[0 to 20]	0	0.0	2	1.0	2	0.5
[21 to 30]	30	17.5	24	12.0	54	14.6
[31 to 40]	61	35.7	77	38.5	138	37.2
[41 to 50]	59	34.5	73	36.5	132	35.6
Above 50	21	12.3	24	12.0	45	12.1

*N = 371

Source: Parents questionnaire

Table 4.3 indicates that the modal age range was between 31 and 40 years of age (37.2%). In addition, the age range between 41 and 40 years of age (35.6%) was also noteworthy. Therefore, it can be established that the age of 72.8% of respondents was confined in an extended age range of 31 and 50 because most parents of this age are married and have school age children.

Rwandese can get married at age of 21. Kirehe district had more parents of the modal age range (38.5%) than Kicukiro district (35.7%) because Rwandese prefer to stay in rural areas especially when they are aging (Government of Rwanda, 2011). Generally, the study used parents of different ages. As the age is an important variable in understanding respondents' views, the study referred to the registered high level of parents maturity to examine the importance of hidden costs on students participation.

(c) Education Level of Respondents

The study considered educational levels of respondents. Education level in this study means the number of years spent by a parent in a formal education system. This variable was important to the study because the level of education can inform the level of understanding different issues. The responses given by parents varied by their level of education. This variable, therefore, determined the way people understood different social phenomena. Table 4.4 presents information of parents' educational level, disaggregated per district.

Table 4.4: Educational Level of Respondents

Level of education	Kicukiro		Kirehe		Total	
	n	%	n	%	n	%
None	12	7.0	18	9.0	30	8.1
Primary	34	19.9	49	24.5	83	22.4
Secondary	59	34.5	68	34.0	127	34.2
University	32	18.0	40	20.0	72	19.4
Other	34	19.9	25	12.5	59	15.9

*N = 371

Source: Parents questionnaire

Table 4.4 shows that educational level of parents varied from no-education to university. The educational level attended by many parents was the secondary school level. The likelihood of attending secondary school level was quite the same in Kicukiro (34.5%) and Kirehe (34.0%) districts. From sampled parents, only 8.1% had not attained any education. As such, a considerable number of parents (91.9%) had functionally attained least level of education. Therefore, the research used parents who could refer to their experience in

schools and could provide trustworthy information related to the impact of hidden costs on students participation.

(d) Economic Activities of Respondents

Further, this study considered economic activities of respondents. By this variable, the researcher meant the production of services and goods as a way of making money by selling them to consumers. In the view of Awuor (2012), economic activities are among factors determining strategic management of education in terms of deciding on whether to attend schools for a delayed earning benefit or attend income generating activities for a direct earning benefit. Therefore, respondents' occupation can have a bearing on parents perception on different issues in education. Table 4.5 presents information on parents economic activities, disaggregated by districts.

Table 4.5: Economic Activities of Respondents

Economic activity	Kicukiro		Kirehe		Total	
	n	%	n	%	n	%
Trade & Business	38	22.20	65	32.50	103	27.80
Sale & Labour	72	42.10	66	33.00	138	37.20
Employment	39	22.80	37	18.50	76	20.50
Other	22	12.90	32	16.00	54	14.50

*N = 371

Source: Parents questionnaire

Table 4.5 shows that the type of parental economic activities varied from district to district. Doing sales and labour (37.20%) was engaging parents compared to other economic activities. Comparing districts, it can be observed that parents in Kicukiro districts (42.10%) are more engaged in sales and labour as economic activities than those in Kirehe

districts (33.00%). Likewise, a relatively bigger number of parents in Kicukiro district (22.50%) were employed whereas only 18.50% in Kirehe district had employment as economic activity. However, it can be observed that parents in Kirehe district (32.50%) were more engaged in trade and business than those in Kicukiro district (22.20%). These findings were true because Kirehe district is mostly a rural area, and borders with Tanzania which facilitates the trans-border trades and business than in Kicukiro district which is not at the border with any country. In addition, Kicukiro district is located in an urban area where many industries are located and in which parents can sale their labour or even get employment.

Generally, the study used parents whose economic activities varied across sampled districts. This was important to the study because, it could learn from different category of respondents the most causes of low participation drawn from the loop of financial factors.

4.3 Impact of Home-based Costs on Students Intake Rate in 12YBE in Rwanda

The first objective of this study was to determine the impact of home-based costs on students intake rate in 12YBE in Rwanda. These costs were referred to as ‘cost incurred by households’ because of sending their children to school. Home-based costs comprised costs for school uniform, school materials, home-coaching and transport. Students intake rate was defined as percentage of school age students who register in one cycle of basic education. Basing on parents views, this section regressed the home-based costs (independent variable) with students intake rate (dependent variable). An average intake rate for three years (2013, 2014 and 2015) was considered as independent variable.

4.3.1 Impact of School Uniform Costs on Students Intake Rate

The study considered costs for school uniform as a variable that could affect students intake rate in cycles of 12YBE. School uniform costs were defined as expenses incurred by households to purchase materials such as school tie, shirt, short, skirt, socks, shoes, sport shoes, sport trouser, t-shirt and sweater. The study considered this variable because it was one of the key variables that could affect students intake rate (Davies, 2015). Therefore, a multiple regression analysis was used to determine the impact of school uniform costs on students intake rate in cycles of 12YBE. Table 4.6 gives an overview of regression analysis results related to the impact of school uniform costs on students intake rate.

Table 4.6: School Uniform Costs and Students Intake Rates

Variables*	Mean	SD	P' Level		O' Level		A' Level	
			<i>b</i>	<i>Beta</i>	<i>b</i>	<i>Beta</i>	<i>b</i>	<i>Beta</i>
(Constant)			128.7		82.6		66.1	
School tie	2.5	1.4	-4.1	-0.1	2.3	0.2	1.1	0.2
School shirt	3.2	1.3	22.8	1.4	-7.1	-1.3	0.5	0.2
school short	2.8	1.3	-7.6	-0.4	-3.9	-0.5	0.7	0.2
school skirt	3.1	1.2	0.5	0.0	0.2	0.0	0.0	0.0
school socks	2.8	1.4	18.7	0.8	4.2	0.5	0.5	0.2
school shoes	3.2	1.3	-26.7	-1.7	2.1	0.4	0.4	0.2
school sport shoes	2.8	1.4	18.1	0.9	1.4	0.2	0.3	0.1
school sport trousers	2.8	1.5	0.6	0.1	-0.7	-0.2	-0.1	0.0
school sport t-shirt	2.8	1.4	-7.3	-0.4	3.3	0.5	-0.3	-0.1
school sweater	2.9	1.4	-18.1	-0.9	0.8	0.1	0.1	0.0
Intake rate Primary	116.8	16.3	$p=.000; R=.59; R^2=.35$					
Intake rate O' level	86.3	6.8	$p = .000; R=.46; R^2=.22$					
Intake rate A' level	76.9	6.9	$p = .000; R=.92; R^2=.85$					

*N=371

Source: Parent questionnaire

Table 4.6 shows that parents incurred some costs for purchasing school uniform items. For school shirt ($M = 3.2$, $SD = 1.3$), School skirt ($M = 3.1$, $SD = 1.2$) and school shoes ($M = 3.2$, $SD = 1.2$), the average cost was between 500Rwf and 1000Rwf. For each of school tie ($M = 2.5$), short (Mean = 2,8), sport shoes ($M = 2.8$), sport trousers ($M = 2.8$), sport t-shirt ($M = 2.8$), socks (Mean = 2.8) and sweater ($M = 2.9$), parents were paying on average of less than 500 Rwandan Francs (Rwf). The cost was higher in P' level. This can be explained by the fact that young children in P' level tend to misuse uniform materials more than older children in O' or A' levels. Therefore, by simple estimation, it can be concurred that at least an amount of 7,500 Rwf was needed for a complete school uniform.

The question remaining to be answered is whether these costs for school uniform can affect students intake rate in Primary (P'), Ordinary (O') and Advanced (A') levels of basic education in Rwanda. If so, how much could one school item contribute to changes in students intake rate in P', O' and A' cycles of 12YBE in Rwanda?

The study considered the coefficient of determination (R^2). This coefficient determined the amount of changes in students intake rate that could be attributed to costs of school uniform. Table 4.6 indicates that the R^2 between school uniform costs and students intake rate in A' level was .85, meaning that 85% of changes in students intake rate in this level could be shared with school uniform costs. In P' level, R^2 was .35, meaning that about 35% of changes in students intake rate in P' level could account for costs of school uniform. Furthermore, the R^2 for O' level was .22, meaning that about 22% of changes in students intake rate in O' level could account for costs of school uniform. Therefore, school uniform costs have a considerable impact on students intake rate at all levels of 12YBE in

Rwanda. Given the rules and regulations in schools, that make school uniform a requirement (Mutesi and Paxton, 2012), these findings are factual.

To analyze the magnitude and direction of the impact of school uniform costs on students intake, this study regressed the cost incurred by parents with students intake rate in the three levels of 12YBE. Using data from Table 4.6, we can generate the following regression equations:

$$Y_P = 128.7 - 4.1x_1 + 22.8x_2 - 7.8x_3 + 0.5x_4 + 18.7x_5 - 26.7x_6 + 18.1x_7 + 0.6x_8 - 7.3x_9 - 18.1x_{10} + \varepsilon(x) \quad (7)$$

$$Y_O = 82.6 + 2.3x_1 - 7.1x_2 - 3.9x_3 + 0.2x_4 + 4.2x_5 + 2.1x_6 + 1.4x_7 - 0.7x_8 + 3.3x_9 + 0.8x_{10} + \varepsilon(x) \quad (8)$$

$$Y_A = 66.1 + 1.1x_1 + 0.5x_2 + 0.7x_3 + 0.0x_4 + 0.5x_5 + 0.4x_6 + 0.3x_7 - 0.1x_8 - 0.3x_9 + 0.1x_{10} + \varepsilon(x) \quad (9)$$

Where: Y_P , Y_O and Y_A , represent the students intake rate in P', O' and A' cycle of 12YBE; X_{1-10} represents school uniform costs for school tie, shirt, short, skirt, socks, shoes, sport shoes, sport trouser, sport t-shirt and sweater and; $\varepsilon(x)$ is the chance variation (or disturbance) of predictors.

The study considered the y-intercept. This intercept indicated the value of students intake rate if costs of school uniform were not incurred. In this view, Equation (7) indicates that at y-intercept, the students intake rate in P' level would be 128.7, meaning that it would increase by 11.9 from its average value ($Y_P = 116.8$). Equations (8) shows that at y-intercept, the students intake rate in O' level would be 82.6, meaning that it would decrease by 3.7 from its average value ($Y_O = 86.3$). Finally, Equation (9) shows that at y-intercept, the students intake rate in A' level would be 66.1, meaning that it would decrease by 10.8 from its average value. Generally, the cost of school uniform would increase the students

intake rate from its average value in P' level, whereas, in O' and A' levels, it would decrease the students intake rate by some amount.

Equation (7) shows negative regression coefficient (b) for school shoes (-26.7), sweater (-18.1), sport t-shirt (-7.3), short (-7.6) and tie (-4.1), meaning that if costs of other school items were kept constant, the increase in one unit of costs of these items would lead to the decrease in students intake rate at P' level by some amount. However, in the same situations when other variables are held constant, we observe positive regression coefficient for school shirt (22.8), school socks (18.7), school sport shoes (18.1), school sport trouser (0.6) and school shirt (0.5) implying that the increase in one unit of cost in these items would increase the students intake rate in P' level by the amount equal to this regression coefficient. Generally, we can establish that the cost of some school uniform items were causing challenges in students intake rate at primary level.

Equation (8) shows that regression coefficients of the cost of school shirt (-7.1), short (-3.9) and sport trouser (-0.7) were negative, implying that if costs for other school items were constant, the increase in one unit in the cost of school shirt and skirt would decrease the students intake rate in O' level by 7.1 and 3.9 units respectively. However, regression coefficients for socks (4.2), t-shirt (3.3), tie (2.3), sport shoes (1.4), sweater (0.8), and skirt (0.2) were positive, meaning that an increase in one unit of their cost would lead to an increase in students intake rate in O' level by 4.2 and 3.3 units respectively. Therefore, the cost of school uniform items was an important predictor of students intake late at O' level.

Equation (9) shows that the regression coefficients of the cost of sport trouser (-0.1) and sport t-shirt (-0.3) were negative, meaning that if costs for other school items were kept

constant, their increase by one unit could lead to the decrease in students intake rate by 0.1 and 0.3 units respectively. However, regression coefficients of other school items were positive, implying that their increase would make the students intake rate increase by some amount.

We can generally observe that, the cost of school tie can decrease students intake in P' level but contribute to the increase in students intake rate in O' and A' levels. The cost of school shirt can decrease the students intake rate at O' level but, decrease it at P' and A' level. The cost of school short, can decrease the students intake rate at P' and O' levels but, increase it at A' level. The cost of school skirt, socks and sport shoes can only contribute to the increase of students intake rate in all levels. The cost of school shoes can decrease students intake rate at P' level and contribute to its increase in O' and A' levels. The cost of school sport shoes can. The cost of sport trousers can decrease the students intake rate at O' and A' levels but, contribute to the increase in students intake rate at P' level. the cost of school sport t-shirt can decrease the students intake rate at P' level and increase it at O' and A' levels. The cost of school sweater can decrease students intake rate at P' and A' levels but, contribute to the increase in students intake rate in O' level.

The key finding under this section is that, the costs of school uniform can affect students intake rate in all levels of 12YBE. A higher impact of these costs was observed in A' level where about 85% of changes in students intake rate could be attributed to costs of school uniform. In addition, costs of school items such as school shirt, sweater, shoes and skirt were having significant negative impacts on students intake rate in P' and O' level. This finding was factual because of different viable reasons including the fact that as students

grow up, the cost of uniform gets higher and that school sweater, shoes and skirt are expensive yet necessary.

Headteachers reported that the cost of school uniform could be put at the forefront of factors affecting students intake rate. This was because school uniform was compulsory for all students. The only source of funding for schools (capitation grant) did not provide support for needy students. Some students whose families could not afford some items of the school uniform dropped out. For example, one headteacher said:

“My school had been visited last week by three different mothers on a single day, who were accompanied by their out-of-school sons and seeking help in buying uniforms” (HIDINT17, 2017).

Another headteacher advanced the same view that:

“Because of specialism in school uniform and school materials required at school, students from poor families may fail to continue schooling. For example, in A’ cycle where the costs of school materials increase” (HIDINT28, 2017).

The convergence between qualitative and quantitative findings was established around the fact that school uniform was an important predictor of students intake rate at all levels of 12YBE. This finding agreed with the Educational Production Function Model which posits that costs for school uniform can be regarded as educational inputs that can be related to students transition rate herewith regarded as educational outputs (Bowles, 1970).

From both headteachers’ and parents’ views, the highest impact of school uniform cost was found in A’ level where about 85% changes in students intake rate could be accounted for such costs. This concurs with Davies (2015) who confirmed that as students move from one level to another, the cost of some school uniform items get expensive as they sometimes need more fashioned items.

In addition, these findings complement the Gentile and Imberman (2015) whose study used a regression analysis to estimate the actual impact of school uniform costs on students intake. In this view, the study concurred that the cost of school uniform varied per school uniform item and that costs of sweater, shirt, shoes and shirt were causing a decrease in students intake rate. Furthermore, the study demonstrated that the research design in Reed (2011) was not sufficient to prove the important relationship between school uniform and students intake rate.

On matters of policy, the existing education policy determines the capitation grant per student, but the package does not include expenses for school uniform. This implies that parents or caretakers are responsible for buying school uniform for their children. In addition, school rules and regulations in Rwanda declare school uniform as mandatory. This implies that those who cannot afford the purchase these items may be forced to dropout of school.

4.3.2 Impact of Transport Costs on Students Intake Rate

The study considered the impact of transport costs. The transport cost was referred to as the money paid by parents for their children's transportation to and/or from school. This variable was considered because it could have an impact on students intake rate in P', O' and A' levels of 12YBE (Kattan & Burnett, 2004). In this view, a regression analysis was conducted between the cost of transport and students intake rate.

Table 4.7 gives an overview of regression analysis results related to the impact of the cost of transport on students intake rate at all the levels of 12YBE.

Table 4.7: Transport Costs and Students Intake Rates

Variables*	Descriptive		P' Level		O' Level		A' Level	
	M	SD	b	Beta	b	Beta	b	Beta
(Constant)			126.7		77.4		61.9	
Transport costs	3.0	1.3	-3.3	-0.3	3.0	0.6	5.0	0.1
Intake rate Primary	116.8	16.3	R=.26; R ² =.07; P=.000					
Intake rate O' level	86.3	6.8	R=.57; R ² =.33; P=.000					
Intake rate A' level	76.9	6.9	R=.94; R ² =.89; P=.000					

* *N*=371**Source:** Parents questionnaire

Table 4.7 indicates that the average mean of the cost of transport was 3.0 (SD = 1.3), meaning that each parent was paying an average amount between 5000 and 10000 Rwf (M = 3.00) for one child's transport to and/or from school. On average, each parent was incurring 7,500 Rwf per child for covering the cost of transport. However, the availability of transport costs does not directly explain their impact on student's intake rate which requires a regression analysis.

According to Field (2009), the coefficient of determination can describe the variation of students intake rate as contributed by transport costs. Table 4.7 shows that the coefficients of determination were .07 ($R^2 = .26$) in P' cycle, .33 ($R^2 = .57$) in O' cycle and .89 ($R^2 = .94$) in A' level. As such, 89% of changes in students intake rate in A' cycle could be shared with transport costs, whereas, 33% of variations in students intake rate in P' cycle could be accounted for transport costs. Surprisingly, only 7% of changes in students intake rate could be accounted for transport costs. This finding was true but not clear about the direction and magnitude that was needed to describe the impact.

The following regression equations were extracted from table 4.7 to explain the magnitude and direction of transport cost on students intake rate in the three cycles of 12YBE in Rwanda.

$$Y_P = 126.7 - 3.3x_1 + \varepsilon(x) \quad (10)$$

$$Y_O = 77.4 + 3.0x_1 + \varepsilon(x) \quad (11)$$

$$Y_A = 61.9 + 5.0x_1 + \varepsilon(x) \quad (12)$$

Where: Y_P , Y_O and Y_A , represent the students intake rate in P', O' and A' levels of 12YBE; x_1 represents costs for transport and; $\varepsilon(x)$ is the chance variation (or disturbance) of predictors.

Equation (10), (11) and (12) indicate significant regression coefficients, meaning that transport costs could be related to students intake rate in cycles of 12YBE. In P' level, the regression coefficient was negative (-3.3) which implies that a change in transport cost by one unit would decrease the students intake rate by 3.3 units. Contrary, in O' and A' levels, the cost of transport increases with students intake rate because the regression coefficients were positive (3.0 and 5.0 respectively).

This implies that one unit of increase in cost of transport would increase students intake rate by 3.0 in O' level and by 5.0 in A' level. Therefore, the cost of transport is threat to students intake rate for younger students in P' level, whereas for older students in O' and A' level, this cost can only contribute to the increase of student's intake rate. This information need further confirmation from headteachers whose duties include the follow up of students participation.

The need of transport cost was mentioned by headteachers as one of challenges faced by students travelling long distances from or to schools. This links to possible impact of this cost on students intake rate. For instance, one headteacher shared the following experience:

“For me students from remote areas suffer a lot to get to school. We used to have problems such as students travelling a long distance to get to school during lunch time. We submitted this problem to the Sector Education Officer and parents’ committee and the solution was to organize cooking lunch at school whereby all students can take lunch at school. However, some could not find money to pay for food and decided to keep travelling these distances to home” (HIDINT 07, 2017).

Another headteacher from the urban area linked the cost of transport to and from school to students intake rate as follows:

“Headteachers know that there are students who need transport to go to school. This transport requires some money. For parents who fail to get money for transport may decide to force their children walk long distances and which may lead to failure to come to school. Especially for young children who cannot cover such long distance, it is possible that parents decide to register them regarding their financial means to pay for transport” (HIDINT11, 2017).

A headteacher of another school in the urban areas established that the cost of transport was not so important that it could affect students intake. However, he mentioned that there were initiatives established by the MINEDUC for the possible impact:

“The government of Rwanda has made it possible for all school-age children to attend school. 12YBE schools were built with enough classrooms and at all sectors. This initiative has made schools closer to families. For those who do not attend because of transport, it is because of particularities within families” (HIDINT19, 2017).

The convergence between parents’ and headteachers’ views was that transport cost could affect students intake rate. This finding agreed with Sigei and Tikoko (2014) who established that about 80% students can be affected by transport costs and could not

participate properly in teaching and learning processes. The present study revealed that high costs of transport were a major cause of students dropout especially for P' level students.

In addition, the impact of cost of transport on students intake was confirmed by Mugoro (2014) whereby 46% of students in Tanzania had been unable to attend school because of lack of parental support on transport. The present study reveals that parents need between 5000 and 10000 Rwf to pay for the cost of their children. There could be many viable explanations including that grown-up students could decide to attend school at long distance from their schools, therefore, the cost of transport could only lead to increased number of A' and O' students seeking to register for schooling. However, for young students in P' level, the lack of transport cost may immediately lead to not registering for schooling.

In Rwanda, some students, especially in urban areas, rely on public transport to get to school. As such, the lack of financial means to cover these costs may lead to students dropout or discourage parents from taking their children to school. With the existing fee-free schooling policy which supports important expenses for the teaching and learning processes, the reality shows that the cost of transport is another uncovered layer that is not covered and which has a considerable impact on students intake rate.

4.3.3 Impact of Home-coaching Costs on Students Intake Rate

This study considered the cost of home-coaching in its attempt to understand the problem under study. This cost was referred to as households expenses for paying private tutoring at home. This variable was measured in this study because it can affect students intake rate

intakes in P', O' and A' levels in 12YBE schools in Rwanda (Choi, 2012). As such, parents' views were used to regress the cost of home-coaching and students intake rate in the levels of basic education in Rwanda.

Table 4.8 gives an overview of regression analysis results related to the impact of coaching costs on students intake rate.

Table 4.8: Regression Between Home-Coaching Costs and Students Intake Rates

Variables*	Descriptive		P' Level		O' Level		A' Level	
	M	SD	b	Beta	b	Beta	b	Beta
(Constant)			123.8		79.1		64.8	
Home-coaching costs	2.8	1.5	-2.5	-0.2	2.6	0.2	4.4	0.1
Intake rate Primary	116.8	16.3	R=0.2; R ² =0.05; P=.000					
Intake rate O' level	86.3	6.8	R=0.5; R ² =0.31; P=.000					
Intake rate A' level	76.9	6.9	R=0.9; R ² =0.86; P=.000					

*No missing data were found in the raw data set; N=371

Source: Parents questionnaire survey

Table 4.8 indicates that the average mean of the cost of home-coaching was 2.8 (SD = 1.5), meaning that each parent incurred an average amount between 5000 and 10000 Rwf per year paying for home-coaching. By simple calculations, each parent was incurring 7,500 Rwf for covering the coast of home-coaching. Payment of these fees could have varied consequences on households, including the fact that some households could decide not to register their children in levels of basic education. This could therefore, confirm the impact of cost of home-coaching on students intake rate. As such, this impact should be measured in terms of magnitude and direction.

The magnitude of the impact of home-coaching costs on students intake rate can be estimated using the coefficient of determination. Thayer (1991) argued that the coefficient of determination explains the percentage of variations in dependent variables that can be shared with independent variables. Table 4.8 indicates that, coefficient of determination in P', O' and A' cycles are .053, .31 and .86 respectively. As such, 86% of changes in students intake rate in A' cycle could be attributed to home-coaching costs, 30% in O' cycle and only 5% in P' cycle.

By regressing home-coaching costs by students intake, we obtained the following equations:

$$Y_P = 123.8 - 2.5x_1 + \varepsilon(x) \quad (13)$$

$$Y_O = 79.1 + 2.6x_1 + \varepsilon(x) \quad (14)$$

$$Y_A = 64.8 + 4.4x_1 + \varepsilon(x) \quad (15)$$

Where: Y_P , Y_O and Y_A , represent the students intake rate in P', O' and A' levels of 12YBE; X_1 represents costs of home-coaching and; $\varepsilon(x)$ is the chance variation (or disturbance) of predictors.

Regression equations were considered because they could indicate trends of the variation in students intake rates as predicted by costs of home-coaching. Equation (13), (14) and (15) indicate that regression coefficients of home-coaching cost had different values for P', O' and A' levels of basic education, meaning that the cost for home-coaching could be related to students intake rate in these levels.

The y-intercept can show the value of students intake rate if home-coaching was not needed ($x_1 = 0$). Equation (13) shows that at y-intercept for P' level, students intake rate would be 123.8, meaning that without cost of home-coaching, students intake rate would increase by

7.1 (123.8 – 116.8) from the average value. However, Equations (14) and (15) indicate that for O' and A' levels, at y-intercept, students intake rate would be 79.1 and 64.8 respectively, meaning that with no cost of home-coaching, students intake rate would decrease by 7.2 (79.1 – 86.3) in O' level and by 12.1 (64.8 – 76.9) in A' level from their average value.

This implies that home-coaching cost was having negative impact on students intake rate at P' level whereas the impact was positive at O' and A' levels of basic education. There could be many viable reasons behind the impact of the cost of home-coaching on students intake rate in P' level, these include the fact that young children (in P' level) need more assistance from parents that old students in O' and A' levels may need. Students in O' and A' levels of 12YBE are relatively mature that they can seek for help from peers but, those in P' can only rely on their parents or on home-coaching which requires some costs.

The study considered the slope of home-coaching about students intake rates. The slope indicates the amount of variability in students intake that can be predicted by the change in cost of home-coaching by one unit. Equation (13) indicates that the slope of home-coaching in P' level was -2.5, meaning that the change in school uniform by one unit would reduce the students intake by 2.5 units. Equations (14) and (15) show that home-coaching cost had positive slopes at O' and A' levels. At O' level, the increase of costs of home-coaching by one unit would increase students intake rate by 2.6 whereas at A' level an increase of 4.4 units would be registered. This implies that costs of home-coaching became a contributing factor to students intake as students get to O' and A' levels.

During interviews, headteachers recognized the contribution of home-coaching to students intake rate. Precisely, the cost of home-coaching was a households' initiative to help their children perform better at school, as indicated below:

“Some parents organize private tutoring for their children at home because they realize that their children need extra effort. We find this helpful to both the school and students, but the problem is for those who cannot afford the cost” (HIDINT07, 2017).

Headteachers confirmed that the cost of home-coaching was necessary for young children in primary who could easily dropout of school. However, for grown up students in O' and A' level, home-coaching was paid as a way of enforcing learning. This is affirmed below:

“For example, we are emphasizing on numeracy and literacy skills in primary levels. When parents find that their children will need extra support to achieve these skills and consider the cost, they may decide to not bring their children at school. For grown up students, this cost is necessary to help them pass national exams” (HIDINT01, 2017).

Parents and headteachers' views converged to the point that home-coaching cost was real and could decrease students intake rate in P' level, but increase it in O' and A' levels. More importantly, headteachers found home-coaching helpful for preparation of national examinations. This finding directly support the Kingdon & Teal (2005) where it was established that children whose parents cannot afford the cost of private tutoring would have challenges in their studies. This finding was true because the payment of private tutoring at home was not compulsory but was needed because the normal teaching is not sufficient to help some students achieve all their educational objectives.

Furthermore, the present study complements Choi (2012), who confirmed that subsidization by some percentage of the cost of home-coaching would increase students intake. It was therefore, confirmed that the impact of home-coaching was negative in

primary level and positive in secondary level. This is because, grown up students need coaching services at home as a tool to be successful in national examinations whereas in young students of P' level, coaching is necessary to help students achieve their basic skills and motivate parents to register and keep them at school.

4.3.4 Impact of School Material Costs on Students Intake

The study considered the cost for school materials as independent variables. School materials were referred to as necessary tools other than instructional that students need to facilitate their learning Farthing (2014). The cost of these materials comprised expenses for purchasing note books and writing materials for their children. The cost of school materials was considered in this study, because it may have an impact on the process of teaching and learning thus, affecting the students intake rate (dependent variable).

Regarding parents' views, school materials were regressed with students intake rate in P', O' and A' cycles of 12YBE. Table 4.9 gives an overview of regression analysis results related to the impact of school material costs on students intake rate.

Table 4.9: School Material Costs and Students Intake Rates

Variables*	Descriptive		P' Level		O' Level		A' Level	
	M	SD	b	Beta	b	Beta	b	Beta
(Constant)			129.3		78.4		61.7	
School note books costs	3.4	1.4	-16.9	-1.4	-0.4	-0.1	-0.2	0.0
Writing utensils costs	2.6	1.1	16.9	1.2	3.4	0.6	6.1	1.0
Intake rate Primary	116.8	16.3	R=0.6; R ² =0.32; P=0.0					
Intake rate O' level	86.3	6.8	R=0.5; R ² =0.26; P=0.0					
Intake rate A' level	76.9	6.9	R=.96; R ² =0.92; P=.000					

*N=371

Source: Parents' questionnaire

Table 4.9 indicates that the mean costs for school note books ($M = 3.4$, $SD = 1.4$) was higher than that of writing utensils ($M = 2.6$, $SD = 1.1$), which suggests that on average the cost of note books was likely to be more burdensome to parents. As such, each parent was paying between 500 and 1000 Rwf for school note books per year, whereas each parent incurred less than 500 Rwf for writing utensils. There may be many viable explanations about this, such as it was due to the cost of notebooks which is normally higher than that of writing utensils. The total cost for school material was 2000 Rwf per year. Furthermore, It can also be suggested that the cost of notebooks and writing utensils can have an impact on students intake rate, but the truth is that this cannot be concluded unless we measure the impact.

The impact of school materials was measured using the coefficient of determination (R^2). This coefficient is one of the outputs from regression analysis that showed proportions of variances in the students intake rate that could be predicted by the cost of school materials. Table 4.9 shows that R^2 was higher in A' level ($R^2 = .92$) than in O' level ($R^2=.26$) and P' level ($R^2=0.32$). As such, about 92% of variations in students intake rate in A' level could be attributed to school materials costs. On the other hand, only 32% and 26% of changes in students intake rate at O' and A' cycles respectively could be attributed to school materials. This implies that the cost of school materials was becoming important as students move from lower to higher levels of education. It also means that because of costs for school materials, intake rate for grown-up students was more likely to be affected than that of younger students. Nonetheless, the ambiguity is that this cannot tell the amount of changes in students intake rate as predicted by each type of school materials.

The study referred to the following multiple regression equations to determine the amount of changes in students intake rate that could be attributed to notebooks and writing utensils.

Where: Y_P, Y_O and Y_A , represent the students intake rate in P', O' and A' cycle of 12YBE;

$$Y_P = 129.3 - 16.9x_1 + 16.9x_2 + \varepsilon(x) \quad (16)$$

$$Y_O = 78.4 - 0.4x_1 + 3.4x_2 + \varepsilon(x) \quad (17)$$

$$Y_A = 61.7 - 0.2x_1 + 6.1x_2 + \varepsilon(x) \quad (18)$$

x_{1-2} represent costs for note books and writing utensils; $\varepsilon(x)$ is the error term

This study considered the Y-intercept. This intercept explains the point where the regression lines in Equation (16), (17) and (18) crosscut the Y-axis. These equations indicate that at intercept with Y-axis and when the cost for school materials was valueless ($X_{1-2} = 0$) the students intake rate in P' cycle would increase from 116.78 (average value) to 129.32 (B_0). This implies that if parents were not buying school materials for their children in P' cycle, the number of students intake rate would increase by 12.54% ($129.3 - 116.8$). As opposed to primary cycle, the removal of school materials costs would slightly decrease the students intake rate at O' level by 7.9% ($78.4 - 86.3$). In A' level, the removal of all costs related to school materials, would reduce the students intake rate by 15.2% ($61.7 - 76.9$).

In Equation (16), (17) and (18), the study was interested in gradients of school materials cost. The gradient indicates the number of students intake rate that is increased or decreased because of changes in the cost of notebooks and writing utensils by one unit. In this view, the change of one unit in costs of notebooks reduced the students intake rate by 16.8 units in P' level, by 0.4 units in O' level and by 0.2 units in A' level. This implies that the cost

of notebooks had a negative impact on students intake rate and this increased from lower to higher levels of education. There may be many causes behind this finding, including that notebooks are expensive and young children misuse them. In addition, calculation of these costs was on a yearly basis which implies that young children had tendency to use many notebooks across the year.

Equation (16), (17) and (18), show positive slopes for writing utensils. As such, assuming that changes in the cost of notebooks are constant, the change of one unit in cost of writing utensils could increase students intake rate by 16.9 in P' level, 3.4 units in O' level and by 6.1 units in A' level. This implies that the cost of writing utensils was contributing to the increase in students intake rate at all levels. This could be explained by different factors including the fact that writing utensils are basic tools for teaching and learning processes. In addition, these materials were relatively cheaper than notebooks. For example, using one pen, a student can write in more than ten notebooks. Headteachers said that the cost of purchasing notebooks or writing utensils was an important factor for the registered decrease in students intake rates. This was mainly due to parents' laxity in purchasing these materials. More generally, school materials were more important for young children than for older ones. One head teacher commented on issues related to the cost of school materials thus:

“We try to sensitize parents to register their children timely but, due to negligence, you will see some keeping their children because they can't provide school materials for them. We work together with authorities to bring them back to school but schools can't buy these materials for them” (HIDINT12, 2017).

Another Headteacher confirmed the cost of notebooks and writing utensils as a barrier to maximizing students intake and commented on the possible impact of these materials on students intake rate thus:

“The cost of school materials is a challenge to student’s achievement. Specifically, some parents refuse to register their children on time because of fearing the cost of these materials. This is very considerable for families with many children where they decide to not bring their children immediately at 7-year-old” (HIDINT21, 2017).

In both quantitative data from parents and qualitative data from headteachers, we can concur that the cost of school materials had impact on students intake rate at some extent. More and richer relationships between these materials and students intake rate led in turn to low students intake rate in sampled districts. Costs for school notebooks had negative impact on students intake rate whereas cost for writing utensils had weak and positive impact.

There was a high-level agreement between this finding and that by Farthing (2014). Both studies agree on the prevailing impact of school materials on students participation. In the latter, 21% of students were lacking school materials. However, the present study complements this information by establishing that costs of school materials could be attributed to 92% of changes in students intake rate at A’ level and that the cost for notebooks had negative impact on students intake rate. This impact was more important in primary level than other in other levels. This could be explained by the fact that students in primary levels of education fail to manage efficiently school materials and tend to use many school materials than those in higher levels as already indicated. Therefore, the increase in cost of notebook was leading to decrease in students intake rate.

The existing fee-free schooling policy in Rwanda pretends to cater for everything that can prevent school-age students from registering to basic education. However, the reality seemed different. The cost for school materials was classified by Carlos (2014) among social-economic factors hindering achievement of universal primary education. School materials are needed (not provided by the capitation grant) and their cost can affect students intake rate and that is happening more in primary than other subsequent levels.

4.4 Impact of Home-Based Costs on Students Transition Rate in Basic Education in Rwanda

The second objective of this study sought to examine the impact of home-based costs on students transition rate in basic education in Rwanda. For this examination, this section regresses the home-based costs with students transition rate. The home-based costs (Independent Variables) includes costs for school uniform, school materials, home-coaching and transport. The students transition rate (Dependent Variable) was comprised of students transition rate in P', O' and A' cycles of 12YBE.

4.4.1 Impact of School Uniform Costs on Students Transition Rate

The study considered the school uniform costs. These are expenses incurred by households for purchasing different items for school uniform. Cost for school uniform include costs for school tie, shirt, short, skirt, socks, shoes, sport shoes, trouser and t-shirt and school sweater. These costs were considered because they can have an impact on students transition rate in levels of basic education in Rwanda (Davies, 2015). Students transition rate was referred to as the percentage of students transferring from one level of education to another. With this regard, transition rate was considered for students transferring from P' to O' level and those from O' to A' level. This concept was important in this study

because it is one dimension of students participation. As such, school uniform costs (predictors) were regressed with students transition rate (outcome) in the three cycles of 12YBE in Rwanda. Table 4.10 gives an overview of regression analysis results related to the impact of school uniform costs on students transition rate.

Table 4.10: Regression Between School Uniform Costs and Students Transition Rate

Variables*	Descriptive		P' Level		O' Level		A' Level	
	M	SD	b	Beta	b	Beta	b	Beta
(Constant)			85.0		64.2		54.5	
School tie	2.5	1.4	3.2	0.4	0.2	0.0	0.4	0.1
School shirt	3.2	1.3	-0.1	0.0	1.3	0.3	3.3	0.9
School short	2.8	1.3	6.4	1.1	-0.4	-0.1	1.9	0.4
School skirt	3.1	1.2	-0.2	-0.1	0.1	0.0	0.1	0.0
School socks	2.8	1.4	2.1	0.3	-0.8	-0.1	-6.1	-1.1
School shoes	3.2	1.3	0.2	0.1	3.5	0.8	1.2	0.3
School sport shoes	2.8	1.4	-3.2	-0.6	-2.2	-0.4	-4.1	-0.8
School sport trousers	2.8	1.5	0.3	0.1	-0.1	0.0	0.2	0.1
School sport t-shirt	2.8	1.4	0.9	0.2	0.1	0.0	1.1	0.2
School sweater	2.9	1.4	-5.4	-0.9	2.1	0.4	1.3	0.3
Transition rate in P'	93.8	4.9	p=.000; R=.51; R ² =.27					
Transition rate in O'	78.6	7.1	p = .000; R=.91; R ² =.82					
Transition rate in A'	58.8	5.6	p = .000; R=.41; R ² =.17					

*N=371 parents

Source: Parent questionnaire

As indicated earlier in this study, households were incurring on average an amount of 7,500 Rwf paying for school uniform. The study was interested to know whether the amount spent for school uniform was affecting students transition rate in levels of basic education

in Rwanda. In this view, the coefficient of determination (R^2) was used to measure the changes in students transition rate that could be attributed to the cost of school uniform (Field, 2009). Therefore, R^2 was used to show the percentage of variations in students transition rate shared by the cost of school uniform.

Table 4.10 shows that the coefficient of determination was .27 in P' level, .82 in O' level and .17 in A' level of 12YBE. This implies that 82% of variations in students transition rate in O' level could be shared with school uniform costs. Furthermore, 27% and 17% of changes in students transition rate in P' and A' respectively could be accounted for costs of school uniform. This finding links the cost of school uniform to students transition rate in levels of 12YBE. However, a more important question is whether there was any evidence to show that the cost of uniform could lead to increased or decreased students transition rate in P', O' and A' levels of 12YBE. The following regression equations show trends of the relationship between students transition rate and the cost of school uniform.

$$T_P = 85.0 + 3.2x_1 - 0.1x_2 + 6.4x_3 - 0.2x_4 + 2.1x_5 + 0.2x_6 - 3.2x_7 \quad (19)$$

$$+ 0.3x_8 + 0.9x_9 - 5.4x_{10} + \varepsilon(x)$$

$$T_O = 64.2 + 0.2x_1 + 1.3x_2 - 0.4x_3 + 0.1x_4 - 0.8x_5 + 3.5x_6 - 2.2x_7 \quad (20)$$

$$- 0.12x_8 + 0.13x_9 + 2.09x_{10} + \varepsilon(x)$$

$$T_A = 54.5 + 0.4x_1 + 3.3x_2 + 1.9x_3 + 0.1x_4 - 6.1x_5 + 1.2x_6 - 4.1x_7 \quad (21)$$

$$+ 0.9x_8 + 1.1x_9 + 1.3x_{10} + \varepsilon(x)$$

Where: T_P , T_O and T_A , represent the students transition rate in P', O' and A' levels of 12YBE; X_{1-10} represents school uniform costs for school tie, shirt, short, skirt, socks, shoes, sport shoes, sport trouser, sport t-shirt and sweater and; $\varepsilon(x)$ is the chance variation (or disturbance) of predictors.

The study used y-intercept to explain the magnitude of changes in students transition rate because of available cost of school uniform. As such, y-intercept shows the value of students transition rate if all items of school uniform were valueless. In this view, Equation (19) shows that at y-intercept ($X_{1-10} = 0$), the students transition rate in P' level would be 85.0, meaning that there would be a decrease of 8.8 from the average value ($T_P = 93.8$). Equation (20) indicates that at y-intercept, the students transition rate in O' cycle would be 64.2, meaning that there would be a decrease of 14.4 from the average value ($T_O = 78.6$). Likewise, Equation (20) shows that at y-intercept the students transition rate in A' level would be 54.5, meaning that there would be a decrease of 4.3 from the average value ($T_A = 58.8$). Therefore, it was true to establish that the costs of school uniform were decreasing the students transition rate at all levels of 12YBE. This was more important in O' level, although the research was interested to know which uniform item affected more the students transition rate.

Furthermore, an increase in the cost of school sweater ($x_{10} = -5.4$) and sport shoes ($x_7 = -3.2$) could decrease students transition rate in primary level. Implication of this is that if the cost of other school items were kept constant, an increase by one unit in the cost of school sweater would lead to a decrease in students transition rate by 5.40 units. The school sweater seemed important because of many reasons, among which included the climate of Rwanda. Rwanda has a temperate tropical highland climate, with lower temperatures. Young children in primary may not manage this low temperature without sweaters. Therefore, the lack of school sweater could lead to students failure to transit from one level to another. For sport shoes, it was found that for an increase in one unit of cost of sport

shoes, the students transition rate would change by 3.2 units. This was true given that young children need protection especially during playing different games.

Table 4.10 indicates that in O' and A' level, the transition rate was negatively affected by sport shoes. In O' cycle, the slope of shoes item was negative (-2.2), implying that an increase by one unit of cost of school sport shoes may lead to a decrease of students transition rate by 2.20. Likewise, in A' cycle, the cost of school shoes was negative (-4.1), meaning that an increase of one unit in the cost of school sport shoes would lead to a decrease of 4.1 units from the average value, in case the cost for all other items were kept constant. This is true because students in O' and A' levels have just reached the adolescent stage (age between 12 and 18), they are strong and want to involve in many games that require sport shoes. Therefore, sport shoes were an important item of school uniform because they protect students against injuries commonly associated with their kind of work-out. In addition, for some particular sports or exercises, shoes can improve students performance, allowing, for example, quick changes in direction.

Taking this further, we can see that the Beta values representing some school uniform costs were more significant. For example, Table 4.10 indicates that school short (Beta = 1.1) and school sweater (Beta = 0.9) were important predictors of transition rates in P' cycle. In addition, sport shoes and school socks were important predictors of students transition rate in O' and A' cycles. At this juncture, we can establish that a combination of school uniform cost is important in predicting students transition rate in cycles of 12YBE.

From interviews with headteachers, it was confirmed that cost of some school items could have negative impact on students transition rate. In addition, headteachers were attributing

causes to parents' carelessness, ignorance and financial problems. For example, one headteacher from a rural area said:

“School uniforms are needed at school for the betterment of students. Students who put on uniforms always tend to be orderly and obtain better educational results. This is because there is better discipline and so facilitate the classroom management. Yes, some students have finished primary level but failed to transit to secondary level. The main challenge they have is that when they reach secondary school, the uniform changes. Instead of putting on shorts which are cheaper, they put on trousers which are relatively expensive. So, you will find some parents failing to buy for their children these school items. Especially uniform for girls seemed more expensive than for boys” (HIDINT14, 2017).

Another headteacher complemented this by saying:

“Uniforms are expensive and can be hard for parents to afford especially for children coming from low in-come families. In rural areas, materials for producing required school uniform are always small quantities, and so are more costly than normal clothes. Often, they can only be bought from one or two special shops, which also pushes the price up. The cost of uniform often means that parents dislike it and it can lead to poor performance in schools” (HIDINT23, 2017).

Generally, headteachers' views established that school uniform was important for better educational results and improved classroom management. However, it was also mentioned that due to economic background of families, some students fail to continue their studies, especially when transiting from primary level to secondary level.

Both parents and headteachers place the cost of school uniform among cause to low students transition rate in the levels of the 12YBE in Rwanda. These findings directly support the Education Production Function Model, whereby school uniform costs are among educational inputs that can be attributed to students transition rate as educational outputs. This is true in the context of Rwanda, because the education policy recommends

the use of school uniform from primary to secondary levels of basic education (Government of Rwanda, 2016).

These findings were consistent to Ananga (2012), who classified the cost of school uniform among the factors that pull-out students from school and which prevent some students from returning to school. The present study showed that a considerable amount of 5000Rwf were supposed to be spent per parent on school uniform. So, given the level of poverty in Rwanda, one can easily realize that the amount is high; not every parent can afford. As it was explained by headteachers in this study, the cost of school uniform can be one of the causes of student dropout in Rwanda.

In fact, the cost of school uniform was an important predictor of students transition rate particularly in O' cycle, where it shares 82% of changes in students transition rate. This was also confirmed by Davies (2015), who established that the cost of uniform becomes important as students move from lower to higher level of education. In the present study, evidence from parents gives trusted information about what cost they take for school uniform and which in turn can affect students transition.

Even though this can have some financial implications, the use of school uniform may improve discipline and sometimes educational outcomes. The existing fee-free schooling policy does not cater for the cost of school uniform. Students from poor families may get help from different organization but that is not very likely. Therefore, on average, the cost of school uniform remains one of the challenges to the implementation of UPE in Rwanda.

4.4.2 Impact of Transport Costs on Students Transition Rate

The study considered the transport costs. These costs were referred to expenses incurred by households when paying for transport of children to and from school. These costs were important because they can affect students transition rate in tiers of 12YBE in Rwanda (Njoroge, 2013)). So, the study referred to parents' views to regress transport costs (independent variable) with students transition rate (dependent variable) in P', O' and A' levels of 12YBE.

Table 4.11 gives an overview of regression analysis results attributed to the impact of transport costs on students transition rate in levels of 12YBE.

Table 4.11: Transport Costs and Students Transition Rates

Variables*	Descriptive		P' Level		O' Level		A' Level	
	M	SD	b	Beta	b	Beta	b	Beta
(Constant)			87.6		63.6		50.9	
Transport costs	3.0	1.3	2.1	0.6	5.1	1.0	2.7	0.6
Transition rate in P'	93.8	4.9	P=.000; R=.55; R ² =.31					
Transition rate in O'	78.6	7.1	P=.000; R=.95; R ² =.91					
Transition rate in A'	58.8	5.6	P=.000; R=.62; R ² =.38					

* $N=371$

Source: Parents questionnaire

Table 4.11 indicates that the mean of home-coaching costs was 3.0 (SD = 1.3), meaning that parents were incurring an average amount between 5000 and 10000 Rwf per child for his/her transport to and/or from school. In this view, on average some parents were supposed to undergo some costs for transport that could have an impact on students intake rate. This impact can be measured using the coefficient of determination.

Coefficient of determination (R^2) was used to describe the percentage of variations in students transition rate that can be attributed to transport costs. As indicated in Table 4.11, the coefficients of determination in O' cycle was .91 and .38 in A' cycle and 0.31 in P' cycle. This implies that 91% of changes in students transition rate in O' level could be attributed to changes in transport costs. In addition, 38% of variations in students transition rate in A' cycle could be accounted for transport costs. Finally, 31% of changes in students transition rate in P' cycle could be shared with changes in transport costs.

Therefore, it was found that the cost of transport had an impact on students transition rate and that the impact was higher in O' level of 12YBE. This finding was correct because of different viable reasons including the fact that when students are transferred from P' to O' level, they have started joining schools at longer distances – schools that required some transport expenses, which were not familiar to parents.

In addition, by the time students reach A' level, parents are already acquainted with the cost of transport and can underestimate it. However, this impact is not clear about whether the cost of transport contributed positively or negatively to students transition rate.

From table 4.11, we can use the following regression equations to estimate the direction of the impact of transport costs on students transition rate in 12YBE in Rwanda.

$$T_P = 87.6 + 2.1x_1 + \varepsilon(x) \quad (22)$$

$$T_O = 63.6 + 5.1x_1 + \varepsilon(x) \quad (23)$$

$$T_A = 50.9 + 2.7x_1 + \varepsilon(x) \quad (24)$$

Where: T_P , T_O and T_A , represent the students transition rate in P', O' and A' levels of 12YBE; X_1 represents costs for transport and; $\varepsilon(x)$ is the chance variation (or disturbance) of predictors.

To understand the effect of transport cost on students transition rate, the study considered y-intercept. This intercept explains the quantity of students transition rate as for when the cost of transport cost was valueless (Hoaglin, 2013). In this view, in P' level, Equation (22) shows that at y-intercept the students transition rate would be 87.6, meaning that it would decrease by 6.2 from its average value ($T_A = 93.8$). Equation (23) shows that in O' level, at y-intercept the students transition rate would be 63.6, meaning that it would decrease by 15 from its average value ($T_O = 78.6$). Furthermore, in A' level, at y-intercept the students transition rate would be 50.9, meaning that it would increase by 7.9 from its average value ($T_A = 58.8$). In general, if the cost of transport was valueless, the students transition rate would decrease by some amount at all levels of 12YBE and that would be higher in O' level.

The direction of the impact of transport cost on students transition rate can be explained by the sign of regression coefficients. As we can see from Equations (22), (23) and (24), regression coefficients are positive and define a positive correlation between predictor (transport costs) and students transition rate in P', O' and A' cycles of 12YBE. So, the more the transport cost the more the students transition rate. For example, the cost for transport ($x_1 = 5.1$) could be related to students transition rate in O' cycle of 12YBE when compared to other cycles, meaning that an increase by one unit of cost of transport costs would lead to an increase of 5.1 units in students transition rate in O' level. Therefore, the key finding was that transport costs were attributed to some positive changes in students transition rate at all levels of 12YBE, meaning that the decrease in students transition rate should be attributed to factors other than the cost of transport.

Headteachers considered the cost of transport as important but not really affecting the students transition rate in levels of 12YBE. The importance of transport cost was explained by the fact that there were school located far from households and which required some transport cost. One headteacher shared the following experience:

“The Rwanda’s initiative through the fee-free schooling was to ensure that distance to school is reduced. However, even with these developments, there are students who still walk long distances to or from home, perhaps, due to high transport fares in urban areas such as Kigali. And as such, it is very likely that these long distances to or from school have a negative impact on students educational attainments. However, since I am heading this school, I have never seen a single student failing because of long distance” (HIDINT20, 2017)

Another head teacher confirmed:

“May be the long distances to or from school affects their attentiveness in class because they reach tired. Some of them arrive at school sweaty, stressed and tired both physically and mentally, which may compromise their performance” (HIDINT11, 2017).

Generally, headteachers confirmed the existence of transport cost, but downplayed the idea that they could affect students transition rate. This finding is true given the Rwanda’s initiatives to build many schools to reduce distances to schools. However, the fact that some students reach school stressed up and mentally disturbed may affect their performance. Therefore, the cost of transport can exist indirectly and in form of opportunity costs whereby those who stay near the school enjoy the free time between breaks whereas those taking long distances are disadvantaged.

The convergence for the two data sets was around two factual findings: first, the cost of transport can be attributed to some changes in students transition rates in tiers of 12YBE. Second, the cost of transport cost could only contribute positively to students transition

rate. This finding agreed with the Education Production Function model whereby the cost of transport is related to students transition rate in 12YBE (Bowles, 1970).

In addition, these findings were in agreement with Mason and Roselle (1998) who established that some parents fail to pay for transport cost and decide to force their children to travel long distances to school.

Recently, Njoroge (2013) supported the same argument and added that the cost of transport could affect students academic performance. However, the present study shows that the impact of transport cost is always positive, meaning that transport cost will only contribute to increasing students transition rate in cycles of 12YBE. It was also established that the positive impact of cost for transport cost is higher in O' than in other levels.

4.4.3 Impact of Home-coaching Costs on Students Transition Rate

The study considered costs of home-coaching. The home-coaching costs referred to expenses incurred by parents paying extra-teaching activities for their children. These costs were important to this study because the researcher felt that they could affect students transition rate (Zhan et al., 2013). In this view, the costs for home-coaching (Independent Variable) were regressed with students transition rate (Dependent Variable) in P', O', and A' levels of 12YBE.

Table 4.12 gives an overview of regression analysis results related to the impact of home-coaching costs on students transition rate in cycles of 12YBE.

Table 4.12: Home-coaching Costs and Students Transition rates

Variables*	Descriptive		P' Level		O' Level		A' Level	
	M	SD	b	Beta	b	Beta	b	Beta
(Constant)			88.2		66.9		52.7	
Home-coaching costs	2.8	1.5	2.0	0.6	4.3	0.1	2.2	0.6
Transition rate in P'	93.8	4.9	R=.61; R ² =.37; P=.000					
Transition rate in O'	78.6	7.1	R=.90; R ² =.81; P=.000					
Transition rate in A'	58.8	5.6	R=.57; R ² =.33; P=.000					

* *N=371***Source:** Parents questionnaire

Table 4.12 indicates that the mean of home-coaching costs was 2.8 (SD = 1.5), meaning that each parent incurred an average amount between 5000 and 10000 Rwf per year paying for home-coaching. This finding is rational because each parent would like to have his or her child moving at all levels of education without difficulties. This study was interested in measuring the impact of this cost on students transition in tiers of 12YBE.

The coefficient of determination (R^2) was used to determine the impact of home-coaching cost on students transition rate in P', O' and A' levels of 12YBE in Rwanda. This coefficient was used to determine the amount of variability in students transition rate that could be shared with home-coaching costs.

Table 4.12 indicates that the coefficient of determination in O' cycle was .81, in P' cycle was .37 and in A' cycle it was .33. In this view, we can establish that about 81% of students transition rate in O' cycle could be attributed to home-coaching costs. On the other side, 37% and 33% of changes in students transition rate in P' and A' levels of 12YBE accounted for home-coaching costs respectively.

It can be established that home-coaching costs have a significant impact on students transition rate in cycles of 12YBE in Rwanda (Hahn, 1971). From these results, we can concur that the cost of home-coaching was determining some changes in students intake rate because of different viable reasons, including the fact that teachers can give homework which may require assistance from private tutors.

The magnitude and direction of the impact of home-coaching cost on students transition rate can be explained using the following regression equations:

$$T_P = 88.2 + 2.0x_1 + \varepsilon(x) \quad (25)$$

$$T_O = 66.9 + 4.3x_1 + \varepsilon(x) \quad (26)$$

$$T_A = 52.7 + 2.2x_1 + \varepsilon(x) \quad (27)$$

Where: T_P , T_O and T_A , represent the students transition rate in P', O' and A' levels of 12YBE; X_1 represents costs for home-coaching and; $\varepsilon(x)$ is the chance variation (or disturbance) of predictors.

For the regression equations, the study considered the y-intercept. This intercept explains the magnitude of students transition rate if the cost of home-coaching was valueless. In this view, Equation (25) indicates that in P' level at y-intercept ($x_1 = 0$), the students transition rate would be 88.2, meaning that it will decrease by 5.6 from its average value ($T_P = 93.8$). In O' level, Equation (26) indicates that at y-intercept, the students transition rate would be 66.9, meaning that it would decrease by 11.7 from the average value ($T_O = 78.6$).

In A' level, Equation (27) shows that at y-intercept the students transition rate would be 52.6, meaning that it would decrease by 6.2 from its average value ($T_A = 58.8$). Generally, regression Equations (25), (26) and (27) show that because parents pay for some private tutoring the students transition rate gets higher for some amounts at all levels of 12YBE.

This finding is true because even schools happen to organize some private tutoring to help their children pass national examinations.

For the direction of the impact of home-coaching costs on students transition rate, the study considered the signs of regression coefficients. A negative sign means that an increase in home-coaching cost leads to a decreased students transition rate. A positive sign means that an increase in home-coaching cost leads to an increased students transition rate (Hoaglin, 2013). In this view, from Equation (25), (26) and (27), we can see that the regression coefficients of the home-coaching costs were positive for the students transition rate in the three cycles of 12YBE.

Therefore, we can establish that when the cost of home-coaching increases, the students intake rate increases in the same direction. This finding is true as it considers the cost of home-coaching as a contributing factor to increasing students transition rate. In other words, home-coaching can only contribute to the increase of students transition rate. However, any decrease could be due to other factors like school uniform costs.

Headteachers reported the reality of the existence of home-coaching cost. The collection of these charges was based on parental willingness. Furthermore, some headteachers tended to encourage the culture of collecting home-coaching fees while others rejected the practices. Some headteachers in the urban area said:

“I really discourage organizing private tutoring at home because it distresses students, particularly those in primary level. Imagine a child is from school tired and would come home at 5pm and then sit down and study for another hour. Some students get tired of this habit as they need to relax. However, as students grow up and transfer to subsequent levels, the practice of home-coaching becomes important and meaningful” (HIDINT01, 2017).

“Most of education leaders don’t support the private tutoring with argument that the children have a good education at school, where they spend about 8 hours every day. Assuredly, that is sufficient for their educational achievement. You don’t need to push them through extra hours and hours of tutoring” (HIDNT05, 2017).

Another headteacher confirmed that the practice of home-coaching was very important to slow learners and those who miss important classes as it can help them to catch up with lessons:

“You know sometimes our classes are overclouded that you cannot cater for slow learners and finish the programme. In addition, home-coaching is needed for many viable reasons – to help a child who have missed school because of illness, to support a child with special needs or to supplement home schooling. The coaching system helps learners to pass national examinations” (HIDINT02, 2017).

The need for cost of home-coaching was real and needed for most headteachers. This finding disagreed with the current policies in education whereby students need ample time for their own concentration to extent their learning. Should parents involve students in some extra-studying activities, this would consume their time to grasp what they learn during normal teaching hours. However, headteachers could not rule out the fact that slow and irregular students need home-coaching to help them catch up with others. In addition, it was echoed in parents’ interviews that paying for home-coaching would increase chances to pass national examinations which determine the transition from one level to another level. Therefore, costs for home-coaching were real and could contribute to students transition rate.

In Rwanda, the MINEDUC discourages such practice and set some punitive measures for teachers caught doing the home-coaching. However, this has not stopped some households from benefitting from home-coaching services. In addition, given that the literacy level in

Rwanda is at 68.3%, we can concur that some parents are unable to assist their children in doing their homework, signaling the importance of home-coaching for the betterment of students performance (Government of Rwanda, 2015).

The convergence about the impact of home-coaching cost on students transition rate was tied around two critical points: first, both headteachers and parents agreed that the practice of home-coaching would contribute to students transition rate. This agreed with the Education Production Function model, whereby costs of home-coaching can be related to students transition rate (Bowles, 1970). Secondly both parents and headteachers established that the cost of home-coaching could only contribute positively to students transition rate. This disagreed with Abuya et al. (2015) who urged that the collection of home-coaching levies could termed as teachers' incentives and this had been negatively affecting students participation rate in Kenyan Schools.

The present study used parents' and headteachers' views and findings agreed with a study conducted in Hong Kong by Zhan et al (2013), where it was established from students perception that home-coaching was an important aspect in preparing for examinations. On top of that, the current study holds that 81% of changes in students transition rate at P' level could be attributed to the cost of home-coaching.

In Rwanda, the collection of home-coaching fees is not official and the Government of Rwanda has been discouraging this culture with fear that it could affect students transition. However, this study revealed that the cost of home-coaching could only contribute to increasing students transition rate in tiers of 12YBE. Despite Admassu et al., (2015) failure to link the cost of home-coaching on students transition rate in Rwanda, at least they

established that the practice of home-coaching was real and conducted by teachers looking for incentives. Therefore, it is herein concluded that home-coaching costs had significant positive impact on students transition rate in tiers of 12YBE and this impact was more important in O' level.

4.4.4 Impact of School Materials Costs on Students Transition Rate

The study considered the cost of school materials. Costs of school materials are costs spent by households to purchase tools other than instructional tools that help the students to undertake the process of learning. The cost of school materials comprised cost for notebooks and writing utensils. The School materials costs (Independent Variables) were significant to the study because they can have an impact on students transition rate (Paulson, 2012). In this view, these costs were regressed with students transition rate (Dependent Variable). The students transition rate is comprised of transition rate at P', O', and A' cycles of 12YBE. Table 4.13 gives an overview of regression analysis results related to the impact of school materials costs on students transition rate in cycles of 12YBE.

Table 4.13: School Material Costs and Students Transition Rate

Variables*	Descriptive		P' Level		O' Level		A' Level	
	M	SD	b	Beta	b	Beta	b	Beta
(Constant)			86.6		62.1		50.4	
School notebooks costs	3.4	1.4	1.2	0.4	3.2	0.2	-0.6	-0.1
Writing materials costs	2.6	1.1	1.2	0.3	2.3	0.4	4.0	0.8
Transition rate in P'	93.8	4.9	R=.60; R ² =.36; P=.000					
Transition rate in O'	78.6	7.1	R=.96; R ² =.93; P=.000					
Transition rate in A'	58.8	5.6	R=.67; R ² =.46; P=.000					

*No missing data were found; N=371

Source: Parents questionnaire survey

Table 4.13 indicates that the cost for school materials can be correlated with students transition rate in cycles of 12YBE in Rwanda. Since their regression coefficients were significant, we can establish that the cost of school materials had some impact on students transition rate. This impact can be estimated using the coefficient of determination (R^2). This coefficient indicates the amount of changes in students transition rate that can be attributed to the cost of school materials.

Table 4.13 indicates that the coefficient of determination in P' cycle was .36, in O' cycle was .93 and in A' cycle was .46. In this view, we can concur that 93% of variations in students transition rate in O' level could be attributed to changes in school materials. Again, it can be argued that 46% of changes in students transition rate in A' level could account for changes in school materials costs and about 36% of changes in students transition rate in P' level could be linked to changes in school materials costs.

This finding is true given the contextual background of education in Rwanda, whereby materials such as notebooks and writing utensils help students to organize, grasp and connect prior knowledge with new concepts. In addition, because of the learner-centred methodology being implemented in Rwanda, students need school materials to lead their own studies taking notes and making summaries for the later use. However, the confirmed impact between these variables needed to be described in terms of magnitude and direction.

To determine the magnitude and direction of the impact of the cost of school materials on students transition rate in P', O', and A' levels, the researcher used the following regression equations:

$$T_P = 86.6 + 1.2x_1 + 1.2x_2 + \varepsilon(x) \quad (28)$$

$$T_O = 62.1 + 3.2x_1 + 2.3x_2 + \varepsilon(x) \quad (29)$$

$$T_A = 50.4 - 0.6x_1 + 4.0x_2 + \varepsilon(x) \quad (30)$$

Where: T_P , T_O and T_A , represent the students transition rate in P', O' and A' levels of 12YBE; X_{1-2} represents costs for note books and writing utensils and; $\varepsilon(x)$ is the chance variation (or disturbance) of predictors.

The study considered the y-intercept for Equations (28), (29) and (30). This intercept is noteworthy as it shows the point where the corresponding line of best fit crosses the vertical line (for students transition rate). It also shows what would be the weight of students transition rate if the costs of school materials were not incurred. Moreover, the regression equations show the sign of regression coefficient that determine the direction of the relationship under study.

At y-intercept, Equations (28) shows that students transition rate in P' level would be 86.6, meaning that it would decreased by 7.2 from its average value displayed in Table 4.11 ($T_P = 93.8$). Equation (29) shows that at y-intercept, students transition rate in O' level would be 62.1, meaning that it would decrease by 16.5 from its average value displayed in Table 4.13 ($T_O = 62.1$). Likewise, Equations (30) indicates that at y-intercept, students transition rate in A' level would be 50.4, meaning that it would decrease by 8.4 from its average value displayed in Table 4.13 ($T_A = 50.4$). Generally, without school materials, the average value of students transition rate at all levels would reduce by some considerable amount.

For the direction of the impact of cost of school materials on students transition rate, Equations (28), (29) and (30) indicate that all regression coefficients were positive in P' level, meaning that an increase by one unit of notebooks and writing utensils would lead

to an increase in students transition rate by 1.7 units because of notebooks and by 1.2 because of writing utensils. Likewise, in O' level, an increase by one unit of notebooks and writing utensils would lead to an increase in students transition rate by 3.2 because of notebooks and by 2.3 because of writing utensils. This finding reflects the reality because school materials such as notebooks and writing utensils are considered as basic tools to allow the process of teaching and learning.

In A' cycle, Equation (30) indicates that an increase by one unit of notebooks cost would lead to a decrease in students transition rates by 0.6 units whereas, an increase in one unit of writing utensils cost would make an increase the students transition rate by 4.0 units. This finding is true because as students move to higher levels of education, they rely more on what they write in notebooks. Therefore, the lack of note books may lead to poor performance or failure to transfer to another level.

Interviewed headteachers confirmed that cost for school materials could make some students fail to register or to transfer to levels of 12BYE. More importantly, students in lower levels such as primary tend to misuse school materials that can make them more consuming their parents. One headteacher in the rural area shared the following view:

“Parents and caregivers help their children to get notebooks, pens, pencils. Especially, on the first day all students come with a complete set of these materials. However, as days surpass, young children tend to misuse these materials. This has been affecting parents, in case they can't provide additional materials in the middle of the term” (HIDINT08, 2017).

Most of the headteachers confirmed that school materials such as writing utensils and notebooks are not affecting the process of teaching and learning. One of advanced reasons

is that these materials are not expensive that every parent can afford to buy them. One headteacher confirmed this in the following words:

“I don’t think there should be effect of costs of school materials on students intake rate. Because first, these materials are cheap, second a student can use a dozen of notebooks throughout the school year” (HIDINT22, 2017).

Finding from interviews with headteachers confirmed the availability of cost of school materials. But, the majority denied the fact that these materials could affect students transition rate. Therefore, it can be concluded that the cost of school materials was not a threat to students transition rate. This finding seems to disagree with the reality, whereby many students found on the street confirmed to have failed schooling because they didn’t have notebooks or pens. Of course, views from dropouts can be put into some doubts, but at least the reality is that whatever required money could affect the process of schooling in one way or the other.

The convergence between parents’ quantitative information and headteacher’s qualitative information occur at the point where school materials make some changes in students transition rate. This finding agrees with the Educational Production Function model whereby some inputs (school materials) could be attributed to some outputs (students transition rate), according to Bowles, (1970).

The divergence was emerged to the point that quantitative findings showed that the absence of cost of school notebooks and writing utensils would lead to a decrease in students transition rate by some amount, whereas qualitative information tends to concur that costs are there but could not be linked to students transition rate. The first finding can be linked to Paulson (2012) who used cross-sectional data across different colleges to establish that

school materials were having some impact on students transition. Therefore, even for qualitative approach, the reality was that these materials could be attributed to some impact on students intake rate. It thus confirms the existence of this impact.

This finding is factual because the fee-free schooling policy provides capitation grant for schools but only for helping purchasing books and school's administrative endeavors. So, the policy does not provide support for notebooks and writing materials. In the end, many students dropouts tend to be excused for the lack of school materials and hinder the implementation of education for all in Rwanda.

4.5 Impact of School-Based Costs on Students Intake Rate in Basic Education in Rwanda

The third objective of this study was to establish the impact of school-based costs on students intake rate in basic education in Rwanda. These costs were referred to as the expenses incurred by households as recommended by schools to allow effective process of teaching and learning. School-based costs comprised costs for supporting school processes, participating in different examinations, school feeding and participating in co-curricular activities. These costs were considered in this study, because they could have an impact on students intake rate in tiers of 12YBE in Rwanda.

Students intake rate refers to the percentage of school-age children who register to levels of 12YBE. Students intake rate was considered in this study, because it is one of dimensions of students participation rate. The students intake rate comprised average intake rate in P', O', and A' cycles of 12YBE for three consecutive years (2013, 2014 and

2015). Therefore, school-based costs (independent variables) were regressed with students intake rate (dependent variable) in P', O' and A' levels of 12YBE.

4.5.1 Impact of Costs of Supporting School Processes and Practices on Students Intake Rate

The study considered costs of supporting school processes and practices. These costs were referred to as costs collected by schools to support different activities not covered by the capitation grant. These costs were important to this study because schools were considered to be organizations with different activities and which sometimes need support from parents. Students whose parents fail to support these school activities are likely to stop schooling, hence affecting their intake rate (Povey et al., 2016). In this study, the school activities that needed parents support were building new rooms, library maintenance and making school reports. The cost of supporting school activities (independent variable) was regressed with students intake rate (dependent variable) to check for impact. Table 4.14 gives an overview of regression analysis results related to the impact of cost of supporting school activities on students intake rate in cycles of 12YBE.

Table 4.14: Costs of Supporting School Activities and Students Intake Rate

Variables*	Descriptive		P' Level		O' Level		A' Level	
	M	SD	B	Beta	B	Beta	B	Beta
(Constant)			122.2		82.7		62.8	
Support school buildings	2.9	1.3	-0.8	-0.1	-0.9	-0.2	1.4	0.3
Support library	2.3	1.3	0.2	0.2	0.1	0.0	0.4	0.1
School Report	2.9	1.5	-1.12	0.6	1.1	0.5	3.1	0.7
Intake rate P' cycle	116.8	16.3	R=.12; R ² =.01; P=.000					
Intake rate O' cycle	86.3	6.8	R=.46; R ² =.21; P=.000					
Intake rate A' cycle	76.9	6.9	R=.76; R ² =.58; P=.000					

*N=371;

Source: Parents questionnaire

The study considered cost of supporting school activities. These are costs collected by schools to perform some activities for development. These activities included building or maintenance of new classrooms, library maintenance and printing the school report. These costs were important to the study because they could affect students intake rate.

Table 4.14 indicates that the mean for cost of supporting school building was 2.9 (SD = 1.3), meaning that parents were incurring an average amount below 500 Rwf for supporting school buildings. The mean for support library was 2.3 (SD = 1.3), implying that parents were incurring an average amount below 500Rwf for supporting library. And, for printing school report, the mean was 2.9 (SD = 1.5), meaning that parents were paying an average amount below 500. In general, adding up all expenses on this category of school-based costs, each parent was paying about 1500Rwfs for supporting school activities. The payment of this fees is normal, but the researcher was interested in knowing whether these costs had an impact on students intake rate in levels of 12YBE.

The study considered the coefficient of determination (R^2). This coefficient indicates the percentage of changes in students intake rate that can be related with costs of supporting school activities. Table 4.14 indicates that the coefficient of determination was .58 in A' cycle, .21 in O' cycle and .01 in P' cycle. Therefore, about 58% of changes in students intake rate in A' level could be attributed to costs of supporting school activities, 21% in O' level and only 1% in P' level.

Table 4.14 shows that the impact of costs of supporting school activities become significant as we move from P' to A'. Since, in Rwanda, schools, libraries and school reports are supposed to be provided by the government of Rwanda through the MINEDUC, it is held

herein that there are some schools that still collect money for these activities and that few students may stop schooling in case they failed to support these activities. This finding seems logical since parental involvement is encouraged in schools.

However, the question would be whether or not the cost of supporting school activities would increase or decrease the students intake rate in 12YBE. The following regression equations were extracted from Table 4.14 to show the magnitude and direction of the identified impact of costs of supporting school activities on students intake rate in P', O' and A' levels of 12YBE.

$$Y_P = 122.2 - 0.8x_1 + 0.2x_2 - 1.1x_3 + \varepsilon(x) \quad (31)$$

$$Y_O = 82.7 - 0.9x_1 + 0.1x_2 + 1.1x_3 + \varepsilon(x) \quad (32)$$

$$Y_A = 62.8 + 1.4x_1 + 0.4x_2 + 3.1x_3 + \varepsilon(x) \quad (33)$$

Where: Y_P , Y_O and Y_A , represent the students intake rate in P', O' and A' levels of 12YBE; X_{1-3} represents costs for supporting school buildings, libraries and report and; $\varepsilon(x)$ is the chance variation (or disturbance) of predictors.

The study considered the y-intercept. This intercept (x_1, x_2 and $x_3 = 0$) indicates what could be students intake rate if schools were not asking parents to support school activities. Equation (31) shows that at y-intercept, the students intake rate in P' level would be 122.2, meaning that it would increase by 5.4 from its average value ($Y_P = 116.8$).

At y-intercept, Equation (32) indicates that the students intake rate in O' level would be 82.7, meaning that it would decrease by 3.6 from its average value ($Y_O = 86.3$). Finally, in A' level, Equation (33) shows that the students intake rate would be 62.8, meaning that it would decrease by 14.1 from its average value ($Y_A = 76.9$).

The collection of fees for supporting school activities was increasing students intake rate in P' level, but decreasing it in O' and A' levels. This finding was true because of different viable reasons including that schools do not ask much for young children in primary. Rather, the collection of these cost could be easily explained to older students in O' and A' levels.

Furthermore, Equation (31) and (32) show that the cost of supporting school building had a negative effect on students intake rate in P' ($x_1 = -0.8$) and O' ($x_1 = -0.9$), meaning that an increase by one unit of this cost would lead to a decrease in students intake rate by 0.8 units in P' level and by 0.9 units in O' level. This finding was factual because the cost of supporting school buildings is always higher than the cost of other activities, and very noticeable by households.

From the three equations, it can also be seen that the highest correlation is that between school report and students intake rate in A' cycle ($B3 = 3.07$). This implies that the cost for school report could positively contribute to students intake rate. This finding mirrored the reality because having school reports was considered as a way of encouraging students and those who do not pay for it were not actually affected.

The main finding from parents' questionnaire is that costs of supporting school activities had a considerable impact on students intake rate in levels of 12YBE. This impact was more important in A' level where they could be attributed to 58% percent of changes in students intake rate. Moreover, the collection of fees for supporting school activities was increasing students intake in P' level whereas it was decreasing students intake rate in O' and A' levels.

Headteachers also considered the importance of parental involvement in supporting school activities. Findings from interviews with headteachers could be summarized around two semantic themes: (1) the participation of parents in school activities is positive to students performance and (2) the collection of fees for supporting school activities is necessary but cannot contribute to students intake rate. For the first theme, one headteacher felt as follows:

“I think involving parents in these activities is more beneficial to both sides. For examples, this enhances parents’ ownership and use them to support school activities that can help our schools accommodate more students. If parents were not contributing to building new classroom, a big number of children would be out of school” (HIDINT28, 2017).

Another parent expressed that strategies used to collect fees for supporting school activities were very clear and cannot affect students intake rate.

“Usually, the sensitization to support school activities is done during Umuganda activity organized at every weekend of the month. During this activity, parents discuss different themes including that of supporting a nearby school. Some may decide to give labour for constructing schools and others express their support in monetary terms. Since the collection of these fees is voluntary, I can’t see how they can affect students intake rate” (HIDINT01, 2017).

Most headteachers spoke positively about the parental support on school activities. The cost of supporting school activities such as building new classrooms, library maintenance and printing report was not considered as a threat to students intake rate. These contributions were rather considered as strategies to promote the students intake rate in levels of 12YBE. The convergence about the impact of costs of supporting school activities on students intake rate was wrapped around the fact that both parents and headteachers agreed on some contribution at all levels of 12YBE education. This finding agreed with

the Education Production Function Model, whereby these costs could be related to students intake rate (Bowles (1970)).

Both quantitative and qualitative findings converge at the points that costs of supporting school activities were contributing positively to students intake rate in O' and A' levels of 12YBE, where the regression analysis showed a decrease in students intake rate given the absence of these contributions. This finding was factual and disagreed with Gahima (2012), who concluded that costs of supporting school activities could lead to students dropout in Rwanda.

The current study shows that findings in Gahima (2012) were only valid for P' level where it indicated that the absence of these fees would lead to decreased students intake rate. We can therefore concur that costs of supporting school activities had positive impact on intake rate for grown up students as opposed to for young students. This finding was true because the contribution of parents would always add something to student's intake rate but it rarely reduces something as the payment is voluntary.

Wilder (2014) confirmed the same finding that parental contribution to school activities would have positive impact on students transition rate. The present study indicates that the cost of supporting school activities has positive contribution on students intake rate. In addition, qualitative and quantitative data complement the Meta synthesis data to confirm that costs of supporting school activities can only contribute to the increase of students intake rate.

This finding is in line with Rwanda's education policy that encourages parental involvement in schools. As such, Parent Teacher Committees (PTCs) have been set up at

school levels to ensure that whatever contribution needed from parents is discussed during committee meetings and shared with general assembly of schools. The PTC is made of 5 members of which one is the headteacher (the secretary), another is the school owner (for subsidized schools) and the remaining are parents (Government of Rwanda, 2016).

4.5.2 Impact of Costs of Participating in Examinations on Students Intake Rate

The study considered the costs of participating in examinations. These costs were referred to as money collected by schools from parents to cover students expenses for participating in different examinations. The costs of participating in examinations include cost of accommodation during examination period, registration for district, MOCK and national examinations, examination booklets and passport photo.

These costs were important for this study because they could have an impact on students intake rate. As such, these costs (independent variables) were regressed with students intake rate (dependent variable) in three cycles of 12YBE in Rwanda (Muthuri and Kirera, 2013).

Table 4.15 gives an overview of regression analysis results related to the impact of cost of participating in examinations on students intake rate in cycles of 12YBE.

Table 4.15: Costs of Participating in Examinations and Students Intake Rates

Variables*	Descriptive		P' Level		O' Level		A' Level	
	M	SD	b	Beta	b	Beta	b	Beta
(Constant)			126.6		80.5		62.3	
Accommodation during examination	3.2	1.5	-1.8	-0.2	-0.3	-0.1	0.0	0.0
Registration to district examination	2.7	1.3	-3.1	-0.3	2.9	0.6	4.6	0.9
Registration to MOCK examination	2.4	1.3	0.8	0.1	-0.2	0.0	-0.1	0.0
Registration to national examination	3.2	1.4	0.8	0.1	-0.5	-0.1	0.0	0.0
Examination book	3.0	1.4	0.3	0.0	-0.1	0.0	0.3	0.1
Passport photo	2.8	1.2	0.1	0.0	0.3	0.0	0.1	0.0
Intake rate P' cycle	116.8	16.3	R=.29; R ² =.08; P=.000					
Intake rate O' cycle	86.3	6.8	R=.59; R ² =.34; P=.000					
Intake rate A' cycle	76.9	6.9	R=.94; R ² =.89; P=.000					

*N=371

Source: Parents questionnaire

Table 4.15 indicates that the mean costs of accommodation was 3.2 (SD = 1.5), meaning that each parent was incurring an average amount between 5000 and 10000 Rwf for accommodation. The mean cost of registration for district exam was 2.7 (SD = 1.3), costing each parent an average amount below 500Rwf. The mean cost of registering to MOCK exam was 2.4 (SD = 1.3), which means that each parent was incurring an average amount below 500Rwfs for registering one child for MOCK exam. In general, adding up all expenses on this category of school-based costs, each parent was paying about 19,000 Rwfs for participating in different examinations.

The mean cost of registering in national exam was 3.2 (SD = 1.4), meaning that each parent was paying an average amount between 5000 and 10000 Rwf for participating in national exam. The mean cost of purchasing examination was 3.0 (SD = 1.4), meaning that each parent was incurring an average amount between 5000 and 10000 Rwf for purchasing examination booklet. The mean cost of passport photo was 2.8 (SD = 1.2), which means that each parent was paying an average amount less than 500Rwf for a passport photo.

The primary finding from Table 4.15 is that parents were incurring some money to pay for students participation in different examinations. This was factual because, examination is part of learning process and its administration requires some basic materials. The study was interested to know whether the payment of this amount could have an impact on students intake rate in 12YBE. In total and on average each parent incurred 19,000 Rwf for one child to participate in different examinations.

The study considered the coefficient of determination (R^2) to determine the impact of costs of participating in examinations on students intake rate in levels of 12YBE. This coefficient shows the amount of changes in students intake rate that can be attributed to cost of participating in examinations.

From Table 4.15, R-square was .89 in A' level, meaning that 89% of changes in students intake rate in A' level could be attributed to costs of participating in examinations. In O' level R-square was .34, accounting for 34% of changes in students intake rate in O' level for participating in different examinations. In P' level, it was .08, meaning that only 8% of variations in students intake rate in P' cycle could be shared with costs of participating in different examinations.

It can therefore be concluded that the cost of participating in different examinations was predicting some changes in levels of 12YBE. The impact of these costs was higher in A' level than in O' and P' levels, meaning that these costs were more important to students attending different examinations. This finding was true because normally students in P' level attend fewer examinations compared to those in O' and A' levels. The study was interested in knowing whether the identified impact was positive or negative to students intake rate in levels of 12YBE.

The following regression equations were extracted from Table 4.15 to describe direction of the impact of examinations related costs on students intake rate in P', O' and A' levels of basic education.

$$Y_P = 126.6 - 1.8x_1 - 3.1x_2 + 0.8x_3 + 0.8x_4 + 0.3x_5 + 0.1x_6 + \varepsilon(x) \quad (34)$$

$$Y_O = 80.5 - 0.3x_1 + 2.9x_2 - 0.2x_3 - 0.5x_4 - 0.1x_5 + 0.3x_6 + \varepsilon(x) \quad (35)$$

$$Y_A = 62.3 + 0.0x_1 + 4.6x_2 - 0.1x_3 + 0.0x_4 + 0.3x_5 + 0.1x_6 + \varepsilon(x) \quad (36)$$

Where: Y_P , Y_O and Y_A , represent the students intake rate in P', O' and A' levels of 12YBE; X_{1-6} represents costs for accommodation, registration to district examination, registration to MOCK examinations registration to national examinations, examination booklets and passport photo and; $\varepsilon(x)$ is the chance variation (or disturbance) of predictors.

The study considered the y-intercept. This intercept showed the value of students intake rate if costs of participating in examinations were valueless. Equation (34) indicates that in P' cycle, at y-intercept the students intake rate would be 126.6, meaning that it would increase by 9.8 from its average value ($Y_P = 116.8$). In O' level, Equations (35) indicates that at y-intercept the students intake rate would be 80.5, meaning that it would decrease by 5.3 from its average value ($Y_O = 86.3$) and in A' level, Equation (36) shows that at y-

intercept students intake rate would be 62.3, meaning that it would decrease by 14.6 from its average value ($Y_A = 76.9$).

More importantly, the highest regression coefficient in P' level was that of registration to national examination ($x_3 = -3.1$) of which the increase by one unit of cost could lead to the decrease in students intake by 3.1 units in students intake rate. Likewise, in O' and A' cycles, the cost of participating in national examination seemed more positively related to students intake rate. Regarding their Beta values indicated in Table 4.15, it can be established that the cost of participating in national examination (Beta = -0.3) seemed more important than other costs in P' cycle. In addition, this cost becomes more important in O' cycle (Beta = 0.6) and A' cycle (Beta = 0.9) (Field, 2009).

Generally, without costs for participating in different examinations, the students intake rate would decrease in O' and A' levels, whereas it would increase in P' level. This is true because most of examinations are administered in O' and A' levels, meaning that if parents were unable to afford it, it would negatively affect the students intake rate. Therefore, costs of participating in examination have a positive impact on students intake rate and that impact was higher for older students than for younger ones.

Fees for participating in different examinations was considered important by most of the interviewed headteachers. Among different reasons behind the collection of these fees, it was concluded that the received capitation grant could not cover all expenses related to administration of examinations. One headteacher in Kirehe district confirmed this in the following words:

“Parents should know that examination is part of learning process and that administering examination requires some basic materials including registration and examination booklets. The package of examination fee includes registration, transport in case the exam takes place at a different school, lodging, meal and paying some additional services like teachers who are invigilating” (HIDINT14, 2017).

In headteachers’ views, it was found that costs of participating in different examination was not that much to have a negative effect on students intake rate. Some headteachers established that expensive examinations were sponsored by the government:

“We organize some test at district and or sector level. The cost for these exams is not very high and students are required to pay for them but not by force. We put more effort in sensitizing the importance of paying fees for examination rather than forcing parents to pay. So, we cannot say that parents will stop registering their children because of fear of cost of participating in examinations” (HIDINT11, 2017).

Headteachers agreed about the collection of fees for participating in examination but, rejected the idea that these fees could have any influence on students intake. This finding seemed true given the education policy in Rwanda, where schools are not allowed to collect any fee from parents that could lead to students dropout. Therefore, schools may collect these fees assuming all households were economically equal and able to provide the so said little amount required to administer examinations.

Findings about the impact of cost of participating in different examinations on students intake rate converged at the fact that the cost of participating in examination are incurred to cover what the capitation grant does not cover. This agreed with the Education Production Function Model, whereby costs for participating in examinations are among inputs that can be related to students intake rate as output (Bowles, 1970).

However, a divergence was registered to the fact that from parents' opinions, the cost for participating in examination would lead to some decrease in students intake rate in O' and A' level, whereas headteachers downplayed this fact with arguments that these costs were very little to affect students intake rate. Could this be because headteachers did not understand what parents were or were not able to pay? However, Muthuri and Kirera (2013) linked the failure to provide the cost for national examination with students performance since students performance is an indicator for their ability to register in O' and A' levels. Therefore, it can be concluded that costs of examinations have a considerable impact on students intake rate.

On the policy side, the Government of Rwanda provides all necessary materials and pays invigilators during administration of national exams. The policy assumes that all candidates come from nearby households that the transport cost and accommodation was not needed. However, the study shows that the reality is different; the cost of participating in examination is still important especially for O' and A' cycle. For example, the cost of accommodation accounts for some negative impact on student's intake rate. The cost of participating in different exams could be attributed to 89% of changes in students intake rate in A' level. Headteachers agreed on the necessity of fees for preparing other exams. Therefore, the cost of participating in examinations was real and could have an impact on students intake rate.

4.5.3 Impact of Costs of School Feeding on Students Intake Rate

The study considered costs of school feeding. These costs were referred to as expenses incurred by parents when paying for their children's lunch at school. Costs of school

feeding were significant to this study because they could affect students intake rate (Jomaa et al., 2011). As such, these costs were regressed by students intake rate in P', O' and A' levels of 12YBE in Rwanda.

Table 4.16 gives an overview of regression analysis results related to the impact of cost of school feeding on students intake rate in cycles of 12YBE.

Table 4.16: School Feeding Costs and Students Intake Rate

Variables*	Descriptive		P' Level		O' Level		A' Level	
	M	SD	b	Beta	b	Beta	b	Beta
(Constant)			118.1		89.6		78.3	
School feeding costs	3.5	1.5	-0.4	0.0	-0.9	-0.2	-0.4	-0.1
Intake rate in P'	116.8	16.3	R=.03; R ² =.00; P=.000					
Intake rate in O'	86.3	6.8	R=.20; R ² =.04; P=.000					
Intake rate in A'	76.9	6.9	R=.08; R ² =.00; P=.000					

* N=371

Source: Parents questionnaire

Table 4.16 indicates that the mean cost of school feeding was 3.5 (SD = 1.5), meaning that parents were paying an average amount between 5000 to 10000 Rwf per term per child, which makes an average amount between 15000 and 30000 per year. In general, adding up all expenses on this category of school-based costs, each parent was paying about 22,500 Rwfs for taking lunch at school. Since these costs were necessary and important for students to study well and stay at school, it was deemed important to check whether or not they could have an impact on students intake rate in levels of 12YBE.

The study considered the coefficient of determination (R²). This coefficient indicates the amount of changes in students intake rate that can be accounted for the cost of school

feeding. As such, Table 4.16 shows that the coefficient of determination was significant only in O' level ($R^2 = .04$), meaning that about 4% of changes in students intake rate at O' level could be accounted for by the cost of school feeding. However, using regression equations, the magnitude and direction of the impact of school feeding costs on students intake rate can be estimated.

Using data displayed in Table 4.16, the following regression Equations were generated:

$$Y_P = 118.1 - 0.4x_1 + \varepsilon(x) \quad (37)$$

$$Y_O = 89.6 - 0.9x_1 + \varepsilon(x) \quad (38)$$

$$Y_A = 78.3 - 0.4x_1 + \varepsilon(x) \quad (39)$$

Where: Y_P , Y_O and Y_A , represent the students intake rate in P', O' and A' cycles of 12YBE; X_1 represents costs for school feeding and; $\varepsilon(x)$ is the chance variation (or disturbance) of predictors.

The study considered the y-intercept. This intercept showed the value of students intake rate if cost of school feeding was insignificant. In this view, Equation (37) shows that at y-intercept, students intake rate in P' level would be 118.1, meaning that it would increase by 1.3 from its average value ($Y_P = 116.8$). Equation (38) shows that at y-intercept, students intake rate in O' level would be 89.6, meaning that it would increase by 3.3 from its average value ($Y_O = 86.3$). Equation (39) indicates that at y-intercept students intake rate in A' level would be 78.3, meaning that it would increase by 1.4 from its average value ($Y_A = 76.9$).

Furthermore, from Equations (37), (38) and (39), it can be indicated that the regression coefficients were negative. This implies that an increase in school feeding costs could lead to a decrease in students intake rate. For example, an increase in one unit of school feeding

cost would lead to a decrease of 0.4 units in P' level, 0.9 in O' level and 0.4 in A' level. This is another indicator that school feeding was affecting O' level more than other levels. This implies that at all levels, if the cost school feeding was not required the students intake rate would increase by some amount. The O' level was the most affected by school feeding. This finding was factual because even though students cannot be prevented from attending class because of school feeding fees, the more parents can find fees for school feeding, the more they could be motivated to register their children in any level.

Headteachers considered the importance of school feeding and most of them established that the programme helps to improve the processes of teaching and learning. However, it was echoed during interviews that students whose families could not afford the cost of school feeding remained in classes or decided to make long distances back to their homes:

“Our education achievements have been enhanced since the implementation of school feeding programme. The programme has helped to reduce long distance covered by students during lunch time. This has resulted in increased students attentiveness and concentration during the teaching and learning process. But, because of poverty in families and parents' ignorance, some children do not pay for school fees and this affect their learning” (HIDINT06, 2017).

Another headteacher confirmed the importance of school feeding programme but recommended that the cost be subsidized by the government:

“Yes, school programme is beneficial to both school and students. However, the unfairness of this programme is like when some students fail to afford the cost and decide to stay in class despite the hunger. I would recommend that the government be involved in the programme and cover some costs related to school feeding” (HIDINT04, 2017)

The key finding from interviews with headteachers is that school feeding programme was important to schools and students. The programme helped to increase the process of

teaching and learning. However, there were some students who could not afford the price of school feeding a result of which could affect their registration in subsequent levels of basic education. This finding is true given that government of Rwanda does not subsidize for school feeding. So, given that families do not have same incomes, these costs could have negative impacts on students intake.

The convergence of qualitative data from headteachers and quantitative data from parents was shown by the fact that the cost of school feeding was collected from parents. In addition, both education stakeholders admitted that this cost could negatively affect students registration in level of basic education. Therefore, the cost of school feeding was real and was having an impact on students intake rate. This finding agreed with Bowles (1970) because it related the cost of school feeding with students intake rate.

In addition, this finding agreed with Jomaa et al. (2011) whereby there was a confirmation of an impact of school feeding on students health. However, the present study added that this impact was negative to students intake rate in O' level of 12YBE, because students in this level have just started staying at school the whole day as per the education policy in Rwanda. Furthermore, findings to this study disagreed with Mhurchu et al (2012) who had established that offering food at school could not be related to any students educational outcome. The methodology used in this study helped the researcher to find out that the impact of school feeding on students outcome was real and more important for students in O' level.

4.5.4 Impact of Costs of Participating in Co-Curricular Activities on Students Intake Rate

This section investigates the impact of cost of participating in co-curricular activities on students intake rate. Costs of participating in co-curricular activities (Independent Variables) include money collected by 12YBE schools from parents to complement what their children learn at school. These costs were important to this study because they can affect students intake rate (Yildiz (2016) and Soe, 2014) These costs were regressed with student's intake rate (Dependent Variable) to check for impact. Table 4.17 gives an overview of regression analysis results related to the impact of cost of participating in extra-curricular activities on students intake rate in cycles of 12YBE.

Table 4.17: Cost of Participating in Co-Curricular Activities and Students Intake Rate

Variables*	Descriptive		P' Level		O' Level		A' Level	
	M	SD	b	Beta	b	Beta	b	Beta
(Constant)			116.8		85.0		73.3	
Co-curricular act. costs	2.5	1.4	0.0	0.0	0.3	0.1	1.4	0.3
Intake rate in P'	116.8	16.3	R=.00; R ² =.00; P=.000					
Intake rate in O'	86.3	6.8	R=.05; R ² =.00; P=.000					
Intake rate in A'	76.9	6.9	R=.28; R ² =.08; P=.000					

* N=371

Source: Parents questionnaire

Table 4.17 indicates that the mean cost of school feeding was 2.5 (SD = 1.4), meaning that for students participation in co-curricular activities, parents were paying an average amount of less than 500 Rwf. This cost looks little, but the researcher wanted to know whether or not it could affect students intake rate in levels of 12YBE.

The study was interested in the coefficient of determination (R^2). This coefficient explained changes in students intake rate that could account for the cost of participating in co-curricular activities. From Table 4.17, we can establish that R^2 was .08 in A' level, meaning that only 8% of changes in students intake rate at that level could be attributed to the cost of participating in co-curricular activities. For other levels, Table 4.17 shows R^2 equal to zero, meaning that the cost of participating in these activities could not be related to students intake rate in O' and P' levels.

The study considered the following regression equations extracted from Table 4.17:

$$Y_P = 116.8 + 0.0x_1 + \varepsilon(x) \quad (40)$$

$$Y_O = 85.0 + 0.3x_1 + \varepsilon(x) \quad (41)$$

$$Y_A = 73.3 + 1.4x_1 + \varepsilon(x) \quad (42)$$

Where: Y_P , Y_O and Y_A , represent the students intake rate in P', O' and A' levels of 12YBE; X_1 represents costs for participating in co-curricular activities and; $\varepsilon(x)$ is the chance variation (or disturbance) of predictors.

The study considered the y-intersection. This intersection would show the value of students intake rate if costs for participating in co-curricular activities were valueless. As such Equation (40) shows that in P' level, the cost of participating in co-curricular activity is nullified (regression coefficient is zero), meaning that the students intake rate cannot change. Equation (41) shows that at y-intercept, the students intake rate in O' level would be 85, meaning that it would decrease by 1.3 from its average value ($Y_O = 86.3$) and Equation (42) indicates that at y-intercept, the students intake rate in A' level would be 73.3, meaning that it would decrease by 3.6 from its average value ($Y_A = 76.9$). Therefore, the cost of participating in co-curricular activities was not a threat to students intake rate.

In general, the key finding was that the cost of participating in co-curricular activities was not a threat to students intake rate in 12YBE. This finding was factual because the capacity and need to participate in more expensive co-curricular activities is voluntarily-based. In addition, the collection of fees for these activities is optional. Per the Rwanda's education policy, no collection of money from parents is allowed. In this view, the payment of these fees could not affect students attendance in any level. Therefore, in general, it can be established that the cost of participating in co-curricular activities was not a threat to students intake rate in 12YBE in Rwanda.

Most headteachers interviewed, neglected the fact that they were collecting fees related to students participation in co-curricular activities. However, some headteachers could agree that older students may organize themselves and put together some money to buy some sport materials.

“The school is not allowed to collected fees from students. But, my school do not all required materials for all kind of sport activities. You will find some student collecting some money among themselves to purchase missing sport materials. As students arrive in advanced levels like P6 and P5 they may need more recreational activities that require some money. However, I don't think such practices can take out some students from schooling” (HIDINT03, 2017).

Therefore, it can be confirmed from headteachers' views, older students tend to ask for some money for extra-curricular activities; but that was not schools' initiatives. This finding is factual given that the cost of participating in co-curricular activity is not motivated by schools but by students themselves.

The convergence between quantitative and qualitative findings was around the fact that the payment for co-curricular activities was virtually optional. Further, only older students in

A' level tend to incur these costs. So, these costs had no significant impacts on students intake rate in levels of 12YBE. This finding disagreed with the Education Production Function model because costs for participating in co-curricular activities could not be related to students intake rate (Bowles, 1970). Therefore, these costs could not be counted among inputs that could be related to some educational outputs.

Despite Yildiz (2016) and Soe (2014) confirmation that co-curricular activities could influence successful learning experiences, in the present study, it was found that these costs could not be related to students intake rate in levels of 12YBE in Rwanda. In the same angle of discussion, this finding disagrees with Nikki (2009) who was concerned about the implication of the pay-to-play practice in schools which would lead to poor educational attainment. Nevertheless, the fact is that this practice cannot affect students educational attainment nor students intake rate in levels of basic education.

Given the education policy position in Rwanda, whereby schools are discouraged to collect unjustifiable fees from parents, it is evident that the collection of fees for students participation in co-curricular activities was optional and could not lead to any failure to register in levels of 12YBE in Rwanda. Therefore, there were no costs for participating in co-curricular activities that could affect students intake rate in Rwanda.

4.6 Impact of School-Based Costs on Students Transition Rate in Basic Education in Rwanda

The fourth objective of this study was to assess the impact of school-based costs on students transition rate in basic education in Rwanda. These costs were referred to as the expenses incurred by households as recommended by schools to allow effective processes of

teaching and learning. Using parents' views, this part discusses the impact of costs of supporting school activities, participating in co-curricular activities, school feeding and participating in co-curricular activities on students transition rate. The students transition rate (dependent variable) was comprised of students transition rate in P', O' and A' cycles of 12YBE.

4.6.1 Impact of Costs of Supporting School Processes and Practices on Students Transition Rate

This study considered the cost of supporting school processes and practices. These costs were referred to as money collected by schools to support some important activities beyond those that are outfitted in the capitation grant. These costs were significant to the study because parents' failure to cover them would lead to reduced students transition rate Povey et al. (2016). This section assesses the impact of costs of supporting school processes and practices on students transition rate. Table 4.18 gives an overview of regression analysis results related to the impact of cost of supporting school activities on students transition rate in cycles of 12YBE.

Table 4.18: Costs of Supporting School Activities and Students Transition Rates

Variables*	Descriptive		P' Level		O' Level		A' Level	
	M	SD	b	Beta	b	Beta	b	Beta
(Constant)			86.6		63.8		51.2	
Support school buildings	2.9	1.3	1.0	0.3	1.9	0.3	1.1	0.3
Support library	2.3	1.3	0.3	0.1	0.5	0.1	-0.2	0.0
School Report	2.9	1.5	1.1	0.3	2.9	0.6	1.7	0.4
Transition rate in P'	93.8	4.9	R=.50; R ² =.25; P=.000					
Transition rate in O'	78.6	7.1	R=.76; R ² =.58; P=.000					
Transition rate in A'	58.8	5.6	R=.52; R ² =.27; P=.000					

*N=371;

Source: Parents questionnaire

As it was mentioned earlier in Table 4.14 of this study that parents were incurring some amount to support school activities such as school buildings, library maintenance and printing the school reports. The present study was interested in establishing whether the cost of these activities would have an impact on students transition rate. The study considered the coefficient of determination (R^2). This coefficient indicates the amount of changes in students transition rate that could be attributed to costs of supporting school activities.

From Table 4.18, the impact of costs of supporting school activities was more significant in O' ($R^2 = .58$) cycle than in A' cycle ($R^2 = .27$) and P' cycle ($R^2 = .25$). As such, it can be established that 58% of variations in students transition rate in O' cycle could be shared with costs of supporting school activities. On the other hand, only 27% and 25% of changes in students transition rate in A' and P' cycles of 12YBE could be used to account for costs of supporting school activities. This finding is true because parental involvement in different school activities has been a key factor to better students educational attainment such as students transition rate.

Using the regression equations, the study defined the magnitude and directions of the identified impact of costs of supporting school activities on students transition rate.

$$T_P = 86.6 + 1.0x_1 + 0.3x_2 + 1.1x_3 + \varepsilon(x) \quad (43)$$

$$T_O = 63.8 + 1.9x_1 + 0.5x_2 + 2.9x_3 + \varepsilon(x) \quad (44)$$

$$T_A = 51.2 + 1.1x_1 - 0.2x_2 + 1.6x_3 + \varepsilon(x) \quad (45)$$

Where: T_P , T_O and T_A , represent the students transition rate in P', O' and A' levels of 12YBE; X_{1-3} represents costs for supporting school buildings, libraries and school report and; $\varepsilon(x)$ is the chance variation (or disturbance) of predictors.

From Equations (43), (44) and (45), values for intercepts with T-axis (Axis of transition rate) decreased considerably from the average value if the cost of supporting school activities were valueless ($X_{I-3} = 0$). This implies that the collection of these costs weakens students transition rate at all cycles (Hoaglin, 2003). This confirms with Gahima (2014) who argued that in Rwanda, the collection of fees to support school activities was pulling students out of schools. More importantly, the cost for school report could be more related to students transition rate than other costs in this category. However, an increase in the cost of school report could lead to an increase in students transition rate, meaning that the cost of school report was a contributing factor to students transition rate and could not affect negatively.

The key finding under this section was the fact that costs for supporting school activities were real and important to students transition rate in 12YBE. All categories of costs of supporting school activities were positively contributing to students transition rate. This finding was true given that Rwanda's education policy encourages parental involvement in school activities such that any collection of fee to support the above listed activities could lead to increased students transition rate. Headteachers confirmed that costs of supporting school activities could have significant impacts on students transition rate. Most of them mentioned that the costs of supporting school buildings were important and necessary to increase students transition rate. For some schools, the collection of such fees was based on the big number of students who could not fit in existing classrooms:

“The management of a school requires many things that cannot be funded by the capitation grant. For example, when you have a big number of students in primary whom next year are transferring to secondary, you start thinking on how to involve parents and school owners to extent existing

rooms or build new ones. This has been the case since I started heading this schools. Yes, parental contribution may affect those who resist to school's project, but this does not stop good initiatives" (HIDINT10, 2017).

Another headteacher confirmed the collection of fees for supporting school activity, but explaining good strategy that they use to involve parents without pulling out students from transferring to next levels.

"My responsibility as a headteacher is to lead school as an organization. The school like any other organization cannot rely on the little capitation grant we receive from the government. We try to be innovative. For example, the collection of fees from parents is not politically supported, but we use some positive ways to get some contribution from parents. We know that forcing parents to bring money may lead to high dropout rates which is not desired in our education system. The main strategy that helped to get money from parents was through making them own the school. They feel like extending the library or building a new room is as necessary as working on his or her own house. Otherwise, the collection of these fees may lead to catastrophic problems, including that of low transition rate" (HIDINT20, 2017).

Key findings from qualitative data collected from school headteachers is that the cost of supporting school activities had significant positive impact on students transition rate. The more the parents can pay these fees, the more the students transition rate increase. This finding was true, because the fees collected from parents are used for extending new rooms to increase the number of students transferring from one level to another.

For this section, the convergence of qualitative and quantitative findings was that schools were collecting some amount from parents for supporting school activities. However, both education stakeholders agreed that the impact of collected fees could only contribute to increasing students transition and not the other way round. This finding agrees with the Education Production Function model, where the costs of supporting school activities are

education inputs that can be related to students transition rate as an educational output (Bowles, 1970)

The fact that costs for supporting school activities could be related to students intake was also supported in Povey et al (2016) where the parents' contribution was needed despite the government funding. In addition to this agreement, the study added that costs of building schools and library maintenance contributing to increased students transition rate. Moreover, the cost of school reports was the most contributing factor to students transition. This finding was true in line with Rwanda Education Policy where parental involvement is encouraged in schools.

4.6.2 Impact of Costs of Participating in Examinations on Students Transition Rate

The study considered the cost of participating in examinations. These costs were referred to as money collected by schools from parents to cover students expenses for participating in different examinations. These costs caught the eye of the researcher since they could affect students transition rate (Wamalwa & Odebero, 2014). As such, the costs of participating in examinations were regressed with students transition rate in P', O' and A' levels of 12YBE. Table 4.19 gives an overview of regression analysis results related to the impact of the costs of participating in different examinations (independent variables) on students transition rate in cycles of 12YBE (dependent variable).

Table 4.19: Costs of Participating in Examinations and Students Transition Rates

Variables*	Descriptive		P' Level		O' Level		A' Level	
	M	SD	b	Beta	b	Beta	b	Beta
(Constant)			86.4		61.8		53.1	
Accommodation during ex.	3.2	1.5	0.2	0.1	0.4	0.1	0.2	0.1
Registration to district ex.	2.7	1.3	2.1	0.6	4.7	0.9	2.6	0.6
Registration to MOCK ex.	2.4	1.3	-0.1	0.0	-0.1	0.0	-0.1	0.0
Registration to national ex.	3.2	1.4	0.2	0.0	0.1	0.0	-0.2	0.0
Examination book	3.0	1.4	0.1	0.0	0.6	0.1	-0.5	-0.1
Passport photo	2.8	1.2	0.0	0.0	0.1	0.0	0.1	0.0
Transition rate in P'	93.8	4.9	R=.60; R ² =.37; P=.000					
Transition rate in O'	78.6	7.1	R=.95; R ² =.91; P=.000					
Transition rate in A'	58.8	5.6	R=.63; R ² =.40; P=.000					

*N = 371

Source: Parents questionnaire

As it was identified earlier in Table 4.15 and can be confirmed from Table 4.19, parents were incurring some costs for their children to participate in different examinations. The study was interested in knowing whether the costs incurred by parents could have an impact on students transition rate. The student transition rate was referred to as the percentage of students transferring from one level to another level of 12YBE.

The study used the coefficient of determination (R^2) to determine the impact of costs of participating in different examinations on students transition rate. This coefficient explained the extent at which the students transition rate could change because of costs of participating in examinations.

Table 4.19 indicates that the value of the coefficient of determination was high in O' cycle ($R^2 = .91$) than in A' cycle ($R^2 = .40$) and in P' cycle ($R^2 = .37$). In this view, 91% of changes in students transition rate in O' cycle could be attributed to costs of participating in different examinations. On the other hand, about 40% and 37% of these changes could be attributed to changes in students transition rate at A' and P' levels respectively. Therefore, we can confirm that costs of participating in different examinations have significant impacts on students transition rate in 12YBE in Rwanda (Hoaglin, 2013). This is true given the fact that administration of examination requires some expenses in monetary terms. The following regression equations describes the correlation between students intake rate and students transition rate in cycles of 12YBE.

$$T_P = 86.4 + 0.2x_1 + 2.1x_2 - 0.1x_3 + 0.2x_4 + 0.1x_5 + 0.0x_6 + \varepsilon(x) \quad (46)$$

$$T_O = 61.8 + 0.4x_1 + 4.7x_2 - 0.1x_3 + 0.1x_4 + 0.6x_5 + 0.1x_6 + \varepsilon(x) \quad (47)$$

$$T_A = 53.1 + 0.2x_1 + 2.6x_2 - 0.1x_3 - 0.2x_4 - 0.5x_5 + 0.1x_6 + \varepsilon(x) \quad (48)$$

Where: T_P , T_O and T_A , represent the students transition rate in P', O' and A' levels of 12YBE; X_{1-6} represents costs for accommodation, registration to district examination, registration to MOCK examinations registration to national examinations, examination booklets and passport photo and; $\varepsilon(x)$ is the chance variation (or disturbance) of predictors.

The study considered y-intercept. This intercept describes the value students transition rate if the costs of participating in examinations was not needed. Equation (46) shows at y-intercept, the students transition rate in P' level would be 86.4, meaning that it would decrease by 7.4 from its average value ($T_A = 93.8$). Equation (47) indicates that at y-intercept, the students transition rate at O' level would be 61.8, meaning that it would decrease by 16.8 from its average value ($T_O = 78.6$) and in Equation (48), at y-intercept,

the students transition rate in A' level would be 53.1, meaning that it would decrease by 5,7 from its average value ($T_A = 58.8$).

In addition, Equations (46), (47) and (48) indicate that regression coefficient for MOCK were negative and equal at all levels (0.1), meaning that an increase in the cost of registration in MOCK would lead to a decrease in students transition rate by 0.1 if all other costs were constant. The cost for registration in district examination was the highest among all costs at all levels.

The key finding under this section was that costs of participating in different examinations had impacts on students transition rate. These impacts of these costs were higher in O' level than in other levels, whereby any absence of the same could lead to a decrease by 16.8 from the average value. The findings were true because of different viable reasons including that administration of examination is money consuming and the capitation grant covered some costs related to national examination only.

Most of interviewed headteachers agreed about the collection of some money for examination administration. However, none of headteachers could associate costs for participating in examination with students transition rate. One headteacher in an urban area shared his view:

“Yes, our students used to bring some money to facilitate examinations. For example, the school cannot pay for all students the money for the passport photo which is needed for national examination. There are some other expenses that need to be covered by students themselves, but I cannot see any connection with students transition rate” (HINTIN19, 2017).

The convergence between quantitative and qualitative findings was around the fact that costs of participating in examinations was not escapable. Headteachers added that the

provided capitation grant was not covering some of them. This finding agrees with the Education Production Function Model, where costs of participating in examinations could be related to students transition rate in 12YBE (Bowles, 1970).

Headteachers could not relate costs of participating in examinations with students transition rate in levels of 12YBE, as already indicated. However, an empirical study by Wamalwa & Odebero (2014) used teachers' views to conclude that costs for participating in different examinations could affect students educational outcomes. From parents' views, the present study established that these costs shared some variations in students transition rate. More importantly, the impact of these costs was higher in O' level where they were attributed to about 91% of students transition rate.

The Rwanda Education Policy plans capitation grant calculated student head. However, except for national examination, the funding does not support the administration of other examinations such as MOCK and others at district or sector levels. Since the students progress from one level to another is based on examination results, schools do not have alternatives other than that of collecting these fees from parents. Therefore, the administration of examinations in 12YBE education tend to continue impeding Rwanda's good initiative of fee-free schooling.

4.6.3 Impact of Costs of School Feeding on Students Transition Rate

The study considered the costs of school feeding. These costs were referred to as expenses incurred by households members when paying lunch for their school-age children. These costs were significant to this study because they can have impact on students transition rate in levels of 12YBE (Williams, 2013). As such, this part presents and discusses the impact

of school feeding costs on students transition rate in P', O' and A' levels of 12YBE schools in Rwanda.

Table 4.20 gives an overview of regression analysis results of the impact of costs of school feeding on students transition rate in cycles of 12YBE.

Table 4.20: Regression Between School Feeding Costs and Students Transition Rate

Variables*	Descriptive		P' Level		O' Level		A' Level	
	M	SD	b	Beta	b	Beta	b	Beta
(Constant)			93.1		78.7		60.5	
School feeding costs	3.5	1.5	0.2	0.1	0.0	0.0	-0.5	-0.1
Transition rate in P'	93.8	4.9	R=.05; R ² =.00; P=.000					
Transition rate in O'	78.7	7.1	R=.00; R ² =.00; P=.000					
Transition rate in A'	58.8	5.6	R=.12; R ² =.01; P=.000					

*N=371

Source: Parents questionnaire

As it was identified earlier in Table 4.16 that parents were incurring some money to pay for school feeding for their children to stay in school during lunch time. In this study, the researcher was interested in knowing whether the money incurred for school feeding could have an impact on students transition.

The study considered the coefficient of determination (R²). This coefficient shows variations on students transition rate that could be attributed to cost of school feeding. As such, Table 4.20 indicates that the coefficient of determination in A' level was .01, meaning that only 1% of changes in students transition rate could be attributed to the cost of school feeding. In addition, the R² in other levels was zero, meaning that all changes in students

transition rate at O' and A' levels could be attributed to different factors other than the cost of school feeding (Field, 2009).

The following regression equations were extracted from Table 4.20 to explain in detail the relationship between the cost of school feeding and students transition rate in levels of 12YBE.

$$T_P = 93.1 + 0.2x_1 + \varepsilon(x) \quad (49)$$

$$T_O = 78.7 + 0.0x_1 + \varepsilon(x) \quad (50)$$

$$T_A = 60.5 - 0.5x_1 + \varepsilon(x) \quad (51)$$

Where: T_P , T_O and T_A , represent the students transition rate in P', O' and A' levels of 12YBE; X_1 represents costs for school feeding and; $\varepsilon(x)$ is the chance variation (or disturbance) of predictors.

The study considered the y-intercept. This intercept shows the value of students transition rate if the cost of school feeding was not incurred. As such, Equation (49) shows that at y-intercept, students transition rate in P' level would be 93.1, meaning that it would decrease only by 0.7 from its average value ($T_P = 93.8$). Equation (50) indicates that at y-intercept, students transition rate in O' level would be 78.7, meaning that it would remain constant. Equation (51) shows that at y-intercept students transition rate in A' level would be 60.5, meaning that it would increase by 1.7 from its average value ($T_A = 58.8$).

The key finding under this section was that the collection of fees for school feeding could not affect students transition rate across levels of 12YBE. This finding seemed to be departing from with what was supposed to happen, but the reality was that parents were motivated to pay for school feeding because of two reasons. One, at school children were eating the same quantity of food as they were supposed to eat at home. So, parents were

not losing money; they were only transferring food to school. Two, children whose parents could not cover the cost remained in school despite the difficulty in the situation.

Headteachers reported that the school feeding programme came in the education system to solve some problems including, enhanced students educational outcome as a result of attending the afternoon classes. However, some headteachers felt that the cost of school feeding was causing more problems especially for students who could not cover the cost yet needed to attend afternoon classes:

“The school feeding programme is among the best educational initiatives I have ever seen in Rwanda’s education system. It motivates students and reduces dozing during afternoon classes. In addition, we can teach tough subjects like mathematics in the afternoon, since all children are psychologically fit to attend. However, there are students who refuse to pay for the meal and decide to stay in class when others are eating. These students will tend to disturb the teaching in the afternoon” (HIDINT24, 2017).

The convergence between qualitative and quantitative findings was that the cost of school feeding was present in schools but did not affect students transition. This finding tends to disagree with the Education Production Function Model whereby each input is supposed to be related to some outputs (Bowles, 1970).

Even though Williams (2013) confirmed that there was a relationship between the cost of school feeding and students educational outcome, the correlation between the two variables was very weak to make such an affirmation. Therefore, this finding was factual because of different viable reasons including the fact that school feeding is not adding more cost; it is only transferring some costs from home to school. In addition, where this programme is successful, the number of students who transfer from one level will increase as a result of improved students educational outcomes.

4.6.4 Impact of Costs of Participating in Co-Curricular Activities on Students Transition Rate

The study considered costs of participating in co-curricular activities. These costs were referred to as fees collected by schools to support co-curricular activities. Since extra-curricular activities are important to the process of teaching and learning, the lack of money to support them may lead low students educational outcome. Therefore, these costs could affect students intake rate by (Mutesi and Paxton, 2012). This part presents and discusses the impact of costs of participating in co-curricular activities on students transition rate.

Table 4.21 gives an overview of regression analysis results of the impact of costs of participating in co-curricular activities on students transition rate in cycles of 12YBE.

Table 4.21: Cost of Participating in Co-Curricular Activities and Students Transition Rate

Variables*	Descriptive		P' Level		O' Level		A' Level	
	M	SD	B	Beta	B	Beta	B	Beta
(Constant)			91.1		74.9		57.4	
Co-curricular act. costs	2.5	1.4	1.0	0.3	1.6	0.3	0.6	0.1
Transition rate in P'	93.8	4.9	R=.29; R ² =.08; P=.000					
Transition rate in O'	78.6	7.1	R=.30; R ² =.09; P=.000					
Transition rate in A'	58.8	5.6	R=.13; R ² =.01; P=.000					

*N=371

Source: Parents questionnaire

As it was showed earlier in Table 4.17 of this study, parents were incurring an average amount of less than 500Rwf for their children's participation in co-curricular activities. The study was interested in to whether this amount collected by schools could affect students transition in levels of 12YBE in Rwanda.

The study considered the coefficient of determination (R^2). This coefficient indicated the amount of changes in students transition rate that could be shared with costs of participating in co-curricular activities. As such Table 4.21 indicates that the coefficient of determination was .09 in O' level, meaning that about 9% of changes in students transition rate could be attributed to the costs of participating in co-curricular activities. In P' level, the same was .08, accounting for 8% of the changes in the transition rate, compared to A' level's R^2 which was .01, an equivalent of 1% of the same. Given insignificant values of R^2 , it can therefore be established that the costs of participating in co-curricular activities was not significantly affecting the students transition rate at all levels of 12YBE (Hahn, 1971).

The following regression equations are drawn from Table 4.21 to describe the relationship between costs of participating in co-curricular activities and students transition rate in cycles of 12YBE.

$$T_P = 91.1 + 1.0x_1 + \varepsilon(x) \quad (52)$$

$$T_O = 74.9 + 1.6x_1 + \varepsilon(x) \quad (53)$$

$$T_A = 57.4 + 0.6x_1 + \varepsilon(x) \quad (54)$$

Where: T_P , T_O and T_A , represent the students transition rate in P', O' and A' levels of 12YBE; X_1 represents costs for participating in co-curricular activities and; $\varepsilon(x)$ is the chance variation (or disturbance) of predictors.

The study considered the y-intercept. This intercept describes the value of students transition rate if the cost of participating in co-curricular activities was valueless. As such, Equation (52)) shows that the value of students transition rate in P' level would be 91.1 accounting for a decrease in the students transition rate by 2.7 from its average value ($T_P = 93.8$). Equation (53) shows that at y-intercept, students transition rate in O' level would be

74.9, decreasing by 3.7 from its average value ($T_O = 78.6$). Further, Equation (54) indicates that at y-intercept, the students transition rate in A' level would be 57.4, meaning that it would decrease by 1.4 from its average value ($T_A = 58.8$). Given the value of students transition rate that would decrease at y-intercept at all levels, it can be deduced that the costs of participating in co-curricular activities could affect students transition rate to some extents.

Furthermore, Equations (52), (53) and (54) showed that coefficients of regression of costs of participating in co-curricular activities were positive, meaning that an increase in costs of participating in co-curricular activities would lead to an increase in students transition rate. For example, for O' level, if the cost of participating in co-curricular activities increases by one unit, the students transition rate would increase by 1.6 units. This finding was factual and was explained by the fact that the more parents could afford these costs the more students would transit from one level to another. Therefore, the cost of participating in co-curricular could only contribute positively to students transition rate in levels of 12YBE.

The key finding under this section was that students transition rate could be affected by the cost of participating in different activities. However, regression analysis results showed that the changes in students transition rate that could be attributed to these costs were positive and insignificant. It was therefore established that the cost of participating in co-curricular activities were slightly and positively contributing to students transition rate at all levels of 12YBE in Rwanda.

Headteachers reported that extra-curricular activities were important to the process of teaching and learning. Schools do organize such activities to support the process of teaching and learning. The school does not collect money for such activities, except for students initiatives. For instance one head-teacher said:

“Our schools know which activities are needed for the process of teaching and learning. Our teachers are encouraged to involve students in co-curricular activities that can support the process of learning. But, since the school is not for any reason collecting money for these activities, I can’t see how they can affect the students transition rate” (HIDINT13, 2017).

The convergence between quantitative and qualitative findings around the impact of costs of participating in co-curricular activities was for the fact these costs were not incurred by parents in a way that could affect students transition. This finding disagreed with the Education Production Function Model, whereby the costs of participating in co-curricular activities are not considered as inputs that could be related to students transition rate as outputs (Bowles, 1970)

In addition, this finding disagreed by Mutesi and Paxton (2012) whereby it was found that schools in Rwanda were collecting some fees for extra-curricular activities which was leading to students dropout. The reality in this study was that schools do organize co-curricular activities, but the collection of money to support them was considered as students initiatives. So, there was no way these costs could affect students transition. For the same reason, Nikki (2009) failed to associate the cost of participating in co-curricular activities with any students educational outcome. Given that the existing fee-free schooling policy in Rwanda that discourages any unjustifiable collection of money from parents, it can be

confirmed that costs of participating in co-curricular activity were not threats to students transition rate.

4.7 Policy Strategies Put in Place to Ensure Children Participation at All Tiers of Basic Education in Rwanda.

The fifth objective of this study was to explore policy strategies that can be put in place to ensure that all children participate at all tiers of basic education in Rwanda. In this study, the term policy strategy was referred to as plans for fee-free schooling put in place to remove all financial barriers that could affect student' participation at all tiers of 12YBE in Rwanda. Students participation was referred to a composite concept of two dimensions; students intake and transition rate.

Policy strategies were considered in this study because they could influence the implementation of fee-free schooling policy in Rwanda. In this view, the question related to this objective 'what are policy strategies in place to ensure all children participate at all tiers of basic education in Rwanda', was answered during interviews with headteachers. A thematic analysis yielded two themes at semantic level reflecting policy strategies put in place to ensure children participation in cycles of 12YBE. These are capitation grant and parental involvement policy strategies.

4.7.1 Capitation Grant

The study considered the capitation grant. This was referred to a policy strategy put in place to support schools with necessary funding. Capitation grant was used to pay for new books, classroom maintenance and teachers' training. An important number of headteachers (95%) confirmed that capitation grant was a government policy strategy that supports the

implementation of fee-free schooling in 12YBE in Rwanda. This strategy has contributed in increasing students attendance and reducing dropouts. Specifically, it has contributed in school developmental activities such as providing teachers' bonus, supporting teachers' trainings, school maintenance and others.

One head teacher assured the importance of capitation in 12YBE schooling:

“Government provides the capitation grant per student and it is used for buying school materials, rehabilitating school infrastructure and facilitating the teaching process. Since we received this grant, teachers' absenteeism has been reduced and the quality of education has been improved” (HIDDEN9, 2017).

Another head teacher was of the same view that:

“The capitation is a good strategy that has been helping our administration. Specifically, with capitation grants, we are able to finance some of the school activities all in one objective to improve the teaching and learning process” (HIDINT22, 2017).

However, some headteachers claimed the insufficiency of capitation grant and criticized the way it was reaching schools. One of the interviewed headteachers commented that:

“Normally, the main objective of capitation grant was to support students in their learning and holistically improve the quality of education. However, this grant is delayed and this has been causing many challenges in schools' planned activities” (HIDINT4, 2017).

Of the same observation, another head teacher indicated:

“Capitation grant is the only strategy established by the government of Rwanda to support the free-basic education. Though, there are times we don't receive these grants. For example, in the year 2016, we received only one of the 3 installments of capitation grant. As such, we were struggling to implement some of the activities and even the quality of education standards has been compromised” (HIDINT10).

From the above headteachers' views about capitation grant as a policy strategy to ensure students participation in tiers of 12YBE, it was established that this strategy has been

utilized at all 12YBE schools. However, due to some challenges such as delay and insufficiency, it can be deduced that this strategy has failed to keep all students at school.

4.7.2 Parental Involvement

From respondents' views, parental involvement was mentioned as a policy strategy to ensure the funding of 12YBE in Rwanda. This strategy was used to fund some of the schools' activities at the failure of reception of capitation grant. Despite the implementation of fee-free schooling policy in Rwanda's educational system, evidence in this study showed that schools do receive some fees from parents. For example, one headteacher in rural areas said that:

“We have a strategy of sensitizing parents to be accountable about their children's education. We sometimes receive their contributions as decided in Parents' General Assemblies. For example, at my school parents have agreed to contribute 500 Rwf for teachers' bonuses” (HIDINT11, 2017).

This agreed with quantitative findings from parents whereby parents were contributing to schools' activities such as building new classrooms and library maintenance. Another headteacher added that:

“Running some of the school activities needs money and which were not budgeted in the capitation grant. Therefore, the collection of these fees from parents has been imperative. Every school have pledges of which fulfillment requires parental contribution” (HIDINT19, 2017).

However, there were headteachers who faced challenges in collecting parents' contribution for supporting some of school activities. One headteacher said:

“It is a must for all parents to support the teaching and learning activities. However, the existing education policy does not allow any collection of money from parents that can pull out students from schooling. In fact, when the parents' general assembly agrees on some amount to pay for

supporting a particular activity, some parents refuse to contribute with argument that education is free” (HIDINT 28, 2017).

From the above headteachers’ views, it can be established that the strategy of involving parents has been successful in improving the quality of education in 12YBE. However, this strategy has been conflicting with the implementation of the fee-free schooling policy, whereby the policy discourages any collection of fees from parents. It can also be noted that parental involvement is a must, but it lacks justifications.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the main findings of the study. It also presents the conclusions and recommendations, including policy recommendations and suggestions for further research.

5.2 Summary

In this section, findings around each study objective are summarized. These summaries are related to the impact of home-based and school-based costs on students participation in 12YBE in Rwanda.

5.2.1 Impact of Home-Based Costs on Students Intake Rate in 12YBE in Rwanda

The home-based costs such as school uniform, school materials and transport were important predictors of students intake rate at all cycles of 12YBE in Rwanda. The following were key findings under this section:

In general, adding up all expenses on each item of school uniform, each parent was incurring 7,500 Rwf per child and per year. The regression analysis showed that this cost had a considerable impact on students intake rate. The impact of such costs was higher in A' level than in other lower levels where about 85% of variations in students intake rate in A' level could be attributed to costs of school uniform. This finding was factual because as students grow up and move from one level of education to another, they require expensive and fashioned uniform items. Among uniform items, an increase in costs of school shoes, sweater, shirt and skirt accounted for a negative impact on students intake

rate, whereas costs of school uniform items such as school socks and sport t-shirt led to a positive impact on students intake rate.

In general, adding up all expenses on each item of school materials, each parent was incurring 2,000 Rwf per child and per year. The regression analysis showed that this cost could be attributed to 92% of changes in students intake rate at A' level, 26% of changes in students intake rate at O' level and only 3% of changes in students intake rate at P' level. In addition, an increase in costs of notebooks was leading to decreased students intake rate at all levels of 12YBE, because notebooks were relatively expensive compared to writing utensils.

In general, each parent was paying about 7,500 Rwfs for home-coaching per child and per year. The regression analysis showed that this cost had little impact on students intake rate at all levels of 12YBE in Rwanda. For example, only 8% and 3% of changes in students intake rate in A' and O' level could be attributed to such costs. Therefore, these costs were considered as contributing factors to students intake rate and which could not reduce it. Among reasons that justified this finding is the fact that home-coaching was optional and where there was quality education, private tutoring was not necessary.

In general each parent was paying about 7,500 Rwf for the transport of one child in one year. The regression analysis showed that this cost had a big impact on students intake rate in A' level, where it was attributed to 89% of the changes. Except for P' level where this cost was negatively affecting students intake rate, in other levels such costs seemed to be contributing to increased students intake rate. The cost of transport had more impact on students intake rate for grown up students because those in P' level were attending nearby

schools which may not involve transport. Therefore, it was established that the cost of transport is still another layer that was not covered by the capitation grant and which could affect students intake rate.

5.2.2 Impact of Home-Based Costs on Students Transition Rate in 12YBE in Rwanda

The multiple regression analysis, further, showed that costs for school uniform, school materials, home-coaching and transport were important predictors of students transition rate in 12YBE in Rwanda.

The cost of school uniform had a higher impact on students transition rate in O' level of 12YBE, where it was attributed to 82% of changes. It was also found that costs of uniform were generally positively affecting students transition rate. However, some school uniform items such as a sweater and sport shoes had negative impact on students transition rate in P' level because they were expensive. In addition, the cost of school shoes and sport shoes remained a negative factor to students transition rate in O' and A' levels. This finding was justified by the fact that wearing shoes is beyond a school requirement but also a health requirement because they protect students.

The cost of school materials had higher impact on students transition rate in O' level, where it accounted for 93% of the noted changes. It was also established that without school materials, students transition rate tended to reduce by some amount, because school materials such as writing utensil and notebooks are basics for the process of teaching and learning. In A' level, these costs had a negative correlation (weak correlation) with students transition rate because as students move from lower to higher levels, the need of notebooks and writing utensils become very significant.

The cost of home-coaching had a higher impact on students transition rate in O' level, where it was attributed to 81% of the changes. The analysis of y-intercept showed that in case of nonappearance of home-coaching costs, students transition rate would decrease by some amount from the average value. Therefore, the more parents could pay for home-coaching the more the transition rate would be because of different reasons such that the home-coaching increases the likelihood of passing different exams and getting promoted to next levels.

The cost of transport had a higher impact on students transition rate in O' level, where it accounted for 91% of the changes. This cost was also contributing positively to transition rate, where for example, if the cost of transport was increased by one unit, it would lead to an increased students transition rate by 5.1 units in O' level. The impact of these costs could not be negative because in most sectors in Rwanda, there is a 12YBE school built to reduce distance between schools. However, grown up students were likely to opt to attend a school at a far distance because of different reasons.

5.2.3 Impact of School-Based Costs on Students Intake Rate in 12YBE in Rwanda

School-based costs such as supporting school activities, participating in examinations, school feeding and participating in co-curricular activities were important predictors of students intake rate in cycles of 12YBE in Rwanda.

In general, each parent was paying about 1,500 Rwfs per child in one year for supporting schools in different activities. The regression analysis showed that this cost had a considerable impact on students intake rate in A' level where it accounted for 58% of the changes. Moreover, the non-appearance of these costs would increase the students intake

rate in P' level, but decrease it in O' and A' levels. This implies that if schools happen to collect fees for supporting some activities, grown-up students would feel concerned than the younger ones. Furthermore, the cost of supporting school buildings was the only cost with a negative impact on students intake rate in P' and O' levels.

The costs of participating in examinations was 19,000 Rwf per child in one year. The regression analysis showed that this cost had significant impacts on students intake rate in A' level, where it accounted for 89% of the changes. This finding was factual because schools considered examination as part of learning process and which need funding. As the existing capitation grant does not cover administration of district and sector exam, it was justifiable that these costs be incurred by parents. In addition, registration in national examination had the highest impact on students intake rates in O' and A' levels. Furthermore, it was found that if costs of participating in examinations were not needed or collected by schools, the students intake rate would increase in P' but decrease in O' and A' levels, because as students move to higher levels, examinations become important and defining their progression.

In general, each parent was paying about 22,500 Rwf for school feeding per child and per one year. However the impact of this cost on students intake rate was not considerable at all levels of 12YBE in Rwanda. For example, in P' and A' levels, none of the changes in students intake rate could be attributed to the cost of school feeding. In addition, the cost of school feeding was only contributing to increased students intake rate at all levels. This finding was factual because even though students cannot be prevented from attending class

because of school feeding fees, the easier parents could find fees for school feeding the more they could be motivated to register their children in any level.

In general, each parent was paying about 500 Rwfs per child per one year for participating in co-curricular activities. The regression analysis showed that this cost was insignificant in P' and O' levels of 12 YBE. In A' level, these costs could be only account for 8% of changes in students intake rate. In addition, in primary, there was no cost of participating in co-curricular activities because students were still so young that they could not involve in activities that required money. It could be concluded that generally, costs of participating could not affect students intake rate because they were collected by students themselves and on voluntary basis.

5.2.4 Impact of School-Based Costs on Student's Transition Rate in 12YBE in Rwanda

School-based costs such as costs of supporting school activities, costs of school feeding, costs of participating in different examinations and costs of participating in co-curricular activities were, once more, revealed as important predictors of students transition rate in cycles of 12YBE in Rwanda.

The cost of supporting school activities such as school building, library maintenance and school report had higher impact on students transition rate in O' level, where it accounted for 58% of changes. In addition, the regression coefficients of these costs were positive, meaning that they could only contribute to increased students transition rate at all levels. This finding was true because parental involvement in different school activities has been a key factor to better students educational attainment such as students transition rate.

The study considered costs of participating in examination such as cost of accommodation during national exam, cost of registration in district exam, cost of registration in MOCK exam, cost of registration in district exam, cost of examination book and cost of passport photo. The cost of participating in examinations was higher for students transition rate in O' level of 12YBE, where about 91% of changes could be attributed to these costs. At all levels, the cost of registration in district examination had the highest influence on students transition rate because this exam was administered many times.

The cost of school feeding had no impact on students transition rate at all levels of 12YBE. In fact, this finding was true because of different viable reasons including that households were not incurring additional expenses. Rather, they were only transferring lunch from home to schools. However, some headteachers reported about some students whose families could not afford the cost and would decide to stay in class while others are enjoying their lunch. It was also found that school feeding is good but it would be better if all students could cover the cost.

The study considered the cost of participating in co-curricular activities too. The regression analysis results showed that these costs had moderate impacts on students transition rate in P' and A' levels of 12YBE, where they accounted for only 8% and 9% respectively. However, regression equations showed that coefficients for the variables were small and positive, meaning that they could slightly contribute to increased students transition rate. Therefore, regarding Rwanda's education policy and the fee-free schooling, it was concluded that costs of participating in co-curricular activities could not affect the students transition rate.

5.2.5 Policy Strategies that Can Be Put in Place to Ensure All Children Participate at All Tiers of Basic Education in Rwanda

In this study, it was established that existing policy strategies to support the implementation of fee-free schooling in tiers of basic education in Rwanda were capitation grant and parental contribution. Interviews with headteachers confirmed that the former strategy has been successful in stabilizing students participation in cycles of 12YBE in Rwanda. However, due to some inconsistencies in its distribution, it has failed to keep some students in school. Capitation grant has been reaching schools in three installments and some of the installments were not received and this has caused different challenges in schools' budgets.

The latter strategy has also been effective in the implementation of fee-free schooling in 12YBE in Rwanda but due to possible conflicts between this strategy and the Rwanda's education policy, it has failed to reduce the number of dropouts in all tiers of 12YBE in the country. Some parents have been refusing to contribute for their children's education with views that education is free and they have nothing to pay.

5.3 Conclusions

The purpose of this study was to investigate the impact of hidden costs on students participation in basic education in Rwanda. In line with this study objectives, this section provides the conclusion of findings.

5.3.1 Impact of Home-based Costs on Students Intake Rate in 12YBE In Rwanda

The home-based costs included costs for home-coaching, school uniform, school materials and transport. Different reviewed literature linked these costs to students intake rates in basic schools. The present study revealed changes in students intake rate in A' level which

could not be attributed to variables such as costs of school uniform, costs of school materials and costs of transport. However, it was found that the cost of home-coaching was not a threat to students intake in levels of 12YBE. School headteachers reported the necessity of these costs for the effective teaching and learning. It is concluded that, despite the fee-free schooling being implemented in Rwanda, households are incurring some home-based costs which could affect students intake rate in level of 12YBE in Rwanda, particularly in A' level.

5.3.2 Impact of Home-based Costs on Students Transition Rate in 12YBE in Rwanda

The study revealed that the home-based costs had higher impact on students transition rate in O' level of 12YBE. As such, costs of school uniform, costs of school material, cost of home-coaching and cost of transport had considerable high impact on students transition rate in O' level of 12 YBE. School headteachers confirmed that these home-based costs had some negative impact on students transition rate. Different reviewed literature linked these costs to poor students educational outcomes. The Rwanda education policy and the fee-free schooling policy do not talk about these costs which can affect the UPE. It is, therefore, concluded that home-based costs are among causes of low students transition rate in all level of 12YBE, particularly in O' level.

5.3.3 Impact of School-based Costs on Students Intake Rate in 12YBE in Rwanda

The School-based costs included costs of supporting school activities, participating in examinations, participating in co-curricular activities and school feeding. From different sources, students intake rate in cycles of 12YBE in Rwanda has been problematic in last decades. From a multiple regression analysis of this study, it was found that the costs of

supporting school activities (1,500 Rwf) and participating in examinations (19,000 Rwf) were more likely to affect students intake rate in O' and A' levels of 12YBE, whereas, costs of participating in co-curricular activities and school feeding were less likely to affect students intake rate. Headteachers reported that the existing capitation grant under the fee-free schooling policy do not account for these activities and schools end up collecting them from parents. It was therefore, concluded that among the school-based costs and only costs for supporting school activities and participating in examinations could account for changes in students intake rate in levels of 12YBE.

5.3.4 Impact of School-Based Costs on Students Transition Rate in 12YBE in Rwanda

The study showed that School-based costs such as costs of supporting school activities (1,500 Rwf), cost of participating in examinations (19,000 Rwf) were more important in predicting students transition rate in O' cycle than in other cycles of 12YBE in Rwanda. It was also established that the impact of costs of school feeding and transport on student's transition rate in all cycles of 12YBE was uncertain. Therefore, among the school-based costs, this study concluded that only costs for supporting school activities and participating in examinations could account for decline in students transition rate in levels of 12YBE in Rwanda.

5.3.5 Policy Strategies that Can Be Put in Place to Ensure All Children Participate in All Tiers of Basic Education in Rwanda

The fifth objective of this study sought to explore policy strategies that can be put in place to ensure all children participate in all tiers of basic education in Rwanda. The present study considered the fee-free schooling policy. Findings revealed that distribution of capitation grant and parental contributions have been the only policy strategies to ensure students

participation in all tiers of 12YBE in Rwanda. However, it was found that due to their inconsistencies and insufficiencies, these strategies have failed to keep all students at school because of many viable reasons, among which includes the fact that these strategies conflict with the fee-free schooling policy.

5.4 Policy Recommendations

In this section, basing on the conclusion around each study objective, the following are policy recommendations:

5.4.1 Impact of Home-based Costs on Students Intake Rate in 12YBE In Rwanda

The study has shown that home-based costs such as school uniform (7,500 Rwf), school materials and transport (2,000 Rwf) had been attributed to significant percentage of changes in students intake rate, especially for older students. Since the failure to cover these costs would influence the students intake, it is recommended that parents should fulfill their responsibility of providing these materials. Furthermore, Policy makers should supplement the fee-free structure put in place by the Government of Rwanda with a sustainable programme of students financial assistance.

5.4.2 Impact of Home-based Costs on Students Transition Rate in 12YBE in Rwanda

The study has shown that home-based costs such as supporting school activities (1,500 Rwf) and participating in examinations (7,500 Rwf) could be attributed to changes in students transition rate in levels of 12YBE. Therefore, school administrators should ensure that these costs are not burdens to students whose families are financially unable to pay for these activities. Furthermore, school administrators should ensure that proper strategies are adopted to encourage parental contribution to basic education.

5.4.3 Impact of School-based Costs on Students Intake Rate in 12YBE in Rwanda

The study showed that school based costs such as the cost of supporting school building (500 Rwf) had a negative impact on students' intake rate. Head teachers confirmed that these costs are necessary to keep the school moving. Since this cost is a threat to students intake rate, it is recommended that schools establish mechanisms to sensitize parents, guardians or other stakeholders on their support to school processes. Schools should ensure that the collection of these fees cannot affect students' attendance because the existing fee-free structure covers the basics for all children to attend. Additionally, the government of Rwanda should increase the existing capitation grant per child by 500 Rwf to cover school buildings/maintenance.

5.4.4 Impact of School-Based Costs on Students Transition Rate in 12YBE in Rwanda

The study showed that School-based costs such as costs of supporting school activities (1,500 Rwf), cost of participating in examinations (19,000 Rwf) could negatively affect the students transition in tiers of basic education. Therefore, it is recommended that the government or Rwanda increase the capitation grant per students to cover the cost of supporting other school activities and participating in examinations. Education policy makers should establish a cost sharing policy that caters for all education stakeholders' financial contribution..

5.5 Recommendations for Further Research

- (i) This study collected data from headteachers whose time was very limited because of their managerial position. It would be, therefore, beneficial to conduct a study that

involves both school academic and administrative staff to understand the availability and impact of hidden costs on students participation in basic education.

(ii) In this study, the concept of students participation was delimited to concepts of students intake and transition rate, whereas, this concept can also be explained through other concepts. Therefore, studies should be carried out to examine the impact of aforementioned hidden costs on students promotion, students completion and students repetition rates in cycles of 12YBE in Rwanda.

(iii) The study could not consider the concept of opportunity cost which can be a noteworthy determinant of student participation. These costs can refer to benefits that households could have gained by involving their children in in-come generating activities besides sending them to school. Therefore, studies should be carried out to examine the impact of opportunity costs on students participation in levels of basic education.

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APPENDICES

APPENDIX I: PARENTS QUESTIONNAIRE

Introduction

February and January, 2017

Hi, my name is **Jean Pierre Mugiraneza** and I am a Ph.D student at Kenyatta University in Kenya. I am interested in learning more about the ‘fee-free schooling hidden costs and their influence on students participation in basic education’. I am conducting this research as part of academic requirement to be awarded a Ph.D degree at Kenyatta University and so I am happy to involve you in this process.

You have been selected today to participate in the filling of this questionnaire because you have children at this school and are aware of hidden costs issues that students face despite fee-free schooling policy. It is important to let you know that your objectivity and truthfulness are highly appreciated. Anything you write will be kept confidential, which means that your name will not be used and only those involved in this research project will see the information you give us. A report will be prepared at the end of the research, but your names and any personal information about you will not be included.

SECTION A: DEMOGRAPHIC PROFILES OF RESPONDENTS

1. Parents’ age (please select from categories below):
 - a. Below 21 years of age
 - b. Between [21 and 30 years of age]
 - c. Between [31 and 40 years of age]
 - d. Between [41 and 50 years of age]
 - e. Above 50 years of age
2. Educational qualifications
 - a. None
 - b. Primary
 - c. Secondary

- d. University
- e. Other, specify
- 3. Economic activities
 - a. Trade and Business
 - b. Sale and Labour
 - c. Employment
 - d. Other specify
- 4. Sex (Please select from categories below)
 - 1. Male
 - 2. Female

SECTION B: HOME-BASED COSTS

I. School uniforms costs

- 1. Your children (child) who study at this school are (see categories below). Tick as appropriate:
 - a. Boys
 - b. Girls
 - c. Both

- 2. You have paid for your child's school tie the money between (see amount below) at this school. Tick as appropriate.

Trimester 1

Trimester 2

Trimester 3

- | | | |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

- 3. You have paid for your child's school shirt the money between (see amount below) at this school. Tick as appropriate.

Trimester 1

Trimester 2

Trimester 3

- | | | |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

- 4. You have paid for your child's school short the money between (see amount below) at this school. Tick as appropriate.

Trimester 1

Trimester 2

Trimester 3

- | | | |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

5. You have paid for your child's school skirt the money between (see amount below) at this school. Tick as appropriate. If you don't have girl students, skip this question.

Trimester 1

Trimester 2

Trimester 3

- | | | |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

6. You have paid for your child school socks the money between (see amount below) at this school. Tick as appropriate.

Trimester 1

Trimester 2

Trimester 3

- | | | |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

7. You have paid for your child's school shoes the money between (see amount below) at this school. Tick as appropriate.

Trimester 1

Trimester 2

Trimester 3

- | | | |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

8. You have paid for your child's school sport shoes the money between (see amount below) at this school. Tick as appropriate.

Trimester 1

Trimester 2

Trimester 3

- | | | |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

9. You have paid for your child’s school sport trouser the money between (see amount below) at this school. Tick as appropriate.

Trimester 1

Trimester 2

Trimester 3

- | | | |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

10. You have paid for your child’s school sport t-shirt the money between (see amount below) at this school. Tick as appropriate.

Trimester 1

Trimester 2

Trimester 3

- | | | |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

11. You have paid for your child’s school sweater the money between (see amount below) at this school. Tick as appropriate.

Trimester 1

Trimester 2

Trimester 3

- | | | |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

II. Home-coaching Costs

12. You have paid for teachers’ Home-coaching the money between (see amount below) at this school. Tick as appropriate:

Trimester 1

Trimester 2

Trimester 3

- | | | |
|-------------------------|-------------------------|-------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 5000Frw] | b. [1 to 5000Frw] | b. [1 to 5000Frw] |
| c. [5001 to 10000 Frw] | c. [5001 to 10000 Frw] | c. [5001 to 10000 Frw] |
| d. [10001 and 50000] | d. [10001 and 50000] | d. [10001 and 50000] |
| e. 50001 Frw and above | e. 50001 Frw and above | e. 50001 Frw and above |

III. School Materials costs

13. You have paid for your child school **note books** the money between (see amount below) at this school. Tick as appropriate.

- | Trimester 1 | Trimester 2 | Trimester 3 |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

14. You have paid for your child's school **writing materials** the money between (see amount below) at this school. Tick as appropriate.

- | Trimester 1 | Trimester 2 | Trimester 3 |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

15. You have paid for your child' **transport** to and from the money per month between (see amount below) at this school. Tick as appropriate.

- | Trimester 1 | Trimester 2 | Trimester 3 |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 5000Frw] | b. [1 to 5000Frw] | b. [1 to 5000Frw] |
| c. [5001 to 10000 Frw] | c. [5001 to 10000 Frw] | c. [5001 to 10000 Frw] |
| d. [10001 and 50000] | d. [10001 and 50000] | d. [10001 and 50000] |
| e. 50001 Frw and above | e. 50001 Frw and above | e. 50001 Frw and above |

SECTION C: SCHOOL-BASED COSTS

Costs of participating in extra-curricular activities

16. I have paid for participating in extra-curricular activities the money between (see amount below) at this schools. Tick as appropriate:

- | Trimester 1 | Trimester 2 | Trimester 3 |
|--------------------|--------------------|--------------------|
|--------------------|--------------------|--------------------|

- | | | |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

Cost for supporting school's process and practices

17. I have paid for participating in building school rooms the money between (see amount below) at this school. Tick as appropriate:

- | Trimester 1 | Trimester 2 | Trimester 3 |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

Cost for supporting school's process and practices

18. I have paid for accommodation and food during National Examinations the money between (see amount below) at this school. Tick as appropriate:

- | Trimester 1 | Trimester 2 | Trimester 3 |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

19. I have paid for district examination the money between (see amount below) at this school. Tick as appropriate:

- | Trimester 1 | Trimester 2 | Trimester 3 |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

20. I have paid for examination book the money between (see amount below) at this school. Tick as appropriate:

- | Trimester 1 | Trimester 2 | Trimester 3 |
|--------------------|--------------------|--------------------|
|--------------------|--------------------|--------------------|

- | | | |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

21. I have paid for passport photo to be used in National Examination the money between (see amount below) at this school. Tick as appropriate:

- | Trimester 1 | Trimester 2 | Trimester 3 |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

22. I have paid for participating in library maintenance the money between (see amount below) at this school. Tick as appropriate:

- | Trimester 1 | Trimester 2 | Trimester 3 |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

23. I have paid for school report the money between (see amount below) at this school. Tick as appropriate:

- | Trimester 1 | Trimester 2 | Trimester 3 |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

24. I have paid for MOCK examination the money between (see amount below) at this school. Tick as appropriate:

- | Trimester 1 | Trimester 2 | Trimester 3 |
|--------------------|--------------------|--------------------|
|--------------------|--------------------|--------------------|

- | | | |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

25. I have paid for National Examination Registration the money between (see amount below) at this school. Tick as appropriate:

- | Trimester 1 | Trimester 2 | Trimester 3 |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

26. I have paid for school feeding the money between (see amount below) at this school. Tick as appropriate:

- | Trimester 1 | Trimester 2 | Trimester 3 |
|------------------------|------------------------|------------------------|
| a. Not Applicable | a. Not Applicable | a. Not Applicable |
| b. [1 to 500 Frw] | b. [1 to 500 Frw] | b. [1 to 500 Frw] |
| c. [501 to 1000 Frw] | c. [501 to 1000 Frw] | c. [501 to 1000 Frw] |
| d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] | d. [1001 and 5000 Frw] |
| e. 5001 Frw and above | e. 5001 Frw and above | e. 5001 Frw and above |

Thank you for your time!

APPENDIX II: INTERVIEW GUIDE FOR HEADTEACHERS ON HIDDEN COSTS

Introduction

Hi, my name is **Jean Pierre Mugiraneza** and I am a Ph.D student at Kenyatta University in Kenya. I am interested in learning more about the ‘fee-free schooling hidden costs and their impact on students participation in basic education’. I am conducting this research as part of academic requirement to be awarded a Ph.D degree at Kenyatta University and so I am happy to involve you in this process.

You have been selected to participate in the filling of this questionnaire because you are the headteacher of this school, and are aware of hidden costs issues that students face despite fee-free schooling policy. It is important to let you know that your objectivity and sincerity are highly appreciated. Anything you write will be kept confidential, which means that your name will not be used and only those involved in this research project will see the information you give. A report will be prepared at the end of the research, but your names and any personal information about you will not be included.

SECTIONS	RESEARCH QUESTIONS	PROBING QUESTIONS
Section A: Opening discussion	Introduction Introduce your self	<ul style="list-style-type: none">○ How long have you been the headteacher at this school?○ What work is your organization involved in related to ensure full students participation in basic education?

<p>Section B:</p> <p>School-based costs</p>	<p>Research questions</p> <ol style="list-style-type: none"> 1. To what extent do home-based costs affect intake rate amongst at this school 2. What is the influence of home-based costs on students transition at this school 	<ul style="list-style-type: none"> ○ Are there students who have failed to register at this school? Please explain. What are the causes? Explain regarding economic background of their families. What is the number, Sex and age of students who mostly fail to come at school. ○ Are there students who have failed to be admitted in lower or upper secondary school? Please explain. What are the causes? Explain with reference to economic background of their homes. What is the number, Sex and age of students who mostly fail to transit into lower or upper secondary school? ○ In which ways and for what activities do you think families have to pay money for their children to come at school? Can it affect students participation? Explain
<p>Section C:</p> <p>Home-based costs</p>	<ol style="list-style-type: none"> 3. How do school-based costs affect intake rates amongst students at this school? 	<ul style="list-style-type: none"> ○ Are there students who have failed to register at this school? Please explain. What are the causes? Explain regarding

	<p>4. What is the effect of school-based costs on students transition in basic education in Rwanda?</p>	<p>financial needs that the school want from them. What is the number, Sex and age of students who mostly fail to come to school.</p> <ul style="list-style-type: none"> ○ Are there students who have failed to be admitted in lower or upper secondary school? Please explain. What are the causes? Explain financial needs that the school want from them. What is the number, Sex and age of students who mostly fail to transit into lower or upper secondary school? ○ In which ways and for what activities do you think schools have to collect money from students at school? Can it affect students participation? Explain
<p>Section D: Suggested Policies to increase students participation</p>	<p>5. What policy strategies can be put in place to ensure all children participate in all levels of basic education in Rwanda?</p>	<ul style="list-style-type: none"> ○ In your opinion, what could be done within schools to better prevent and respond to cases of low transition rate in 12YBE schools? Please describe. ○ Are there types of programmes; trainings; policies; other things?

Closing discussion	Those are all of the questions I have for you today.	<ul style="list-style-type: none">○ Do you have any questions for me?○ Is there anything else you would like to add that we haven't already talked about?
--------------------	--	--

APPENDIX III: SCHOOL DOCUMENT OBSERVATION CHECKLIST

School Code:

Document Type:

Purpose of the document:

School years	2013		2014		2015		Total	
	Qty	%	Qty	%	Qty	%	Qty	%
Students registration in all grades								
Students promotion in all grades								
Students promotion in senior one								
Students registration in senior one								
Students promotion in Senior four								
Students registration in senior four								
Students dropouts								

APPENDIX IV: INFORMED CONSENT FOR PARTICIPANTS IN THE STUDY

I,.....hereby
give my consent to participate in the study entitled “**Hidden costs and their impact on students participation in basic education, Rwanda**” being conducted by Mr. Mugiraneza Jean Pierre.

I have not been forced to participate. I willingly decided to participate based on the positive contribution that the findings would have to basic education schools; of which I am a beneficiary/direct stakeholder. I have full trust that any information shared will be treated with utmost confidentiality and my names will not be published. I accept that the discussion can be recorded for the sole benefit of the research. However, I have full right to terminate my participation at any stage without penalty or consequence,

The information I am sharing intends also to support the researcher’s study as required for the partial fulfillment of the requirements for the award of PhD in Economics of Education at Kenyatta University. The same shall, however, be presented in academic forums such as conferences and seminars or may even be published in academic journals.

Date:..../...../.....

Signature:

Authenticated by:

Mr. Mugiraneza Jean Pierre

Researcher

Date:..../...../.....

Signature

APPENDIX V: APPROVAL OF RESEARCH PROPOSAL FROM GRADUATE SCHOOL



KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: kubps@yahoo.com
dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 57530

Internal Memo

FROM: Dean, Graduate School

DATE: 18th December, 2016

TO: Mugiraneza J. Pierre
C/o Department of Educ. Mngt. Policy & Curr. Studies
KENYATTA UNIVERSITY

REF: E83EA/CE/23990/12

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

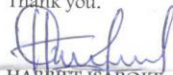
This is to inform you that the Graduate School Board at its meeting 14th December, 2016 approved your Ph.D. Research Proposal entitled "Hidden Costs and their Impact on Students' Participation in Basic Education, Rwanda"

You may now proceed with your Data collection, subject to Director General, National Commission for Science, Technology & Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed supervision Tracking Forms per semester. The form has been developed to replace the progress Report Forms. The Supervision Tracking Forms are available at the University's Website under Graduate School webpage downloads.

By copy of this letter, the Registrar (Academic) is hereby requested to grant you substantive registration for your Ph.D. studies.

Thank you.


HARRIET ISABOKE
FOR: DEAN, GRADUATE SCHOOL

c.c. Chairman, Department of Educational Management Policy & Curriculum Studies
Registrar (Academic) Att; Mr. Likam

Supervisors:

1. Dr. John K. Ndiritu
C/o Department of Educ. Mngt. Policy & Curr. Studies
KENYATTA UNIVERSITY
2. Dr. Charles Magoma
C/o Department of Educ. Mngt. Policy & Curr. Studies
KENYATTA UNIVERSITY

HI/cao

APPENDIX VI: RESEARCH AUTHORIZATION FROM GRADUATE SCHOOL



KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: kubps@yahoo.com
dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530

Our Ref: E83EA/CE/23990/12

Date: 18th December, 2016

The Director General,
National Commission for Science, Technology & Innovation
P.O. BOX 30623-00100
NAIROBI

Dear Sir/Madam,

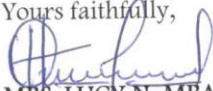
RE: RESEARCH AUTHORIZATION FOR MUGIRANEZA J. PIERRE REG. NO. E83EA/CE/23990/12

I write to introduce Pierre who is a Postgraduate Student of this University. The student is registered for a Ph.D. degree programme in the Department of Educational Management Policy & Curriculum Studies in the School of Education.

Pierre intends to conduct research for Ph.D. thesis entitled, "Hidden Costs and their Impact on Students' Participation in Basic Education, Rwanda"

Any assistance given will be highly appreciated.

Yours faithfully,


For MRS. LUCY N. MBAABU
FOR: DEAN, GRADUATE SCHOOL

RM/cao

APPENDIX VII: RESEARCH PERMIT FROM MINEDUC, RWANDA

REPUBLIC OF RWANDA

Kigali, 16 / 01 / 2017
N°.../12.00/2017



MINISTRY OF EDUCATION
P.O.BOX 622 KIGALI

Re: **Permission to Carry out Research in Rwanda - No: MINEDUC/S&T/378/2017**

The Permission is hereby granted to **Mr. Mugiraneza Jean Pierre**, Ph.D candidate at Kenyatta University, Kenya, to carry out research for Ph.D program on: **"Hidden Costs and their Impact on Students' Participation in Basic Education, Rwanda"**.

The research will be carried out in Kirehe and Kicukiro Districts of Eastern and Kigali City respectively. The researcher will need access to schools reports as well as education policies. He will need to interview head teachers of 12 years education schools and collect information from parents in aforementioned Districts.

The period of research is from **16th January 2017 to 31st December, 2017**. It may be renewed if necessary, in which case a new permission will be sought by the researcher.

Please allow the **above mentioned researcher**, any help and support he might require to conduct this research.

Yours sincerely,



Marie-Christine GASINGIRWA, Ph.D
Director General of Science, Technology and Research

APPENDIX VIII: RESEARCH PERMIT FROM KICUKIRO DISTRICT, RWANDA

REPUBLIC OF RWANDA



Kicukiro, 20 / 01 / 2017

Ref. n° 4478 07.0103.0.../17

CITY OF KIGALI
KICUKIRO DISTRICT
P.o Box: 657 Kigali

MUGIRANEZA Jean Pierre
KENYATTA UNIVERSITY (PhD STUDENT)
Email: mugiranezaus@yahoo.com
Tel: 0788619277

RE: Data collection Approval

Dear Sir,

Reference is made to your letter dated January 18 , 2017 requesting the authorization to conduct a study for his Ph.D program on «**Hidden Costs and their Impact on Students' Participation in Basic Education, Rwanda** », Case of study Kicukiro District.

After examining your request and according to the Law N° 45/2013 of 16/06/2013, stating on statistical activities organization in Rwanda, we have the pleasure to inform you that you are authorized to conduct data collection in the District.

In order to assure the accuracy of collected data you should submit your research draft to the District before you submit your final research to your University.

Thank you for your collaboration.


Dr. NYIRAHABIMANA Jeanne
Mayor of Kicukiro District



Cc:

- Vice Mayor (all)
- Executive Secretary

Website: www.kicukiro.gov.rw

Email: info@kicukiro.gov.rw

Hotline: 4575

APPENDIX IX: LOCATION OF KICUKIRO AND KIREHE DISTRICTS ON RWANDA'S MAP

