Effect of Automatic Promotion on Students' Dropout Rate and Learning Achievements in Uganda's Primary Education

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Effect of Automatic Promotion on Students' Dropout Rate and Learning Achievements in Uganda's Primary Education

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ABSTRACT

The practice of allowing students to progress from one class to the next irrespective of their academic performance – otherwise called automatic promotion, has polarized education development stakeholders along the lines of those in support and those against. Arguments for and against automatic promotion are centered on its credibility as a viable alternative to grade retention, in the search for efficiency and better learning outcomes. Points of view in favour of the policy as a better alternative to grade retention fall into three broad categories namely; enhancing education quality, improving internal efficiency of education and promoting personal development of students. Enhancing the quality of education arguments point to the fact that repetition does not improve the achievement of the low-achiever, nor does it reduce the range of abilities, since each grade will carry the retained student into the next year as a source of a difference in ability. Moreover, retaining students leads to crowding in classrooms, leading to high student-classroom ratios and high student-teacher ratios thus lowering the overall quality of education. By contrast, automatic promotion fosters equity in learning outcomes especially between male and female students and between rural-urban settings. In developing countries, female students and students in rural schools tend to register lower learning outcomes, compared to their respective counterparts.

In terms of improving internal efficiency of education, the arguments highlight the policy's ability to save costs for both governments and households. This is because it reduces if not eliminates, grade repetition, increases survival and completion rates, reduces student dropout rates, and increases the number of years low achieving students spend in school. Regarding personal development of learners, grade repetition is noted as having adverse effect on students' self-esteem and motivation. Likewise, retention stigmatizes students and impairs their natural ability to relate with their peers. This more often than not culminates into alienation of the students in question, thus resulting in eventual exiting of the schooling cycle. Furthermore, repeating grades prolongs the actual school completion time as well as time to engage

productively in the labor market, which represents a monetary cost to students over their life-cycles. Counter arguments against automatic promotion state that it negatively affects the overall quality of education since it eliminates competition, de-motivates students and teachers hence lowering teaching and learning outcomes. By contrast, grade retention is viewed as leading to an improvement in cognitive learning outcomes. It is worth noting that studies that have reported academic gains attributable to repetition have gone on to add that the gains are short-term and as a result eventually retained students end up lagging behind, which affects their self-esteem and increases the probability of dropping out.

Uganda adopted and implemented the automatic promotion (AP) policy in 2005 as an interventionist strategy aimed at enhancing the internal efficiency and quality of primary education. The policy therefore was and is still targeted at eliminating if not reducing grade repetition, reducing school dropout, improving pedagogical duration and efficacy, hence improving learning outcomes. Improvements in internal efficiency and quality of education would then enhance Uganda's chances of achieving Education For All (EFA) goals and Millennium Development Goals (MDGs), especially EFA goals 2, 5 and 6, and MDGs 2 and 3. The policy is implemented only in government primary schools because internal inefficiencies in terms of high repetition rate, high dropout rate, low survival rate and low completion rate were on average higher among them. Moreover, government schools form the bulk of primary schools in the country (12,203 out of 18,079) and implement Universal Primary Education (UPE), thus high inefficiencies imply wastage of money for both the government and households, as well as time for the students. Under the UPE program, government pays tuition for all students enrolled in UPE implementing schools and parents meet costs related to scholastic materials such as school uniform, pens, pencils, exercise books, school meals and so forth. Thus when a child repeats a grade/ grades or drops out of the primary schooling cycle, it represents wastage of not only financial resources for both entities (government and households), but time for students since they will take relatively longer to graduate and enter the workforce.

As already alluded to, the adoption and subsequent implementation of automatic promotion came on the back of high internal inefficiency prevailing within the primary education sub-sector, coupled with low quality of education. Inefficiency manifested itself through high repetition and dropout rates, which by 2004 were recorded at approximately 35% and 21% respectively. The low quality of education was reflected by low academic achievements at all primary grades, and characterized by disparities along gender and rural-urban dimensions. For instance, according to National Assessment of Progress in Education (NAPE) 2004, pass rates for English and mathematics at primary three (P3) were respectively 37% and 44% and even lower for primary six (P6), 25% and 27% respectively. By 2010 these rates had improved, albeit still below regional and international averages. More specifically, while literacy and numeracy at P3 improved to 57% and 72% respectively, at P6 they improved to 50% and 54% respectively. Uganda's, learning outcomes in terms of gender and rural-urban dimensions are lower among female students by approximately 5 percentage points and rural areas by approximately 15 percentage points.

Since its adoption and implementation, automatic promotion has given rise to an engaging debate amongst education stakeholders in Uganda. The policy is supported by the Ministry of Education, Science, Technology, and Sports (MoESTS) and international education development partners (donors) operating in the country. The opponents of the policy comprise mainly parents, school administrators, district education officials, private education providers, and Non-Government Organizations (NGOs). The arguments for and against the policy in Uganda are similar to those held in developed and other developing countries that have experience with it i.e. contrasting it with grade retention. The difference being that the debate in Uganda is happening without either side presenting any evidence in the context of Uganda to support their respective claims/arguments.

The MoESTS and education development partners for example base their arguments on positive experiences from other countries that have adopted and implemented the policy, which though basically acceptable, represents an over generalization. Different countries have different

education systems and levels of education development, so simply assuming what worked or is working in one country/ region will automatically work in another is a gross misrepresentation. The opponents on their part simply blame the policy for the inefficiencies and low quality of education still prevailing in the primary education sub-sector, without any proof. They also point to the fact that no prior sensitization and/or awareness creation was conducted among the various stakeholders on the relevance and necessity of the policy before its subsequent implementation.

Given the above mixed and inconclusive discussion, coupled with the lack of national empirical evidence either for or against the policy, this study thus sought to fill the information gap regarding the impact of automatic promotion on students' dropout rate and learning achievements in Uganda. The overall objective was broken down in to two sub-objectives namely: (1) to estimate the effect of automatic promotion on students' dropout rate in Uganda's primary education; and (2) to assess the effect of automatic promotion on students' learning achievements in Uganda's primary education. This policy impact assessment was extended to capture effect incidence along gender (male and female students), as well as along school location (rural and urban schools). This is important since it highlights the effectiveness of the policy in reducing student dropout and improving learning achievements in an equitable manner. This study is structured within the human capital theory, which attributes increased productivity of individuals (male and female, either in rural or urban areas) to education and training, as a result of acquiring relevant skills and knowledge. Increased productivity ultimately raises workers' future income and their lifetime earnings. In this regard, countries all over the world, developed and developing, including Uganda strive to maximize human capital development by investing in primary education and education in general. In order to promote efficiency and effectiveness of these investments, governments have and continue to implement various policy initiatives. In the case of Uganda, one such policy is the automatic promotion policy, which seeks to enhance efficiency in the provision of quality primary education.

In order to respond to the study research questions and as such meet the overall objective of the study, the technique employed is the Difference in Differences (DID) approach. This

approach is a quasi-experimental method used in econometrics to estimate the effect of a treatment or intervention at a given period in time. The simplest set up is one where outcomes are observed for two groups for two time periods. While one of the groups is exposed to the treatment in the second period but not in the first period, the other is not exposed to the treatment in either period. In cases where the same units within each group are observed in each time period, then the average gain in the control group is subtracted from the average gain in the treatment group. This removes biases in second period comparisons between the treatment and control groups that could be a result of permanent differences between those groups, as well as biases from comparisons over time in the treatment group that could be a result of trends.

In the context of this study, the treatment is automatic promotion, implemented only in government primary schools (not in private schools), implying that the control group is comprised of students from private schools and the treated group is comprised of students from government schools. The decision to use students as the unit of analysis instead of schools (private and government) was taken because ultimately the policy is geared towards ensuring that students stay in the primary schooling cycle so as to be able to gain knowledge and skills required for their academic and personal development. It is the students who are taught and assessed, who repeat classes and who drop out of the schooling cycle, so evaluating the policy effect at this level is critical for future policy decisions. The Difference in Differences model was specified both in non-linear regression and linear formats. DID in non-linear framework (Probit Model) was used to assess the impact of the policy on the probability of students dropping out of Uganda's primary education cycle. Conversely, DID in linear framework was used to estimate the effect of automatic promotion policy on students' learning outcomes.

The study employed two non-experimental (pooled cross-sections) datasets. The first is the National Assessment of Progress in Education (NAPE) for the years 2004 and 2010. NAPE is managed and administered for and on behalf of the MoESTS by a semi-autonomous institution called Uganda National Examination Board (UNEB). The assessment was first conducted in 1999 and has continued to be conducted every year at primary education to randomly selected

schools and students. It contains learning achievements in literacy (English) and numeracy (Mathematics) and covariates related to schools, teachers and students. The second data set is from Uganda Bureau of Statistics (UBOS), called Uganda National Household Survey (UNHS) for the years 2004 and 2010.

The sampling design used when collecting NAPE data is a two-stage stratified cluster, such that the first stage involved selecting a random sample of schools stratified by district, with all the districts in the country being included in the sample frame. The second stage involved selecting from P3 & P6 random samples of students present in the school on the day of the survey. From each district a minimum of 10 primary schools are sampled and from each school a simple random sample of about 20 students (male and female) are selected per class. UNHS likewise adopted a two-stage stratified sampling design. In the first stage, Enumeration Areas (EAs) are grouped by districts and rural-urban location; then drawn using Probability Proportional to Size (PPS). At the second stage, households which are the ultimate sampling units are drawn using systematic sampling.

Probit regression results indicate that over the period 2004 to 2010, AP appears to have had a negative effect on the probability of students dropping out, but only at P3. There seems to have been no effect by the policy at P6. When the assessment of the impact of AP was structured along rural – urban component, results show that the policy appears to have had an effect only on P3 students studying in urban schools. AP seems to have had no effect on the likelihood of dropping out among students in P3 rural, P6 rural and P6 Urban. Moreover, when the policy impact evaluation was structured along gender component, AP appears to have been effective in reducing the probability of male and female students dropping out at P3. At P6, the policy appears to have had no effect on the likelihood of male and female students dropping out.

Over the same period (2004 to 2010), linear regression results reveal a positive and statistically significant effect on P3 literacy and numeracy, and only P6 literacy. When the effect incidence is disaggregated along rural-urban dimension, at P3 the effect is still positive and statistically significant in both locations. At P6, the policy seems to have had an effect only on

rural literacy. Consideration of gender aspect in the assessment shows that automatically promoting students appears to have had an effect among P3 boys and girls, in literacy and numeracy. At P6, impact of the AP is noted only on female reading score (literacy). These results indicate the effectiveness of the policy as one of the strategies for improving students' dropout and learning achievements, but only at lower primary. The findings at P3 are contrary to popular belief in Uganda, but similar to those demonstrated by earlier studies on automatic promotion and grade retention. Results at P6 appear to be lending voice to those opposed to the adoption and implementation of automatic promotion policy.

On the basis of these findings supplemented by the public discourse about automatic promotion, two policy implications emerge. Firstly, there is a need for the government and education development partners in the country to conduct awareness campaign for the public about automatic promotion, why it is necessary and relevant for the long term provision and development of education in Uganda. Secondly and coupled with the above is the need for the government and education development partners to assess the existence and adequacy of other factors or variables that influence the internal efficiency and quality of education. This is because the policy does not operate in isolation, but rather complements other equally key factors in the provision and development of education.

DECLARATION

I Jeje Moses hereby do declare that the research work contained in this dissertation is my own and that it contains no material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

Signed:…….. Date:…….

JEJE MOSES

This dissertation is submitted with approval from my academic advisor

Signed:…….. Date:…….

Professor Keiichi Ogawa

DEDICATION

This dissertation is warmly dedicated my family for their support, encouragement, and constant love, which has sustained me throughout my life and studies.

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LIST OF ACRONYMS AND ABBREVIATIONS

A'Level	Advanced Level
ACT	American College Testing
ADEA	Association for Development of Education in Africa
AP	Automatic Promotion
BoU	Bank of Uganda
BTVET	Business Technical Vocational Education and Training
CCT	Center Coordinating Tutor
CDF	Cumulative Distribution Function
CPI	Consumer Price Index
CPS	Chicago Public Schools
CPS	Current Population Survey
DEO	District Education Office
DF	Degrees of Freedom
DID	Difference in Differences
DTE	Department of Teacher Education
EA	Enumeration Areas
EFA	Education for All
EMIS	Education Management Information System
EPRC	Education Policy Reform Commission
FIML	Full-Information Maximum Likelihood
GDP	Gross Domestic Product
GEE	Generalized Estimating Equation
GMM	Generalized Method of Moments
GMR	Global Monitoring Report

GoU	Government of Uganda
GPA	Grade Point Average
GWPE	Government White Paper on Education
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome
IIEP	International Institute for Education Planning
INEP	National Institute for the Study and Research on Education
LFA	Learning For All
MDG	Millennium Development Goals
MEC	Federal Ministry of Education
MoESTS	Ministry of Education, Science, Technology and Sports
NAPE	National Assessment of Progress in Education
NCDC	National Centre for Curriculum Development
NCES	National Centre for Education Statistics
NELS	National Educational Longitudinal Study
NER	Net Enrolment Ratio
NGO	Non-Government Organization
NRM	National Resistance Movement
O'Level	Ordinary Level
OECD	Organization for Economic Cooperation and Development
OLS	Ordinary Least Squares
PBR	Pupil Textbook Ratio
PCR	Pupil Classroom Ratio
PDR	Pupil Desk Ratio
PETD	Primary Education Teachers' Development
PISA	Program for International Students' Assessment
PLE	Primary Leaving Examination

PPS	Probability Proportional to Size
PROEB	Programa de Avaliação da Educação Básica
PSR	Pupil Stance Ratio
PTC	Primary Teachers' College
PTR	Pupil Teacher Ratio
SACMEQ	Southern and Eastern Africa Consortium for Monitoring Education Quality
SES	Socio-Economic Status
SDGs	Sustainable Development Goals
SIMAVE	Sistema Mineiro de Avaliação da Educação Pública
SMC	School Management Committee
SNE	Special Needs Education
SSA	Sub-Saharan Africa
TAKS	Texas Assessment of Knowledge and Skills
TVET	Technical Vocational Education and Training
UACE	Uganda Advanced Certificate Education
UBOS	Uganda Bureau of Statistics
UCE	Uganda Certificate of Education
UGX	Uganda Shilling
UK	United Kingdom
UNEB	Uganda National Examinations Board
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNHS	Uganda National Household Survey
UNICEF	United Nations Children's Fund
UPE	Universal Primary Education
USA	United States of America
WDR	World Development Report

TERMINOLOGY

Automatic Promotion

Automatic promotion is also known as social promotion and refers to a system in which children are passed to the next grade with their age peers, receiving remedial academic help when necessary (Steiner 1986). It is also defined as a practice of promoting students from one grade (class) to the next grade (class) irrespective of whether they have passed the inter-grade promotional examinations or not (Ndaruhutse 2008).

Dropout

A dropout refers to any student who leaves school for any reason before graduation or completion of a program of studies without transferring to another elementary or secondary school (Bonneau, 2005). A dropout is defined as a student who did not transfer to another public school district, private school, or state– or district–approved educational program and is not on temporary school–recognized absence due to suspension or illness (NCES, 2002).

Dropout Rate

Dropout rate refers to the proportion of the total number of full-time students no longer enrolled in a particular education level of education, say primary education (Lehr et al., 2004). It is also defined as the proportion of pupils from a cohort enrolled in a given grade at a given school year who are no longer enrolled in the following school year (UNESCO, 2009).

Learning Achievements

Learning achievements refers to a result or level of ability that has been achieved by students after attending a teaching-learning process within a certain time. The result is in the form of

changes in behaviour, skills and knowledge are measured and assessed and then realized in numbers or statement (World Bank, 2005).

Difference in Differences (DID)

The Difference in Differences (DID) is a quasi-experimental research method used in econometrics to estimate the effect of a treatment or intervention (government policy) at a given period in time. The DID estimator is one of the most popular tools for applied research in economics to evaluate the effects of public interventions and other treatments of interest on some relevant outcome variables (Abadie, 2005 and Lechner, 2010).

CHAPTER ONE:

INTRODUCTION

1.1 Background

The practice of allowing students to progress from one class to the next irrespective of their academic performance – otherwise called Automatic Promotion (AP), has polarized education development stakeholders all over the world including Uganda. On the onset, it is worth noting that automatic promotion policy is consistent with the international commitments on education development, as articulated in the Education For All (EFA) Goals and Millennium Development Goals (MDGs). It is in alignment with the goals aimed at expanding equitable access to primary education, but lends itself to criticism when the discussion shifts to goals related to enhancement of education quality and internal efficiency. Deliberations for and against AP are centered on its credibility as a viable alternative to grade retention in the search for efficiency and better learning outcomes. In light of the above, arguments for AP as a better alternative to grade retention can be categorized into three broad areas namely; enhancing education quality, improving internal efficiency of education and personal development of learners.

Enhancing the quality of education arguments point to the fact that repetition does not improve the achievement of the low-achiever, nor does it reduce the range of abilities, since each grade will carry the retained into the next year as a source of a difference in ability (Ndaruhustse, 2008 and Peterson et al., 1987). Moreover, retaining students leads to crowding in classrooms, leading to high student-classroom ratios and high student-teacher ratios thus lowering the overall quality of education (Chimombo, 2005). In terms of improving internal efficiency of education, the arguments highlight its ability to saving costs for both governments and households since it reduces if not eliminates grade repetition, increases survival and completion rates by reducing students' dropout rates, and increases the number of years low achieving students spend in school (Mehrotra, 1998 and Ndaruhutse, 2008).

Regarding personal development of learners, grade repetition is noted as having adverse effect on students' self-esteem and motivation. In addition, retention stigmatizes students and

impairs their natural ability to relate with their peers (Andrew, 2014). This more often than not culminates into alienation of the students in question, thus resulting in eventual exiting of the schooling cycle (Holmes 1989). Repeating grades prolongs the actual school completion time as well as time to engage productively in the labor market, which represents monetary cost on students over their life-cycles (Eide and Showalter, 2001).

Counter arguments against automatic promotion state that it negatively affects the overall quality of education since it eliminates competition, de-motivates students and teachers alike hence lowering teaching and learning outcomes (Koppensteiner, 2014; Taye, 2003 and Chohan & Qadir, 2011). By contrast, grade retention is viewed as leading to improvement in cognitive learning outcomes (Brophy, 2006 and King et al., 1999). It is worth noting that studies that have reported academic gains attributable to repetition have gone on to add that the gains are short-term and as a result eventually retained students end up lagging behind, which affects their self-esteem and end up dropping out (Brophy, 2006 and Jimerson et al., 1997).

A dropout is any student who leaves school for any reason before graduation or completion of a program of studies without transferring to another elementary or secondary school (UNESCO, 2009). Therefore dropout rate is the percentage of students failing to complete a particular school or college course. Alternatively, it is the proportion of the total number of full-time students no longer enrolled in a particular education level of education, say primary education (Lehr et al., 2004). Learning achievement is the result or level of ability that has been achieved by students after attending a teaching-learning process within a certain time in the form of changes in behavior, skills and knowledge and will then be measured and assessed and then realized in numbers or statement (World Bank, 2005).

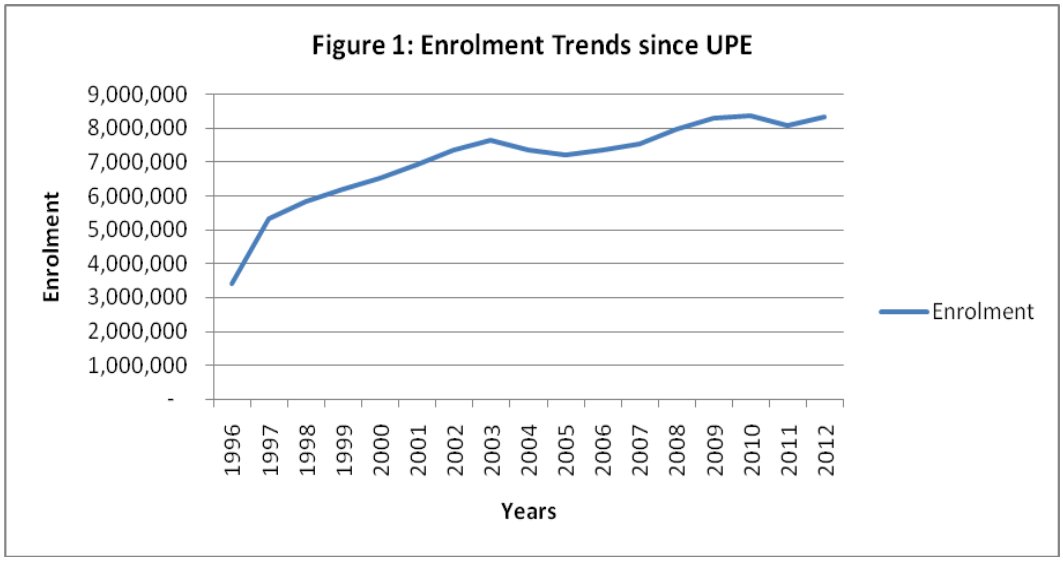
There is more than substantial evidence linking students dropping out of school to their level of academic achievements. According to King et al (1999), more often than not, students who post low academic scores/ grades are susceptible to dropping out of the school cycle (see also Jimerson et al., 1997 and Chohan & Qadir, 2011)

1.1.1 Automatic Promotion Policy in Uganda.

The introduction of Universal Primary Education (UPE) in 1997 was a very significant milestone in the provision and development of education in Uganda. The adoption of UPE had a two-fold objective, first it represented government's recognition of the need to expand access to the millions of school going age children who had hitherto been excluded and secondly it marked government's compliance with the international education commitments as articulated by the Education For All (EFA) goals and the Millennium Development Goals (MDGs). UPE was thus launched with the aim of achieving the broad and overarching objective of providing equitable access to quality primary education in an efficient and effective manner.

Consequently, enrolment increased from approximately 3 million in 1996 to 5.4 million in 1997, and by 2010 total enrolment was 8.4 million, with gender parity effectively achieved. While Figure 1.1 illustrates a trend of enrolment in to primary education in Uganda since the introduction of Universal Primary Education program, Figure 1.2 demonstrates how gender parity in terms of access to primary education was effectively realized.

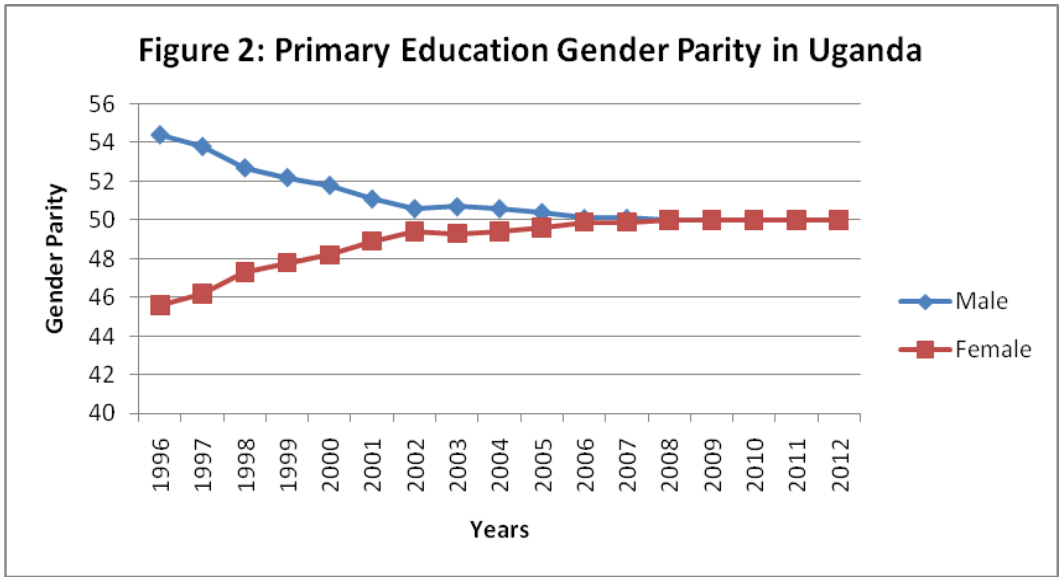
Figure 1.1: Primary Education Enrolment Trends since UPE Implementation



Source: Created by Author using EMIS Data (2010)

Overall, although UPE policy in Uganda contributed significantly towards the expansion of access and equity in primary education, implying EFA goals 2 and 5, as well as the Millennium Development Goals on education were achieved.

Figure 1.2: Gender Parity in Primary Education



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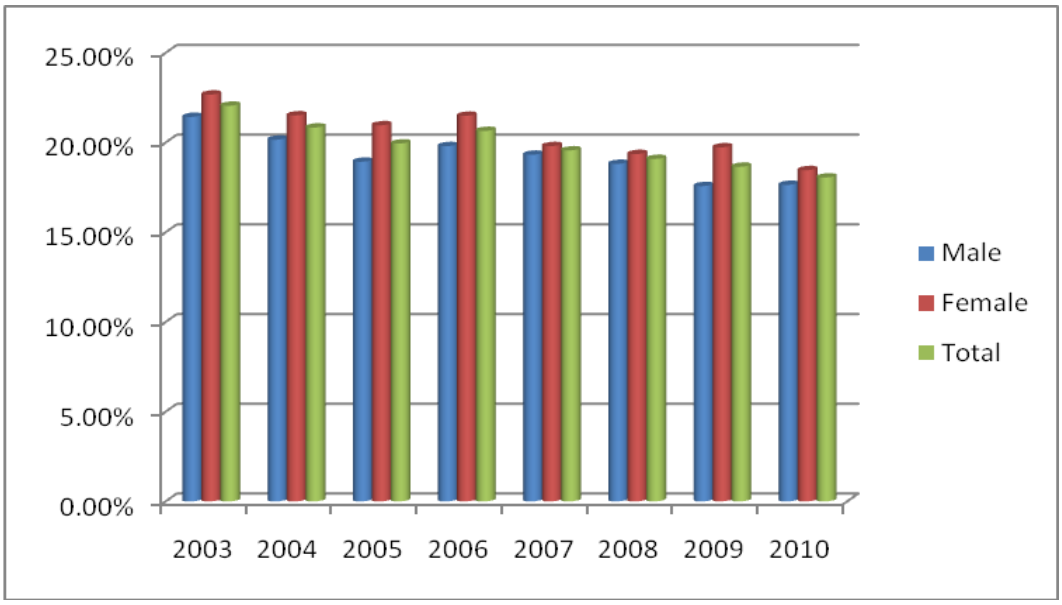
However, despite the remarkable progress registered in the advancement of equitable access to primary education, there was an equally significant decline in education quality and worsening of internal efficiency. Internal inefficiency at the primary level of education manifested itself inform of high repetition rates, high absenteeism (teachers and students), high dropout rates, low completion rates, low survival rates to mention but a few. Low quality asserted itself through inadequate teaching and learning materials, low academic performance, high Pupil Teacher Ratio (PTR), high Pupil Classroom Ratio (PCR), high Pupil Textbook Ratio (PBR), high Pupil Desk Ratio (PDR) and high Pupil Stance Ratio (PSR).

In the context of this study, the efficiency and quality indicators are respectively students' dropout rate and learning outcomes in literacy (English) and numeracy (mathematics). Thus Figures 1.3 and 1.4 reflect the trend of students' dropout rate along gender and school location

(rural or urban) respectively over an eight year period, which by 2004 was approximately 21%. From Figure 1.3, it can be observed that female students tend to dropout more than their male counter parts by approximately 2 percentage points. Existing literature (Manacorda, 2011 and Chimombo, 2005) on gender dropout in developing countries points the fact that female students are susceptible to being held back to help out domestic chores. This happens to be true for the case of Uganda where girls are held back to help with cooking, attending to the sick, going to the market and in worst case scenarios being married off at very young age.

Figure 1.3: Primary School Dropout Rate by Gender

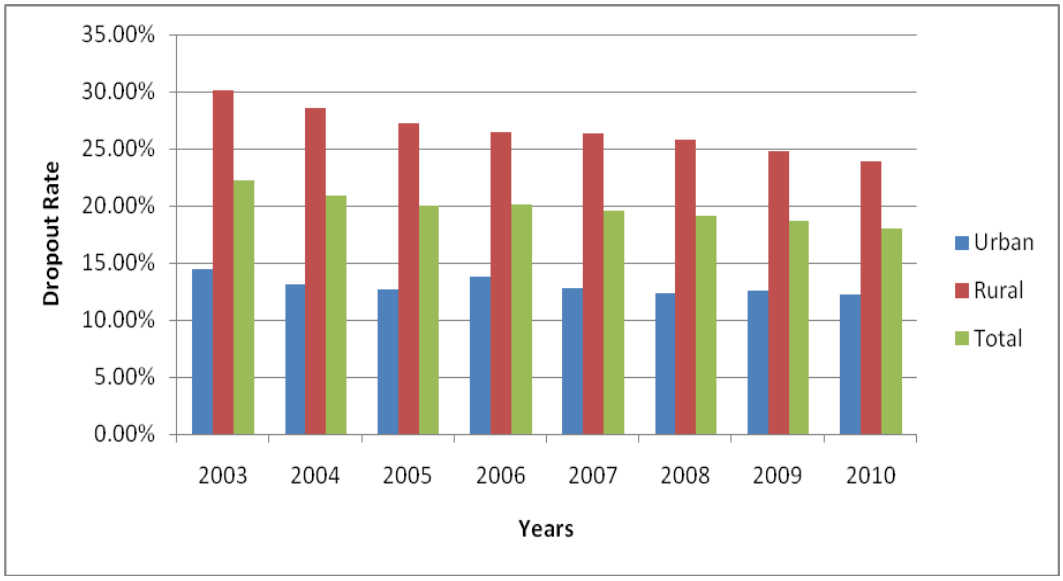


Source: Created by Author using EMIS Data (2010)

Dropout rate along gender dimension decreased from approximately 21% (22% female and 20% male) in 2004 to approximately 18% (17% male and 19% female) in 2010. Considering school location (i.e. whether a school is located in a rural area or in an urban area) dimension, EMIS data 2010 shows that by 2004 rural and urban students' dropout rates were respectively 28% and 13%. By 2010 the rate had slightly decreased to 24% for rural schools and 13% for urban schools (Figure 1.4). Students in rural schools/ settings have a higher dropout rate than those in urban schools – with the difference ranging from 10 to 20 percentage points. It is worth noting that due

to the lack of a clear and effective mechanism of measuring and tracking student dropout, this rate tends to vary depending on the institution/ agency (national & international). The difference is explained by low attitudes towards education among parents in rural areas and high incidence of poverty in rural areas relative to urban areas. This means that students in rural environments finds themselves having to leave schooling in order to get involved in households activities, engage in income generating to supplement that of the family and get married early, especially in case of girls.

Figure 1.4: Primary School Dropout rate by School Location

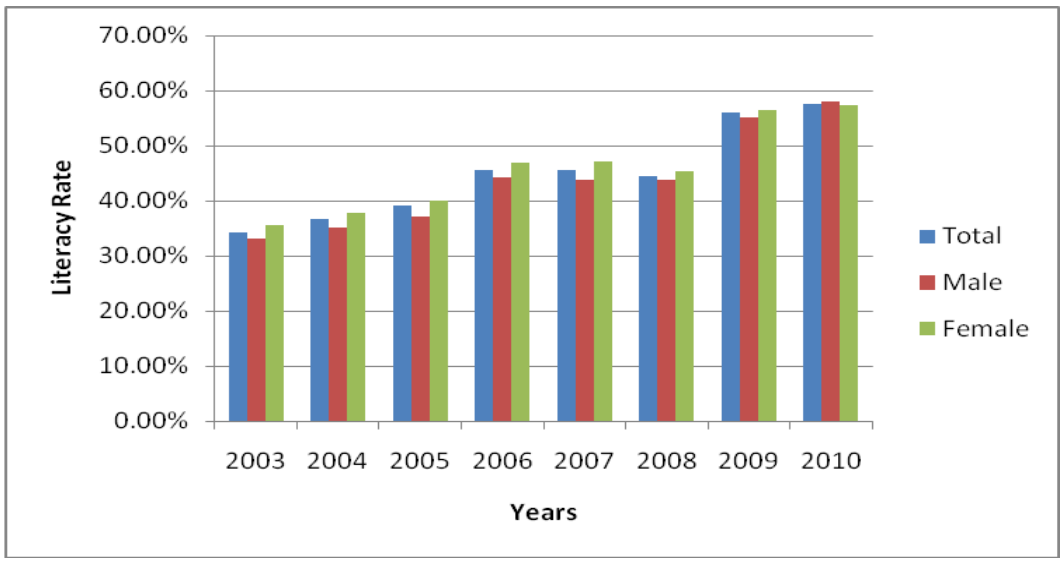


Source: Created by Author using EMIS Data (2010)

The indicator that most highlights the decline in the quality of primary education in Uganda is the low proportion of pupils rated proficient in literacy and numeracy. The measure of increases or decreases in learning outcomes draws more attention compared to the other quality education indicators because of its ability to actively engage all the stakeholders of education development, especially the parents. Parents, teachers, students, local government education officials (i.e. District Education Officers, District Inspectors of Schools and Center Coordinating Tutors), national education officials and donors (national and international) are interested in the state of

students' learning outcomes, whenever quality of education discussion is on the table. By 2003 literacy and numeracy rates at primary three (P3) were respectively 35% and 40% (Figure 1.5 and Figure 1.6). The differences in learning achievements in literacy and numeracy for male and female students over the period under consideration are relatively stable, with variations of approximately 1 to 2 percentage points.

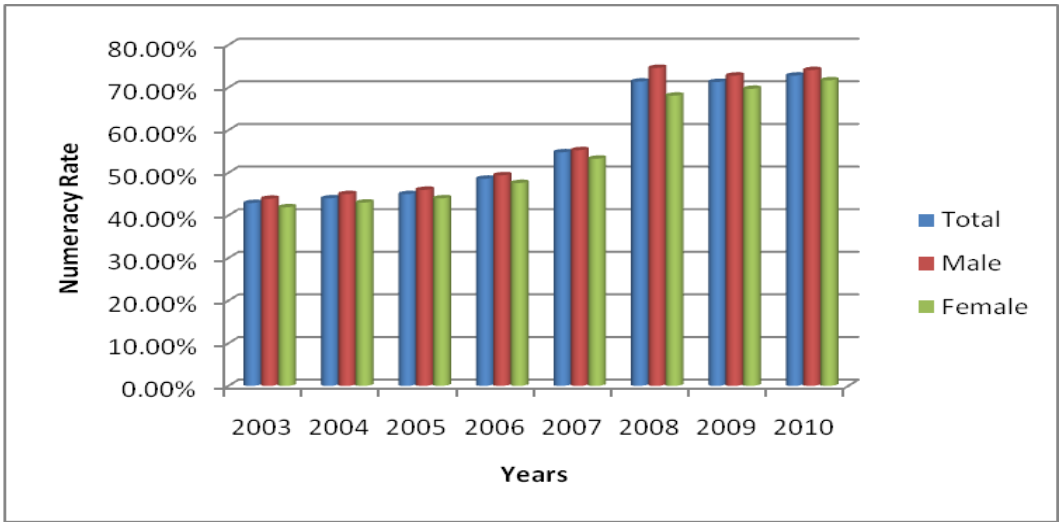
Figure 1.5: Literacy Rates at Primary Three (P3)



Source: Created by Author using EMIS Data (2010)

P3 students in urban schools perform relatively better than their counterparts studying in schools located in rural areas. Literacy rate for 2004 was 35%, of which 40% and 30% were the proficiency levels for students in urban and rural schools respectively. By 2010 the proportion of students rated proficient in literacy had improved to 57% (i.e. 64% for urban students and 50% for rural students). In terms of numeracy rate for 2004, about 40% of the students were rated as being proficient, of which 48% and 32% represented proficiency levels in urban and rural settings respectively. In 2010 the proportion of students rated proficient improved to 72% such that those in urban schools accounted for 80% and those in rural schools accounted for 64%.

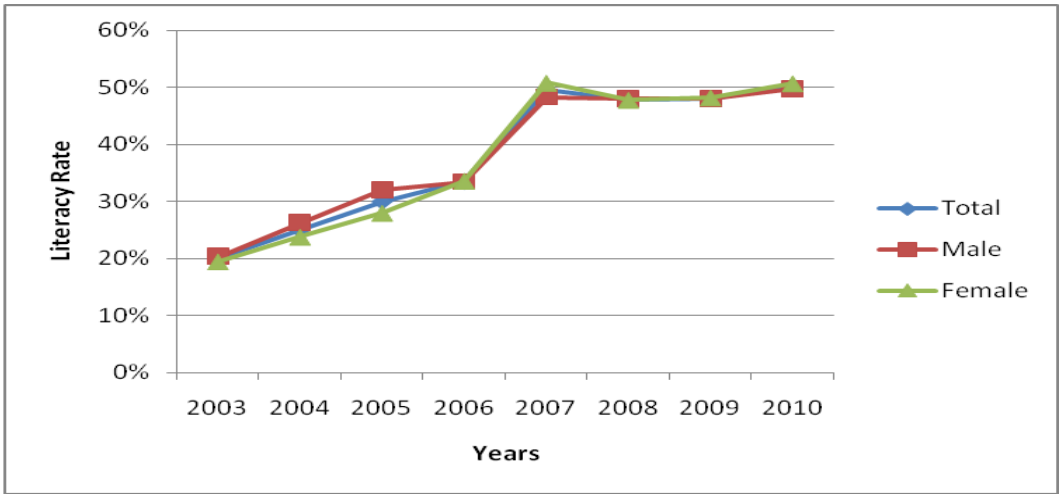
Figure 1.6: Numeracy Rate at Primary Three (P3)



Source: Created by Author using EMIS Data (2010)

At primary six, 2004 literacy and numeracy rates were 25% and 27% respectively. By 2010, literacy and numeracy at the same grades were 50% and 55% respectively. While Figure 1.7 shows the proportion of P6 students rated as being proficient in literacy, Figure 1.8 depicts numeracy proficiency rate at the same grade. Over the course of the period under consideration, male and female literacy rates at P6 are relatively similar (Figure 1.7).

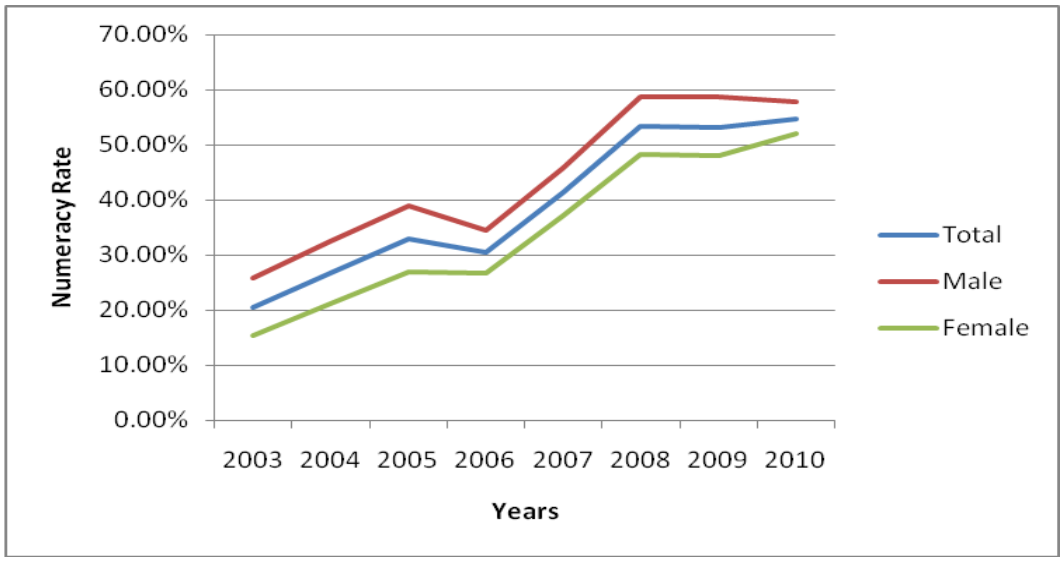
Figure 1.7: Literacy Rate at Primary Six (P6)



Source: Created by Author using EMIS Data (2010)

Decomposing the average learning outcomes in English at P6 shows that in 2004 students in rural areas achieved a proficiency rating of approximately 15%, compared to the learners in urban schools who registered a proficiency rating of approximately 27%. Figure 1.8 is an illustration of numeracy proficiency levels along gender dimension, and it can be seen that male student outperformed their female counterparts all through the eight year period. This is owing to the fact that female students in Uganda generally tend to have a negative attitude to mathematics, which ultimately translates to the lowering of their overall grades. In terms of rural – Urban dimension, 2004 numeracy at P6 was 27% of which urban setting accounted for 28% and rural schools 14%. In 2010 the proficiency rate had increased to 55% such that 62% was for students in urban schools and 48% for those in rural schools.

Figure 1.8: Numeracy Rate at Primary Six (P6)



Source: Created by Author using EMIS Data (2010)

Given the high dropout rate and low learning outcomes in the early 2000's as demonstrated in Figures 1.3 through to 1.8, the Government of Uganda (GoU) in collaboration with her education development partners (donors) public and private, national and international embarked on key action points geared towards improving quality and efficiency of primary education. One such policy action was the adoption and implementation of the Automatic Promotion (AP) policy.

The policy was adopted and implemented in 2005 as an interventionist strategy and it is implemented only by government primary schools since internal inefficiencies in terms of high repetition rate, high dropout rate, low survival rate and low completion rate were higher among them. In addition, government schools form the bulk of primary schools i.e. 12,203 out of 18,079 and because government schools implement Universal Primary Education (UPE), high inefficiencies imply wastage of financial resources for both the government and households. The implementation of AP is therefore structured within the existing framework of the UPE program with the broad objective of addressing internal inefficiency and low quality challenges facing the government. In the context of Education for All (EFA) goals and Millennium Development Goals (MDGs), automatic promotion policy aligns itself with the goals aimed at expanding equitable access to primary education. Conversely, the policy lends itself to criticism when the discussion shifts to goals geared towards the enhancement of education quality and internal efficiency.

Automatic Promotion therefore is meant to help reduce grade repetition, reduce school dropouts, improve pedagogical duration and efficacy, hence improving learning outcomes. Improvements in internal efficiency and quality of education serve to alleviate congestion in the system and to save government and households funds. Under the UPE guidelines, the government pays for tuition fees for children enrolled in UPE primary schools, while parents/ guardians meet costs associated with scholastic materials for students and school feeding. When a child repeats a class, it means that both the government and household spend twice or more (depending on the number of times repeated) on that child.

Primary education in Uganda is divided into seven grades (seven years), but automatic promotion is implemented only from Grade 1 to Grade 6. Grade 7 students have to sit and pass a nationally administered post primary (lower secondary and TVET) entrance exam called Primary Leaving Examination (PLE). Failure to pass PLE means the student has to repeat G7. To Complement AP, remedial lessons/ classes are conducted during the course of the school term. The lessons are held early in the morning before normal classes begin and late in the evening

after normal classes have ended, targeting academically weak students. The implementation of remedial lessons is dependent on availability of funding for the additional instructional materials needed. Schools are allowed to charge students fees for remedial lessons, though this should be done after consulting and getting permission from respective School Management Committees (SMCs).

In reality, remedial lessons are not conducted due to lack of funds since parents are either unable to pay due to poverty or simply elect not to pay citing government as paying all the fees under the Universal Primary Education (UPE) program. Selective repetition is allowed, especially if a student for whatever reason (illness, domestic chores, household problems etc) has missed up to approximately 70% of classes in the course of an academic year. However, some parents insist on their children repeating classes, if and when they are not satisfied with their children's performance in grade promotion exams (end of year exams).

As already alluded to above, the adoption and subsequent implementation of AP came on the back of high internal inefficiency prevailing within the primary education sub-sector, coupled with low quality of education. Internal inefficiency manifested itself through high repetition and dropout rates, while low quality of education was reflected by the low academic achievements at all grades, characterized by disparities along gender and rural-urban dimensions. By 2010 literacy and numeracy at P3 were respectively 57% and 72% (Figures 1.5 and 1.6), and at P6 literacy and numeracy were 50% and 55% respectively (Figures 1.7 and 1.8). Female students and students in rural schools still perform approximately 5% and 10% less than their respective counter parts (EMIS 2010). Repetition has significant reduced albeit still (12%) high compared regionally and internationally (EMIS 2010). Dropout rate likewise registered a decrease if only slightly. EMIS data 2010 shows dropout rate still approximately 37%, with male and female students dropping out at relative equal rates (Figure 1.3). Rural-urban dropout rates exhibit alarmingly high disparity, with the rate for rural areas recorded at 49% and that of urban areas recorded at 25% (Figure 1.4). As already mentioned above, the lack of a clear and effective

system of measuring and tracking student dropout means that this rate varies significantly from one institution/ organization to the next.

1.2 Problem Statement

The adoption of the policy has given rise to an engaging debate amongst education stakeholders in Uganda along the lines of those in favor and those opposed to it. The debate is reflected in the print and electronic media of the country. Suffice to clarify that the policy is supported by the Ministry of Education, Science, Technology and Sports (MoESTS) and the international education development partners operating in the country (donors). On the contrary, the opponents of the policy comprise parents, school administrators, district education officials (DEOs), private education providers, and Non-Government Organizations (NGO). The arguments for and against AP in Uganda are similar to those held in developed and developing countries that have experience with it (contrasting it with grade retention).

The proponents of the automatic promotion policy (in Uganda) as a better alternative to grade retention argue that the determinants of achievements are not totally academic and that the desirable educational outcomes are not only cognitive. They further argued that repetition does not improve the achievement of the low-achiever, nor does it reduce the range abilities, since each grade will carry the retained into the next year as a source of a difference in ability (MoESTS, 2005). Moreover, grade retention is devastating to the student's adjustment and self-esteem, while promotion provides a better treatment for the total development of the child in cognitive and non-cognitive terms (see also Ndaruhutse, 2008 and Holmes, 1989). By contrast the opponents of the policy say that it destroys incentive to learn and teach. In particular it is viewed as a de-motivator for the teachers who feel like their teaching efforts are being undermined. The opponents further state that the practice promotes laziness among learners since they are assured of progression to the next grade irrespective of whether they have met the minimum pass mark or not (see Ogawa and Nishimura, 2009). The opposition towards AP is particularly motivated by the inefficiencies and low quality of education still prevailing in the

primary education sub-sector. They also point to the fact that no prior sensitization and/or awareness creation was conducted among the various stakeholders on the merits and demerits of automatic promotion policy before its subsequent implementation.

Unfortunately, the debate is unfolding without either side presenting any evidence to support their respective claims/arguments. The MoESTS and its development partners for example base their arguments on experiences from other countries that have adopted and implemented the policy. The arguments by opponents' on the other hand are utmost hunch driven. Instead they attribute low learning outcomes to the implementation of automatic promotion, despite the noteworthy improvements in dropout rates and learning achievements shown under the background information section. Functional School Management Committees (SMCs) and hardworking primary education administrators at the district/ local government level, according to the opponents are the reason why the rate at which students are dropping out has decreased. It is against the above inconclusive discourse, coupled with the lack of evidence from either side that this study sought to conduct an empirical investigation of causal relationship first between the practice of automatic promotion and pupils' dropout rate and secondly between automatic promotion and pupils' learning achievements in Uganda's Primary Education.

This research work is therefore motivated by the need to fill the information gap regarding the impact of automatic promotion, thus contributing to the national discussion about it in the context of Uganda's primary education sub-sector. Moreover, to my knowledge no study has so been conducted to assess the impact of the policy in Uganda. The analysis is extended to highlight the incidence of the treatment effect along students' gender and school location (rural or urban). Investigation of the incidence of the treatment effect is justified on account of providing an insight into the success and failures points in the implementation process so far. Further to this, knowledge of incidence is crucial for future implementation in the event of reforming the policy or its complementary policies.

1.3 Research Questions

The overall research question that guided this study was; what is the effect of automatic promotion on students' dropout rate and learning achievements in Uganda's primary education? However, in order to gain a better understanding and appreciation of the impact arising from the implementation of the policy, the broad research question was broken in to two research questions. The first research question was targeted at ascertaining the relationship between automatic promotion practice and students' dropout rate. The second research question was aimed at capturing the effect of implementing automatic promotion policy on students' learning achievements. The two research questions were each broken in to two sub-research questions with the aim of highlighting effect incidence based on two dimensions - gender of the students and school location (rural & urban). Specifically, the study sought to respond to the following research questions and the subsequent sub-research questions.

Research Question 1: What is the impact of the automatic promotion practice on the rate at which students are dropping out of Uganda's Primary Education?

1.1 What is the effect of the automatic promotion practice on students' dropout rate in rural primary schools relative to those in urban schools?

1.2 What is the effect of automatic promotion practice on the rate at which male students are dropping out relative to female students?

Research Question 2: What is the impact of automatic promotion practice on students' learning achievements in Uganda's Primary Education?

2.1 What is the effect of automatic promotion practice on learning achievements of students in rural areas compared to students in urban settings?

2.2 What is the effect of the automatic promotion practice on learning achievements of male students compared to that on female students'?

The above research questions are justified on account of highlighting the effectiveness of the policy (a requirement in the field of policy impact evaluation) in terms of enhancing equity in internal efficiency and learning outcomes at the primary level of education. In other words, the questions highlight where the policy impact is most felt and why it is either working or not. This line of analysis was adopted with full knowledge of the fact that AP operates in complement with other factors that contribute to better teaching and learning outcomes (see also Ndaruhutse, 2008 and Roderick & Nagaoka, 2005). Some of these factors are gender specific, others are rural-urban specific and some overlap between the two components. This line of analysis is relevant from the point of view of Uganda's primary education, given that the policy was adopted to ensure both male and female students stay in school and learn, whether in rural or urban settings. By highlighting the incidence of the effect in the context of Uganda the study helps draw attention from the currently narrow narrative that equates learning achievements and dropout as a function of only automatic promotion, to a broader and deeper understanding of the status of teaching and learning at primary level

Moreover, prior analyses of equity in learning outcomes in both developed and developing countries by international agencies are mainly based on gender and rural-urban dimensions. For instance, UNESCO's Global Monitoring Reports (GMRs 2011 & 2014), the World Bank's World Development Report (WDR, 2012) and the World Bank's education development strategy – "Learning For All (LFA 2020)" all discuss extensively equity in internal efficiency and learning outcomes based on gender and rural-urban aspects, with specific reference to developing countries. These documents call on education development stakeholders (national and international) to ensure that education investments in developing countries such as Uganda promote actual learning efficiently, hence leading to the acquisition of knowledge and skills required to promote sustainable and equitable socio-economic development.

1.4 Objectives of the Study

The broad objective of this study was to examine what effect the adoption and implementation of automatic promotion in Uganda's primary education sub-sector has had on education efficiency, represented by student dropout rate and quality, represented by student learning achievements. However, over and above estimating the true effect of implementing automatic promotion, the study assessed its incidence along two dimensions namely; students' gender and location of the schools (rural or urban). Consequently, the above broad objective was divided into two objectives and these are; 1) to examine the effect of automatic promotion practice on students' dropout rate and; 2) to examine the effect of automatic promotion practice on students' learning achievements. To estimate the incidence of the effect along the two dimensions, the two objectives were each decomposed further into two sub-objectives each, as illustrated below.

Objective 1: Examine the effect of automatic promotion policy on the rate at which students' dropout of Uganda's Primary Education.

1.1 Investigate the effect of automatic promotion practice on the rate at which students in rural schools are dropping out relative to students in urban schools.

1.2 Evaluate the effect of automatic promotion practice on the rate at which male students are dropping out of primary schooling relative to their female counter parts.

Objective 2: Examine the effect of automatic promotion policy on students' learning achievements in Uganda's Primary Education.

2.1 Assess the effect of automatic promotion practice on learning achievements of students in rural areas compared to students in urban areas.

2.2 Estimate the effect of automatic promotion practice on learning achievements of male students in comparison with that of female students'.

1.5 Significance of the Study

The significance of this study rests on the fact that previous studies on efficiency and quality of education in Uganda have either made no reference to the policy or have simply reported it as potentially leading to low education quality, without showing any evidence. For instance Ogawa et al. (2011) used qualitative method to research about Universal Primary Education Policy and Quality of Education in Sub-Saharan Africa: The Case Study of Soroti and Kabale Districts in Uganda, but don't mention automatic promotion policy or practice. Byamugisha (2010) used Ordinary Least Squares (OLS) – Multiple Regression to examine the Effects of School Environment Factors on Pupil's Learning Achievement in Uganda Primary Schools, but makes no reference to automatic promotion policy or its effect.

Further to the above, Nannyonjo (2007) adopted mixed methods in her study tiled; "Education Inputs in Uganda: An Analysis of Factors Influencing Learning Achievements in Grade Six." She recommended that enrolling children at the appropriate age and promoting them each year (under the automatic promotion framework) would be a good policy measure for Uganda, and it would also be cost free. Tamusuza (2011) employed discrete-time Cox regression model using SAS's PHREG procedure in a study titled; "Leaving School Early: The quest for Universal Primary Education in Uganda." Findings and recommendations do not mention or refer to the policy on automatic promotion. Kasirye (2009) employed a production function to analyze determinants of learning achievement (Grade 6) in Uganda. He simply stated that despite the existence of automatic promotion, some primary school administrators force pupils to repeat grades as means of improving school performance. Similarly, Muvawala (2012) did not extend his analysis to cover automatic promotion policy when he employed Generalized Method of Moments (GMM) in his study titled; "determinants of learning outcomes for primary education: A case of Uganda."

On the international scene, Chohan and Qadir (2011) used qualitative approach to assess the relationship between automatic promotion policy at primary level and MDG-2 in Pakistan. Taye (2003) studied about automatic promotion practices in the First-Cycle of primary schools in

west Gojjam Zone in Ethiopia using qualitative approach. Findings and recommendations from Pakistan and Ethiopia are based on opinions and views of only primary school teachers they interviewed and as such not corroborate by alternative views or empirical evidence. Fokeng (2006) conducted a study in Cameroon, to explore strategies of reducing repetition in primary schools, using qualitative method. He noted automatic promotion as being most successful in reducing repetition in the first cycle followed by the third and lastly by the second cycle. Koppensteiner (2014) examined the effect of automatic grade promotion on 4th grade students' performance in Brazil, using a difference in differences approach. However, his analysis did not assess effect incidence along gender and school location dimensions.

From the above illustration, it is clear that there is an information gap regarding automatic promotion policy and its impact on internal efficiency and quality of education in Uganda's primary sub-sector. This study therefore fills that information gap by adopting quantitative method, thus providing empirical evidence regarding the effect of the policy on education efficiency and quality. In addition, over and above estimating the overall treatment effect of the policy, I extend the analysis to capture its incidence along gender and school location (rural or urban). This is important because it highlights the effectiveness of the policy in enhancing equity in internal efficiency and learning outcomes.

1.6 Organization of the Study

The rest of the dissertation is arranged as follows; Chapter two presents the overview of Uganda's education system, highlighting some of the key policy initiative and practices in primary education in Uganda. It gives a background to formal education in Uganda, the evolution of education policy in the country, the education legal framework and the structure of Uganda's education system. In addition, the chapter highlights UPE program, as well as the achievements registered and challenges encountered as a result of adopting UPE.

Chapter three provides a review of both theoretical and empirical literature regarding automatic promotion policy or grade retention/ repetition, and the effect on students' continued enrolment on one

hand and the effect on students' cognitive learning achievements on the other. The chapter captures both sides of the argument in as far as the effect of the automatic promotion is concerned. The fourth chapter illustrates the methodology employed, with specific reference to the human capital development theory, the conceptual framework, the hypotheses that drove the study and analysis technique/ model (difference – in –differences model) structured both in linear and non-linear frameworks. The data used during the investigation, including the descriptive statistics, variable names and data source from which it was obtained are likewise covered. Chapter five presents the results and their interpretations as per research questions. The findings from the policy impact evaluation are organized in such a way that the first section portrays the effect of automatic promotion on the probability of students dropping out, which is further sub-divided to capture effect incidence along school location (rural or urban) and gender. The second section shows the effect of automatic promotion on students' cognitive learning achievements, likewise sub-divided along school location and gender. The sixth and final chapter contains the discussion, study limitations and conclusion. The discussion is constructed on the basis of the research questions, objectives, relevant literature and hypotheses. The limitations of the study and conclusion are presented bearing in mind the relevant literature, the method used, the hypotheses and the regression results.

1.7 Summary of Chapter One

This chapter forms the introduction of the study and it comprised on six sub-sections. The first section is the background, wherein the main concepts of the study (automatic promotion policy, dropout rate and student learning achievements/ outcomes) were introduced and explained in detailed. These concepts were explained from the global (international) and Ugandan local (national) contexts. Section two illustrated the problem statement/ rationale in the context of Uganda's primary education that necessitated that the study be conducted. The problem statement is structured along the three concepts highlighted above i.e. automatic promotion, student dropout rate and learning achievements.

The third section of the chapter presented the research questions that study sought to respond to. There were two main research questions, and each has two sub-research questions corresponding to the two dimensions upon which the incidence of the policy impact was assessed for purposes of demonstrating the effectiveness of the policy to enhance primary education efficiency and quality in Uganda in an equitable manner. Section four portrayed the two main objectives and four sub-objectives that the study undertook to achieve. The objectives were constructed consistent with the research questions presented in section three.

Section five forms the significance and/ or justification of the study from the international perspective and national (Ugandan) perspective. The relevance of the study was demonstrated by way of showing findings by other scholars (national and international) regarding the relationship between automatic promotion or grade retention and students' dropout rate (internal efficiency) and learning achievements (quality). The sixth and final section brief shows how the whole study is organized beginning with chapter one through to chapter six.

CHAPTER TWO:

OVERVIEW OF UGANDA'S EDUCATION SYSTEM

2.1 Introduction

This chapter contains an overview of Uganda's education system, highlighting mainly the background to formal education in country, the evolution of education policy, the legal framework upon which education provided and developed, and the structure of the current education in Uganda. There is a detailed discussion of the assessment and promotion requirements under primary education sub-sector. The discussion then zeros on primary education, being the main focus of this study, highlighting Universal Primary Education (UPE) Program as underpinning the design and implementation of other policy initiatives within the sub-sector. Some of the key achievements registered and challenges encountered under UPE are discussed along four thematic areas – primary education finance, equitable access to education, quality of education and efficiency in the sub-sector.

2.2 Background to Uganda's Formal Education System

Formal education was first initiated by voluntary Missionary Organizations in Uganda during the colonial period around the 1880s. It was not until 1925 that the Government started playing an active role of exercising control over education, which was expanded rapidly during the 1950s and 1960s. In the 1920s and 1930s, education was available to only a small group of people mainly children of the aristocracy, clergy and tribal chiefs. Since 1963, education policy in Uganda was mainly guided by the Castle Commission report up to the inception of the 1992 Government White Paper. However, between 1971 and 1985, Uganda's education system was severely disrupted. Prior to the introduction of Universal Primary Education (UPE), the status of the primary education sub-sector in Uganda was extremely poor.

Budgetary allocations to the education sector declined from 3.4 percent to 1.4 percent of GDP between 1971 and 1985 and almost all (80%) of the burden of financing education were borne

by parents (Mehrotra and Delamonica 1998). Physical infrastructure had deteriorated or was completely destroyed and the teachers' take-home pay had fallen far below the minimum living wage. In addition, there were glaring regional and gender disparities in the distribution of basic educational opportunities. Above all, the management and planning of education service was inadequate at all levels and the curriculum and related assessment system were obsolete. Still, the gross enrolment ratio for children between six and twelve years old was 69 percent in 1990. Cohort survival rates were very low, especially for girls. Approximately 40 percent of primary teachers were untrained and even those who were recognized as trained, lacked basic skills. The physical school infrastructure was in a state of disrepair and there was an acute shortage of instructional material.

The adoption of formal education in Uganda was characterized by disparities in the distribution of facilities for female students, which are best seen between urban and rural areas. This is partly because the first schools set up by the government for the children of administrators and chiefs were around urban areas. In addition, the geographically poorer areas in terms of soils and climate tend to have fewer schools than the relatively richer areas. Other factors behind this disparity include historical ones such as the presence and influence of missionaries, and cultural factors and the fact that starting schools depended on the community's initiative. The education of girls and women lagged behind that of boys and men in Uganda. For instance, female students constituted 35 percent of those enrolled in tertiary institutions. The obstacles to gender parity are embedded in the cultural norms and practices valued by the patriarchal arrangements of society through which the policy and implementers have been modeled. The government of Uganda recognizes the problem of gender disparities in education and has thus taken positive steps to bridge the gender gap.

By the early 1980s and 1990s, emphasis on educational policy was in general focused on recovery and rehabilitation of educational facilities and manpower to restore functional capacity. The socio-economic and political turmoil of the 1970s and 1980s meant that physical infrastructure had deteriorated with nearly twenty years of civil strife. A large percentage of the primary classes met in temporary structures; permanent structures had received little or

maintenance for nearly two decades. Text books, instructional materials were almost nonexistent in most schools, making teaching and learning extremely difficult. The few remaining teachers who did not flee the country during repression were underpaid, under trained and demoralized.

2.3 The Evolution of Education Policy

The Government involvement in formal education began in the colonial period following a report in 1922 by the Phelps-Stokes Fund. Prior to that report formal education was entirely in the hands of missionary organizations. The first commission was the de Bunsen Committee appointed in 1952, which recommended among other things: (a) the expansion of secondary education in order to provide teachers for primary and junior secondary school; (b) the expansion of facilities, both primary and secondary, for girls; and (c) the establishment of new primary schools. The major and limited functions that these recommendations were apparently meant to serve were to provide a Ugandan cadre for the local colonial civil service especially at the lower levels.

However, the commission served to construct a good foundation for an education system that was possible to build on the later and withstand difficult political and economic conditions. The next commission was the Castle Commission appointed in 1963, less than a year after independence. The demand was for high-level human power to take over the running and management of both the public and private sectors. Although the need for expanding primary education was recognized, it was felt that there were not enough resources for both primary-level and higher levels. A large proportion of the education budget then went to post-primary institutions. The practice of more resources going to post-primary institutions continued for more two decades. That situation persisted despite two attempts to promote universal primary education through the Third Five year Development Plan (1972-1976) and the Education Policy Review of 1977. The major constraint of achieving universal primary education was the negative political climate closely coupled with poor economic growth that characterized that period.

In 1986, the post-conflict NRM government dealt with the education situation by appointing an education commission. It is this method of appointing commissions that has been utilized to spearhead the process of formulating major education policy changes. One of the main commissions instituted was the commission of inquiry called Education Policy Review Commission (EPRC), which was appointed in 1987 under the chairmanship of Professor Setenza Kajubi. A major recommendation made by this commission was the adoption of Universal Primary Education (UPE) in the near future, but not later than 2000. The recommendation to universalize primary education was double edged, first as a response to the real need for primary education in the country and second a fulfillment of the commitment to Education For All (EFA) made by the Uganda during the 1990 International Education Conference held in Jomitien, Thailand. The commission defended its position thus: "Only when every child is enrolled at the right age and does not leave school without completing the full cycle of primary education it would be possible to ensure that all citizens have the basic education needed for living a full live. Also it will help in achieving a transformation of society leading to greater unity among the people, higher moral standards and an accelerated growth of economy."

Following the Education Policy Review Commission (EPRC) report, published in 1989, the Government appointed a White Paper Committee. The outcomes of this committee culminated into the Government White Paper on Education (GWPE), which was published in 1992. The GWPE is the mother piece of all other official policies, plans and programs that exist in education system today. It articulates the purposes of Uganda's education and continues to be the supreme guide for the entire education sector. The White Paper contains major recommendations of EPRC regarding education reform (including primary education). Preparations for UPE began soon after including training of teachers and head teachers and the supply of scholastic materials. Most of these reforms began in 1993 under the umbrella of the Primary Education and Teacher Development (PETD) Project.

2.4 Education Legal Framework

Uganda's Constitution of 1995 In Article 30 asserts that "all persons have a right to education" and makes the following three pronouncements under the education sector; (i) The State shall promote free and compulsory basic education. (ii) The State shall take appropriate measures to afford every citizen equal opportunity to attain the highest educational standard possible. (iii) Individuals, religious bodies and other nongovernmental organizations shall be free to found and operate educational institutions if they comply with the general educational policy of the country and maintain national standards. The Ministry of Education, Science, Technology and Sports (MoESTS) has the national mandate of providing quality education and sports services in the country, which are constitutional obligations for the Ugandan State and Government. This mandate is thus represented in the mission statement of the MoESTS, which is "to provide technical support, guide, coordinate, regulate and promote quality education, training and sports to all persons in Uganda for national integration, development and individual advancement." The MoESTS vision is "Quality and appropriate Education and Sports services, for all" (MoESTS 2014).

Within the education sector, education and training in is governed by the Education Act 2008 and other related Acts of Parliament, including University Act, Tertiary institutions Act various other Acts and Charters for universities. The government has addressed the challenges facing the education sector through commissions, committees and Taskforces. The Education Act of 2008 is part and parcel of the legal framework guiding and regulating the provision of education, especially pre-primary, primary and post-primary education. The Act was enacted for purposes of amending, consolidating and streamlining the earlier existing law relating to the development and regulation of education and training, to repeal the Education Act and to provide for other related matters. Part I Section 1 of the Education Act 2008, has the following as the Act's objectives:

(a) to give full effect to education policy of Government and functions and services by Government; *(b)* to give full effect to the decentralization of education services; *(c)* to give full effect to the Universal Primary Education Policy of Government; *(d)* to give full effect to the Universal Post Primary Education and Training Policy of Government; *(e)* to promote partnership with the various stakeholders in providing education services; *(f)* to promote quality control of education and training; and, *(g)* to promote physical education and sports in schools.

2.5 Structure of Uganda's Education System

The present structure of formal education system operational in Uganda has been in existence since the early 1960s (see Figure 2.1). There are five levels of formal education starting from: (i) Pre-primary Education, (ii) Primary Education, (iii) Secondary, (iv) Business, Technical, Vocational, Education and Training (BTVET), and (v) University or Tertiary Education. The education system has a 7-4-2-5 tier; indicating 7 years of primary education, 4 years of lower secondary education, 2 years of upper secondary and utmost 5 years of tertiary education (see Figure 9). The system starts with seven (7) years of Primary Education (currently compulsory under the Universal Primary Education Program). Successful completion of primary education qualifies a student to be awarded a certificate titled Primary Leaving Examination (PLE). Primary graduates have two options depending on the level of performance at PLE– either enrolling in to lower secondary/ Ordinary Level (O'Level) for four (4) years or enroll in to one of the following; Technical Schools, Farm Schools or Community Polytechnics for three (3) years.

Students who complete O'Level each receive a Ugandan Certificate of Education (UCE) and can enroll in to any of the following; upper secondary/ Advanced Level (A'Level), Technical/ Vocational Institute, Primary Teachers' College and Heath Training Institute for two (2) years each. Upon completion each student receives a Ugandan Advanced Certificate of Education (UACE), a Craft I & II Advanced Certificate, a Grade III Teaching Certificate and Certificate of Basic Health for each level respectively.

Graduates from Technical Schools, Farm Schools and Community Polytechnics are each a warded Certificates in their respective areas/ fields of study. In terms of academic progression, the pupils have the options of joining one of the following; upper secondary/ Advanced Level (A'Level), Technical/ Vocational Institute, Primary Teachers' College and Heath Training Institute for two (2) years each and receiving the merited certifications for each of the levels.

Upon completing A'Level (Upper Secondary), one of the options of progress for pupils is directly to university to study for bachelor's degrees for 3 – 5 years depending on course choice. The other option is to enroll in to one of the many specialized institutions of higher learning including but not limited to; National Teachers' Colleges, Technical Colleges, Colleges of commerce, Cooperative Colleges, Wild Life Training Institutes, Meteorological Institutes, Land and Survey Institutes, Health Training Institutes, Hotel and Tourism Institutes and Agriculture, Veterinary, Fisheries and Forestry Colleges. Graduating from any of these institutions leads to the award of diplomas in respective areas of study. Pupils graduating from the above referred specialized institutions of higher learning can proceed to university to study for bachelor's degrees in their respective fields of study for a period of 3 to 5 years.

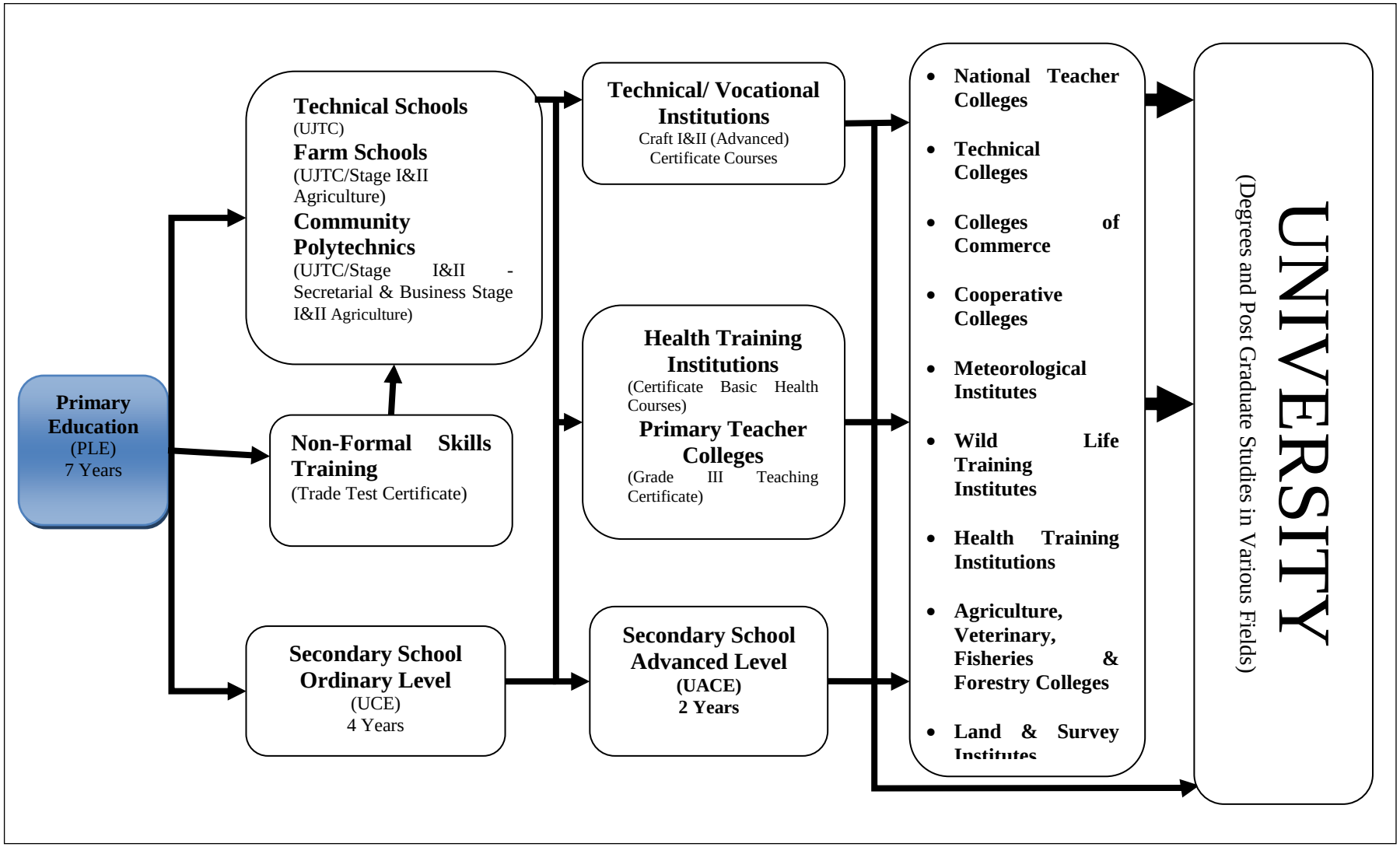
2.6 Assessment and Promotion Requirements under Primary Education in Uganda

Students are taught and assessed based on four examinable subjects (English, Mathematics, Science and Social Studies). The assessment is conducted internally within individual schools and nationally by the Ministry of Education, Science, Technology and Sports (MoESTS). While internally administered examinations are conducted twice during the school term (Mid-Term and End of Term), national exams are conducted once at the end of the year. Internal exams are conducted to assess progress in learning achievements and for promotion to the next class/ grade. National exams (PLE) are administered to determine transition from primary education to post primary (lower secondary and TVET). Uganda operates automatic promotion only in government primary schools, meaning that merit based academic promotion system is administered in private primary schools and in all other levels of education.

The four examinable subjects are marked out of one hundred (100) percentage points, which are then graded according to the nationally established points awarding system. The current points awarding system has been in operation since the colonial era and it is comprised of four mutually exclusive categories titled distinction, credit, pass and fail. Distinction carries 1 or 2 points per subject, credit carries a score range of 3 – 6 points per subject, pass carries 7 or 8 points per subject and fail carries 9 points per subject. A student is said to have excelled in a particular subject if he/ she scores a distinction one (D1) and conversely, a student is deemed to have failed a subject if she/ he scores fail nine (F9).

The best aggregate score attainable is 4 for the four examinable subjects (i.e. D1 for each subject) and the worst score is 36 for the four examinable subjects (i.e. F9 for each subject). Aggregate scores are further subject to an established grading system, which essentially is meant to enable the examiners group students according to performance level and to facilitate selection into lower secondary. There are six divisions under this grading system (i.e. Division 1, Division 2, Division 3, Division 4, Division U and Division X). Division 1 relates to a performance with total aggregate score of 4 to 12; Division 2 aggregate score of 13-20; Division 3 aggregate score of 21-28; Division 4 aggregate score of 29-36. The un-graded category of students (Division U) represents those who failed both mathematics and English. The last and final division (Division X) reflects registered candidates who do not appear/ sit for the examinations.

Figure 2.1: Structure of Uganda's Education System



Source: created by Author based on Ministry of Education, Science, Technology and Sports, Uganda (2012)

2.7 Primary Education

Primary education in Uganda is comprised of seven years of schooling, which upon completion leads to the awarding of a Primary Leaving Examination (PLE) certificate. Primary school graduates transit into either lower secondary (popularly known as Ordinary Level (O'Level) and lasts for four years) or technical schools, depending on the grade scored. Graduates with high pass grades enroll into lower secondary, while those with lower pass grades enroll into technical schools. The Government of Uganda adopted decentralization reform in 1992, which represented an example of full-fledged devolution of power and transfer of far-reaching responsibilities to local governments. The broader decentralization process was and continues to be guided by the 1997 Local Government Act. Education was listed as one of the major public functions for which the highest level in the local hierarchy, the District council, was to be directly responsible (Local Government Act, 1997, Article 176 (2) of the Constitution, Section 97 & 98). In the Act the levels of education that were to be decentralized were listed as nursery, elementary, secondary, trade education, special education and technical education. However, to date only pre-primary and primary levels of education have been decentralized (Steiner, 2006).

The decision to decentralize education was arrived at after comprehensive consultations between the government and its development partners such the World Bank and International Monetary Fund (IMF). The overall objective was to improve on the provision and development of education in the country by: (a) eliminating what it saw as unnecessary bureaucratic channels; (b) reducing corruption by minimizing the number of office levels to be consulted; (c) boosting the level of monitoring since there would be physical proximity of local governments; (d) fostering the management of the education system according to local priorities; (e) improving financial accountability since local people and personnel would be motivated to monitor local governance; and (f) raising local revenue to fund services (Namukasa and Buye, 2007). The main policy initiative under this sub-sector is Universal Primary Education (UPE).

2.7.1 Universal Primary Education (UPE) Program

The UPE policy is conceived within the broad national education development agenda and strives to achieve the following objectives: i) making basic education accessible to the learners and relevant to their needs as well as meeting national goals; ii) making education equitable in order to eliminate disparities and inequalities; iii) establishing, providing and maintaining quality education as the basis for promoting the necessary human resource development; iv) initiating a fundamental positive transformation of society in the social, economic and political fields; and v) ensuring that education is affordable by the majority of Ugandans by providing, initially, the minimum necessary facilities and resources, and progressively the optimal facilities, to enable every child to enter and remain in school until they complete the primary education cycle (Ekaju, 2011 and Eilor, 2008). In order to supplement UPE program, several policy initiatives were designed and implemented including the following policy: (a) Education Sector Strategic Investment Plan (ESSIP); (b) Teacher Development and Management System (TDMS); (c) Instructional Materials Unit (IMU); (d) Assessment Reform including carrying out a National Assessment of Progress in Education; (e) School Facilities Grants (SFG); and (f) Improving Educational Quality (IEQ) research project.

Under UPE, the government meets the following obligations: pay tuition fees for all school age going children; procure and distribute instructional materials in the form of text books; construct basic physical facilities in form of classrooms, laboratories, libraries and teachers' houses; and recruit, train and deploy teachers as well as pay their salaries. In addition, the Education Act 2008, Part III, Section 5 (1) states that the Government through its relevant agencies shall be responsible for the provision of learning and instructional materials structural development and teachers welfare; setting policy for all matters concerning education and training; setting and maintaining the national goals and broad aims of education; providing and controlling the national curriculum; evaluating academic standards through continuous assessment and national examinations; registering and licensing of teachers; recruiting, deployment and promotion of both teaching and non-teaching staff; determining the language

and medium of instruction; encouraging the development for a national language; ensuring equitable distribution of education institutions; regulating, establishing, and registering of Educational institutions; management, monitoring, supervising and disciplining of staff and students; ensuring supervision of performance in both public and schools; and development of management policies for all Government and Government aided schools and private schools.

Furthermore, Education Act 2008, Part III, Section 5 (2) clearly states that parents and guardians shall have the following responsibilities: registering their children of school going age at school; providing parental guidance and psychosocial welfare to their children; providing food, clothing, shelter, medical care and transport; promoting moral, spiritual and cultural growth of the children; participating in the promotion of discipline of their children; participating in community support to the school; and participating in the development and review of the curriculum. The responsibility of the foundation body as spelt out in the Education Act 2008, Part III, Section 5 (3) include: participating in ensuring proper management of schools of their foundation; ensuring the promotion of religious, cultural and moral values and attitudes in schools of their foundation; participating in policy formulation; participating in education advocacy; mobilization of resources for education purposes; participating in implementation, monitoring and evaluation of education and services; and participating in the designing, development, and implementation, monitoring and reviewing of the curriculum.

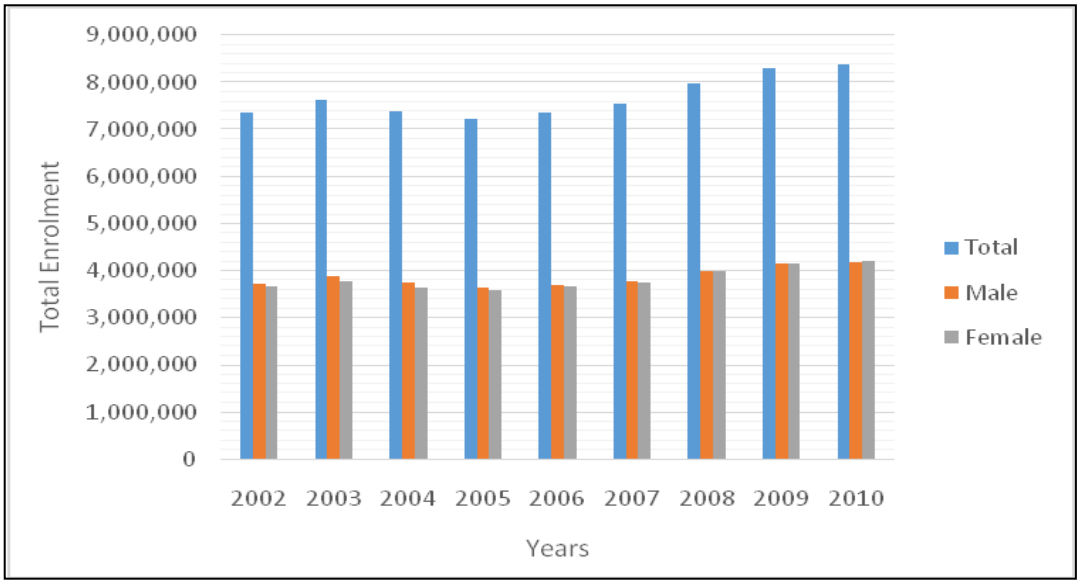
The adoption and implementation of UPE program has translated into significant progress and noteworthy challenges in the provision of primary education in the country. These achievements and challenges are assessed here forthwith according to the following three categories: equitable access to education, quality of education and internal efficiency of education.

(i) Equitable Access to primary education

The adoption of Universal Primary Education (UPE) program in 1997 had a two-fold objective – to provide education opportunity to the millions of school age going children who had hitherto

been marginalized and/ or excluded from the primary education cycle, and to conform to the Education for All (EFA) goals set and agreed upon during the 1990 Jomitien, Thailand Conference (Kagoda, 2012 and Nakabugo, 2008). While considering the marginalized/ excluded groups of school age going children, the government factored in children from rural and urban settings, children from poor backgrounds, disabled children, female children and children from minority ethnicities. Subsequently, the program translated into an instantaneous increase in school enrolment from about 2.7 pupils in 1996 to approximately 5.3 in 1997 (see Figure 1.1). By 2007 total enrolment had clocked an estimated 7.2 million, and by 2010 it was recorded to be around 8.4 million.

Figure 2.2: Total Enrolment and Gender Parity at Primary Level of Education



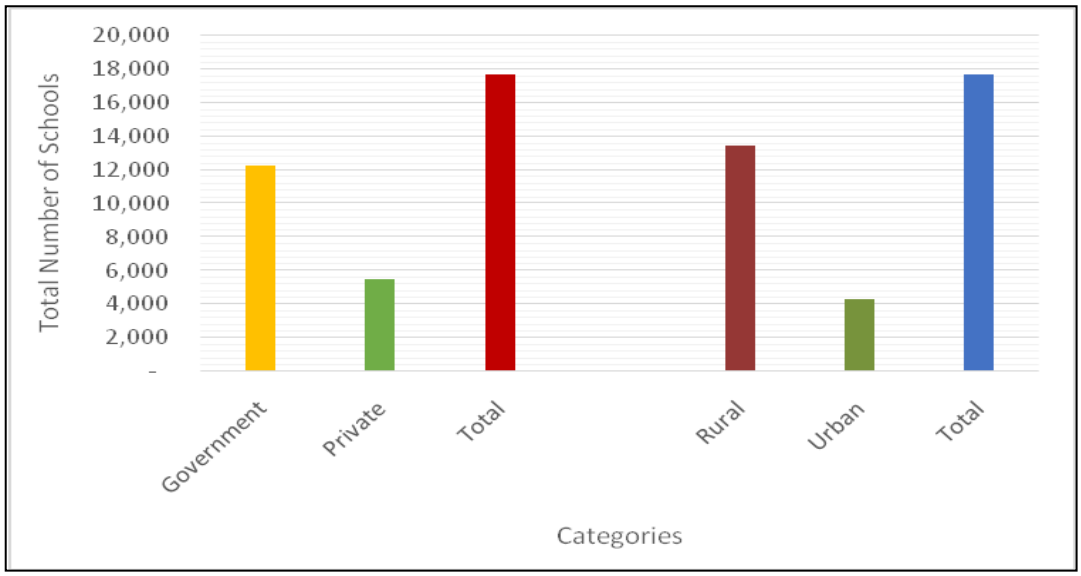
Source: Created by Author based on EMIS (2010)

Whilst equity in enrolment was achieved under different dimensions, one of the apparent and often most talked about dimension was gender. As illustrated in Figure 1.2 and Figure 2.2, the advent of UPE program was very instrumental not only in increasing enrolment into primary schooling, but also in reducing and eventually eliminating gender disparity. The gender

component captured in Figures 1.2 and 2.2 encapsulates groupings such as rural-urban, minority, special needs education (SNE) and low social economic status (the poor).

However, suffice to say that despite the overall positive national equity in access presented above, a closer examination of the enrolment figures indicates that there are still segments in Uganda's society that are not accessing primary education. This fact is supported by the Net Enrolment Rate (NER), which by 2010 stood at approximately 95%. This implies that Uganda is more likely than not to miss the MDGs and EFA goals target of 100% universal enrolment by 2015. According to the Global Monitoring Report (GMR, 2013), the reasons for children not accessing primary education vary, but are usually associated with disadvantages children are born with – poverty, gender, ethnicity, disability and living in rural or slum areas.

Figure 2.3: Total number of Primary Schools by Ownership and Location



Source: Created by Author based on EMIS (2010)

Figure 2.3 shows the number of primary and breakdown of primary schools in the country as of 2010. It is apparent that government is the principal provider and developer of education and that the largest proportion of school age going children is found in rural areas. Government/ public schools are approximately 69% of the total and private ones account for about 31% of the total.

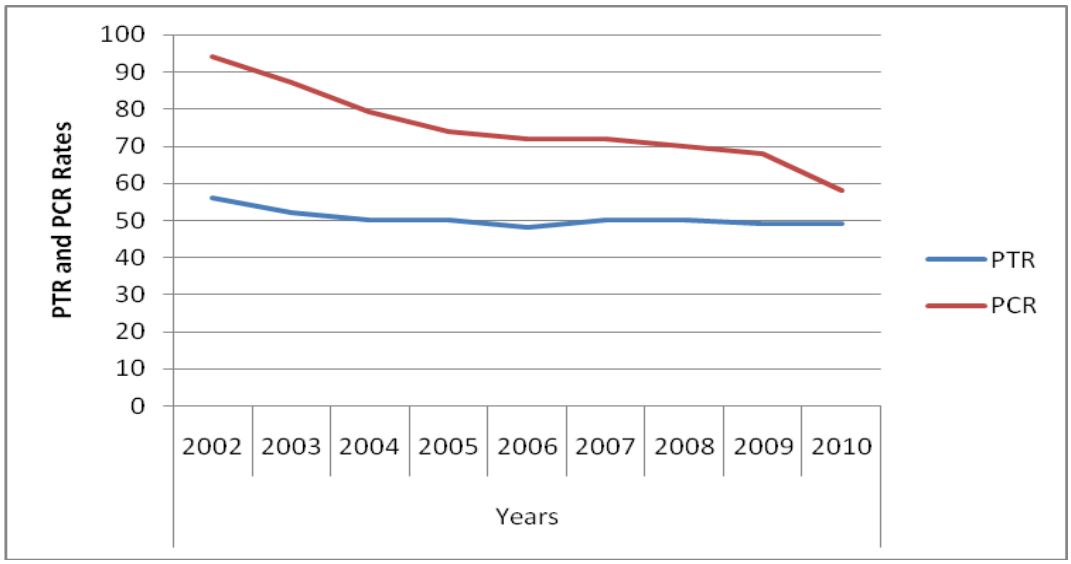
This wide imbalance forms a strong predictor of the level of private sector involvement in the provision and development of education.

Many scholars, including Patrinos et at., (2009) have argued that an active private sector complements and supplements the public sector in the process of maximizing the potential to expand equitable access to schooling and for improving education outcomes, especially for marginalized groups. Moreover, private schools tend to be highly concentrated in urban areas compared to rural areas, which for Uganda's case leaves the government with the monumental task of catering for the education needs of the estimated 80% of the population resident in rural areas. Further considerations reveal an unfair distribution of schools within rural areas, with some areas/ regions having very few schools, meaning that learner have to travel long distances to and from schools which in itself acts as a hindrance towards the achievement of equity in access to education (Tamusuza, 2011).

(ii) Quality of primary education

The introduction of UPE in 1997 inevitably translated into a sudden drop in education quality indicators, such as the pupil-teacher ratio, the pupil-classroom ratio, and pupil-textbook ratio. However, since 1997 Government has constructed more classrooms, trained and deployed more teachers, and bought more textbooks. This has led to a gradual improvement in those indicators. The pupil-teacher ratio, which gives an indication of contact between pupils and teachers in classrooms, improved slightly from about 56:1 in 2002 to 49:1 in 2010 in government primary schools. The pupil-classroom ratio, which indicates the degree of congestion in a classroom, improved considerably from about 94 pupils per classroom in 2002 to 58 pupils per classroom in 2010 (see Figure 2.4). Suffice to not that the PTR and PCR though improving, are still off the nationally set targets of 40:1 (EMIS, 2010). A High PTR and PCR suggest heavy work for teachers and significant congestion in primary school classrooms respectively.

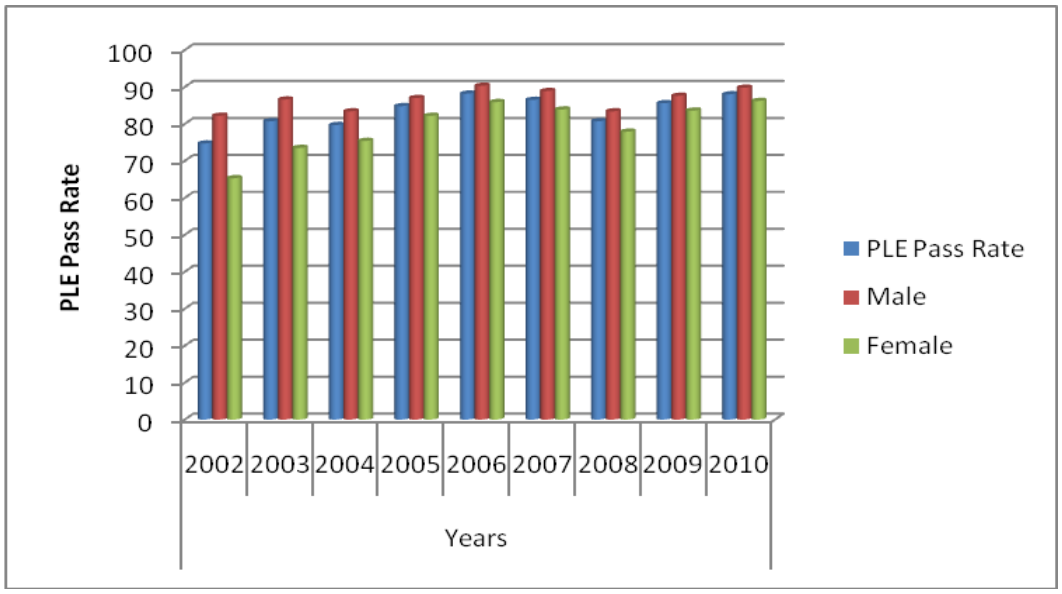
Figure 2.4: Trends of Pupil Teacher Ratio (PTR) and Pupil Classroom Ratio



Source: Created by Author based on EMIS (2010)

According to EMIS (2010), pupil-textbook ratio for the major subjects (English and Mathematics) has remained relatively stable at about 3:1 between 2002 and 2010, which is about the same as the pre-UPE ratio. Although the Government purchased a large number of textbooks as part of its UPE implementation strategy, access to the books is limited as they are often kept in stores due to headteachers' fear of loss and damage. The number of teachers on government payroll increased from 113,232 in 2010 to 124,851 in 2010, which indicates government's commitment to recruit, train and deploy quality teachers. Despite the increase in the number of trained teachers, there is still a considerable number of unqualified teachers in both government and private schools located in rural areas. Under the school facilities grants, the government has devoted a lot of resources to procure textbooks, construct classrooms and teachers' houses, and purchase furniture for pupils. There is a high rate of teacher attrition (approximately 4% per annum), which is mainly due to low teachers' welfare in the country. Teacher attrition coupled with a high population growth rate, work to keep Pupil Teacher Ratio (PTR) high.

Figure 2.5: Trend in Primary Leaving Examination (PLE) Pass Rate



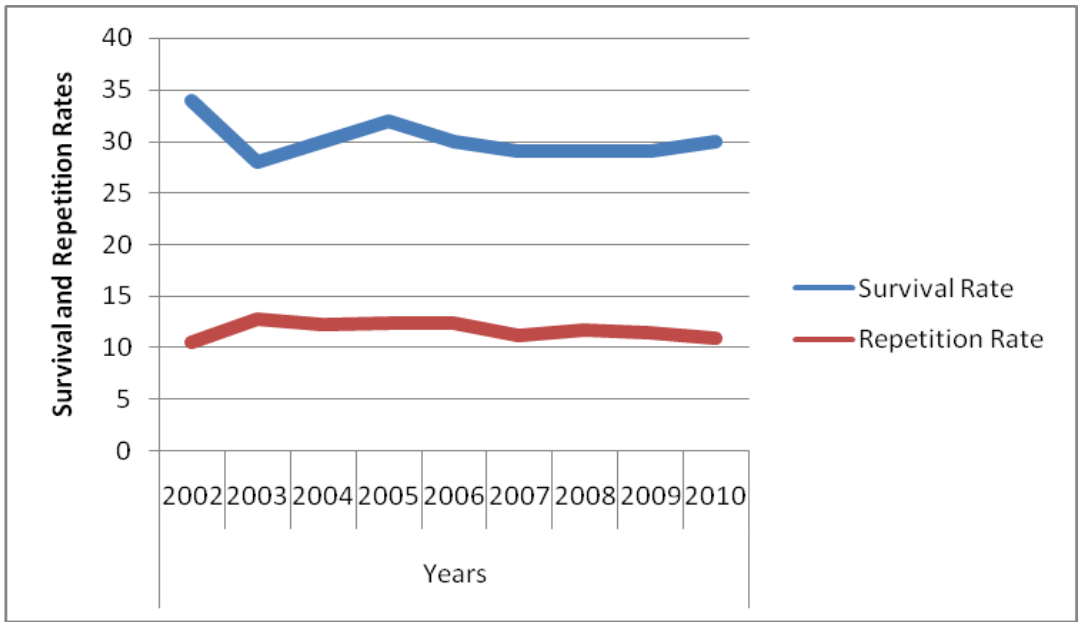
Source: Created by Author based on EMIS (2010)

Moreover, high teacher and student absenteeism rates (i.e. 20% for teacher), contrive to undermine the quality of primary education. The increase in education inputs explains the gradual improvement of some education quality indicators from the time UPE was introduced. Nevertheless, these improvements may not always translate into better education performance by pupils. Results from National Assessment of Primary Education (NAPE) between 2003 and 2010, for example, suggest that education performance in terms of pupils' numeric, reading, science, and social studies knowledge and skills deteriorated following the introduction of UPE (see also Figures 1.5, 1.6, 1.7 and 1.8). Primary Leaving Examination (PLE) pass rate as shown in Figure 2.5 has been relative high and stable during the years 2002 to 2010. However, PLE is often criticized for being merely a measure for determining who transitions to post-primary education (lower secondary and TVET), since the pass mark is variable, depending on the national performance average.

(iii) Internal efficiency of primary education

The implementation of UPE program turned out to be a double edged sword, since on one side it expanded equitable access yet on the other quality and efficiency of education worsened. Wastage of financial resources (through leakages), high teacher and pupil absenteeism as well as high dropout rates undermine are some of the obvious indicators of inefficiency and ineffectiveness of investments in the education sector. Figure 2.6 illustrates two of the often cited efficiency indicators, with survival rate to primary seven (P7) for the period 2002 to 2010 stable at a miserly rate of approximately 30%. Despite the adoption of automatic promotion in 2005, the repetition rate is still in double figures – approximately 11%. Survival rate is the proportion of pupils who enroll in the first grade or year who reach the final grade or year at the end of the required number of years of study, regardless of repetition. Repetition rate is the proportion of pupils from a cohort enrolled in a given grade at a given school-year who studies in the same grade/class in the following school-year.

Figure 2.6: Trends of Survival to P7 and Repetition Rates

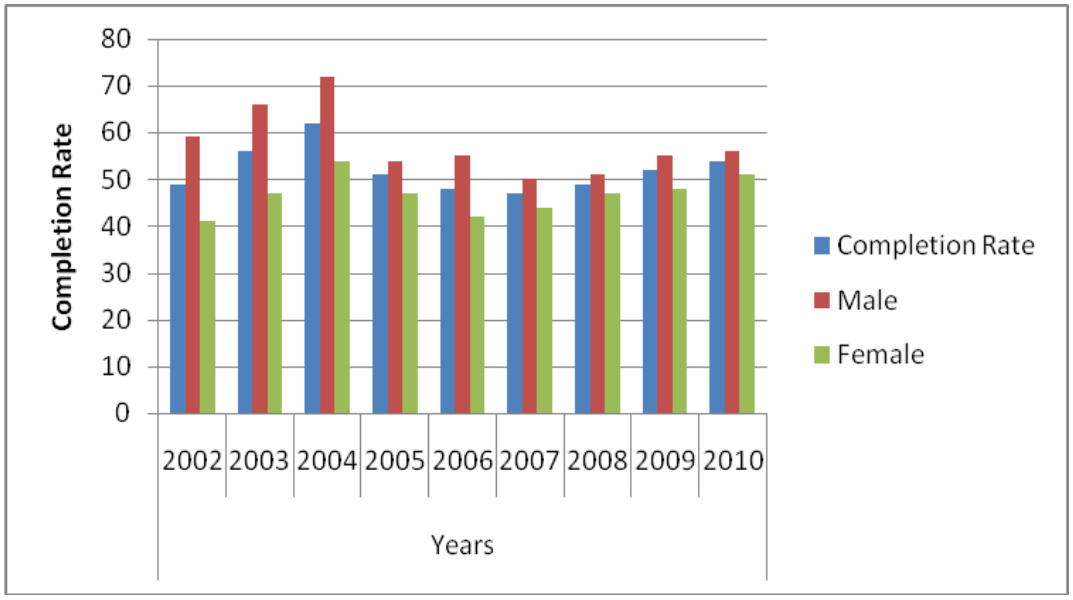


Source: Created by Author based on EMIS (2010)

Coupled with the low survival rate and high repletion rate, the estimated dropout rate as earlier shown in Figures 1.3 and 1.4 under Chapter 1, is high albeit a slight reduction between 2002 and 2010. According to UNESCO (2009) dropout rate is the proportion of pupils from a cohort enrolled in a given grade at a given school year who are no longer enrolled in the following school year. Lehr et al. (2004) argue that dropout rate is the proportion of the total number of full-time students no longer enrolled in a particular education level of education, say primary education. Learners dropout of school due to a number of reasons including; absenteeism of both teachers and students, early pregnancies, early marriages, lack of female teachers in schools to mention but a few.

Completion rate is the ratio of the total number of pupils who successfully complete (or graduate from) the last year of primary school in a given year to the total number of children of official graduation age in the population. The trend of completion rate by gender from 2002 to 2010 is portrayed in Figure 2.7, and the deduction is that this rate has averaged 50% over the same period.

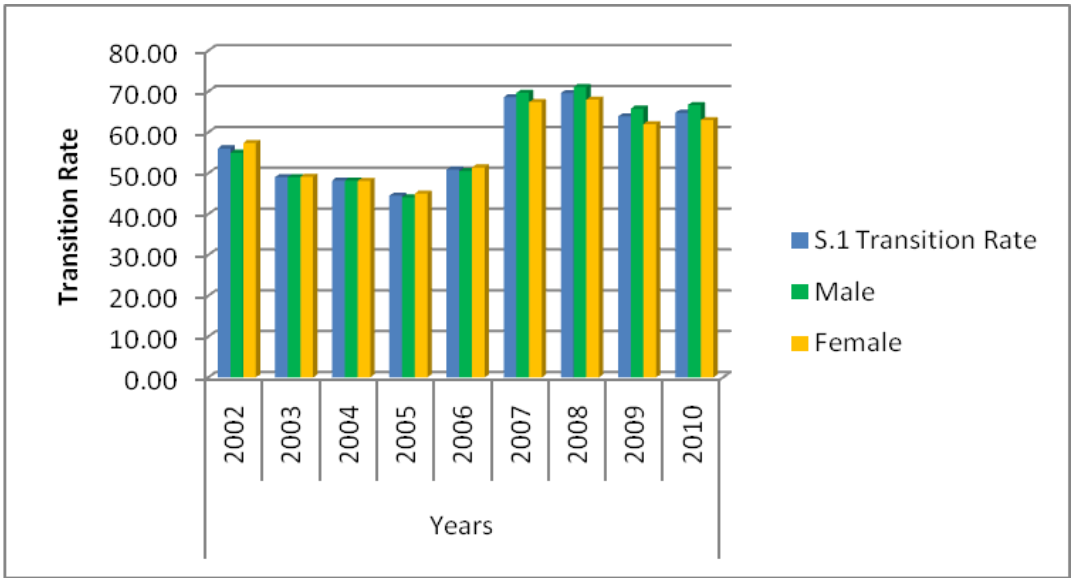
Figure 2.7: Trend in Completion Rate by Gender



Source: Created by Author based on EMIS (2010)

The low completion rate can be attributed to several factors including other efficiency indicators (repetition rate and dropout rate). In addition, absenteeism by teacher and students, lack of school feeding programs, lack of support from households and long distances between home and school. Transition rate is the proportion of pupils/students who progress from the final grade of primary to the first grade of the secondary level to the total number that completed the final grade of the level. Figure 2.8 shows an increase in the transition rate from about 55% in 2002 to 68% in 2008 before slightly declining 63% in 2010. Factoring in the gender component indicates a mixed pattern regarding female and male transition rates.

Figure 2.8: Trends in Transition Rate to Lower Secondary (S.1)



Source: Created by Author based on EMIS (2010)

Despite the improvements presented in Figure 2.8, the rate is still significantly below the 100% target. A number of factors are associated with the less than desired rate and these include; financing secondary education (is a great challenge to both governments and households), inequitable distribution of secondary school opportunities across different communities, perceptions of curricula inadequacies and low quality of education across many nations has

given rise to apathy, school disaffection, and antisocial behavior on the part of students, often leading to low transition. Moreover, gender specific factors that mostly affect girls include; parents' low levels of educational attainment, early marriages and pregnancies, the impact of HIV/AIDS and other population dynamics. The existing national education and human resource policy frameworks, as well as the disconnect between research and policy likewise hinder learners transition to secondary education.

2.8 Summary of Chapter Two

This chapter illustrated a brief overview of Uganda's education system, highlighting some of the key policy initiative and practices in primary education in Uganda. The chapter is constituted by seven sections, starting with the in a brief introduction of the chapters. This is followed by a historical background to formal education in Uganda, tracing it from the time voluntary missionaries arrive to Uganda in the 18th Century. The third section documents the evolution of education policy in the country. Existing literature on education development in the country shows that many transformations and/ or changes have happened and that these transformations have been in form of education coverage, education policy adoptions and subsequent modifications.

Section four articulated the current legal framework governing education provision and development i.e. the 1995 constitution of the country and the Education Act of 2008. The fifth section of the chapter reflected the structure of formal education in Uganda, starting from primary education (the main focus of this study). The structure then shows the different avenues (secondary education, TVET and Non-Formal skills training) that primary education graduates in Uganda can take as they progress in their respective education development. Further avenues for education/ academic development after secondary education and TEVET (tertiary education) are indicated in the structure, including university education.

The assessment and promotion requirements under primary education are reflective of the country's effort to provide relevant quality education to all the citizens of Uganda, and these are

shown in section six. The seventh and last section of the chapter highlighted Universal Primary Education (UPE) as the main policy initiative undertaken in recent times. The move to UPE was inspired by the need expand education opportunities, thus enhancing the achievement of not only the broad national education goals, but the international commitments in education provision and development as structured in the Education For All (EFA) and Millennium Development Goals (MDGs). Some of the achievements registered under the UPE policy are presented, as well as the challenges encountered during the implementation of UPE.

CHAPTER THREE:

LITERATURE REVIEW

3.1 Introduction

This segment documents some of the earlier studies that have investigated the effect of independent variable (automatic promotion) on the two dependent variables (students' dropout rate and learning achievements) and as such have informed this study. The chapter is comprised of two sections, with each section having two sub-sections. Section 3.2 is titled automatic promotion and students' dropout rate, which basically highlights previous studies that have focused on examining the effect of automatic promotion and/ or grade retention on the rate and/ or probability of students dropping out of the schooling cycle. Sub-section 3.2.1 contains some of the earlier studies reviewed that have assessed the incidence of the impact of automatic promotion or grade retention on rural – urban component. Sub-section 3.2.2 portrays some of the previous scholarly works that estimated the incidence of the effect of either grade retention or automatic promotion on students' dropout rate along the gender component.

Section 3.3 is themed automatic promotion and students' learning achievements, and it has two parts (sub-sections). Similar to section 3.2, this section takes stock of some of the earlier scholarly works that have analyzed the effect of automatic promotion/ grade retention on students' learning achievements. Sub-section 3.3.1 contains some of the earlier studies reviewed that have assessed the incidence of the impact of automatic promotion or grade retention on learning outcomes along rural – urban component. Sub-section 3.3.2 portrays some of the previous scholars that estimated the incidence of the effect of either grade retention or automatic promotion on students' learning achievements along the gender component

3.2 Automatic promotion and students' dropout rate

As already mentioned in the introduction, this section of the chapter entails previous studies that have analyzed the impact of either automatic promotion of grade retention on the rate at which

students are dropping out of school. The purpose being to provide evidence for or against the first hypothesis of this study, which states that; automatic promotion has led to a decrease in the rate at which students are dropping out of primary education in Uganda. The policy on automatic promotion generates sharp debate between those in favour and those against it. Those in support of the policy generally are not in favour of grade retention, and by the same token, those opposed to the policy strongly support grade retention. In all the countries where automatic promotion is implemented, it is primarily implemented as an internal efficiency enhancing measure aimed at reducing if not eliminating grade retention, thus reducing student dropout rate.

Several studies have been undertaken in both developed and developing countries to investigate the effects of automatic promotion and grade retention on students' dropout rates with relatively varied findings and conclusions. Some of the studies include those conducted by Ahmeda and Mihiretieb (2015), Myung et al., (2013), Jimerson (2007), Manacorda (2006), Brophy (2006), Taye (2003) and Heubert and Hauser (1999), to mention but a few. All have noted the likelihood of a student dropping out of school as a result of grade retention and recommended the adoption and implementation of automatic promotion policy as an efficiency enhancing measure. This study makes a contribution towards existing literature on the impact of automatic promotion on students' dropout rate in the context of Uganda's primary education.

Ahmeda and Mihiretieb (2015) and Taye (2003) both utilized qualitative method to examine the impact of automatic promotion on students' dropout rate in early grades of primary schooling in Ethiopia. Specifically, Ahmeda and Mihiretieb (2015) addressed the assertion that automatic promotion reduces school dropout in the context of primary education (Grades 1 to 3) in Ethiopia. According to findings by the two scholars, principals of schools indicated that repetition put students at risk of early drop out, and believed that automatic promotion is a viable response to the problem. Conversely, automatic promotion reduces wastage since students get promoted and benefit from continuous support from the teachers, as well as studying with their peers. The policy opens up conditions for students to achieve better as it exposes them to a richer curriculum and greater range of learning opportunities. The counter argument from the

classroom teachers, however, tells a different story. According to teachers, what matters most for students to stay in school is the quality of learning experiences and their eventual academic gains. Taye (2003) on his part researched about the impact of automatic promotion policy in Ethiopia's primary education (grade 1 to 5) found that 56.8 percent of the respondents (Teachers) confirmed that; grade repetition increases the likelihood that a student will become a dropout.

This study is supported by the two studies, especially as regards the policy whose impact is being assessed, albeit differences in methodological approach. However, even though both studies noted that automatic promotion reduces student dropout, their pronouncements are based only on the views and opinions of a few selected primary school administrators and teachers. This significantly undermines the validity, reliability and the degree to which the results generated by the two studies regarding the impact of automatic promotion are generalizable, nationally in Ethiopia and internationally.

In addition to the above, King et al., (2008), and Chohan and Qadir (2011) assessed the effect of automatic promotion on student dropout in Pakistan's primary education. Similar to the two studies conducted in Ethiopia, cited above, Chohan and Qadir (2011) also employed qualitative research approach, while King et al., (2008) employed quantitative research design. Findings by Chohan and Qadir (2011) show a majority of the proponent teachers consistently indicating that they promote students to save them from dropping out of education system. They believed that failure of students increases the chances of their dropout; whereas, if the students are continually promoted, their parents try to carry on their studies despite their economic hardships. On the other hand, failure of a child disappointed their parents and they often decided to discontinue their child's education and engage him/her in making earning.

King, Orazem and Paterno (2008) on their part found that grade promotion raises the probability of a student continuing in primary school when that promotion is based on student performance, not when promotion is uncorrelated with student achievement. Findings from Pakistan are substantiated by findings from Ethiopia, as already illustrated in the above paragraph. Whereas the findings by Chohan and Qadir (2011) are simply based on the views and

opinions of a few sampled primary school teachers and headteachers, those by King et al., (2008) are from a dataset that the scholars have not given an informative explanation for the benefit of the readers, and did not draw from the voices of any respondents, which greatly limits the degree and level to which the results from the two studies are generalizable.

Further to the scholarly works from Pakistan and Ethiopia referenced above, Kopensteiner (2014) investigated the impact of automatic grade promotion on student dropout in grade 3 in Brazil. Glick and Sahn (2010) analyzed the impact of grade retention and grade promotion on grade 2 student dropout in Senegal. Manacorda (2006) conducted a study on the effect of grade retention on primary school student dropout rate in Uruguay. Empirical results from the 3 countries (Brazil, Senegal and Uruguay) all indicate a reduction in student dropout rate attributed to grade promotion. These results are consistent with those from Ethiopia and Pakistan, as already mentioned above. In more detail, Koppensteiner (2014) employed quantitative approach and found automatic promotion to have actually been responsible for the reduction in dropout rates in 3rd Grade in Brazil by approximately 0.03 percentage point. Glick and Sahn (2010) took advantage of a unique data set that combines test score data for children from the second grade with information on their subsequent school progression from a follow-up survey conducted seven years later. Their results show that measures of skills from early primary school, corrected for measurement error using multiple test observations per child, are strongly and positively associated with later school progression. The results point to the need for remedial policies to target lagging students early on to reduce early dropout.

Retained students are more likely to leave school before completing primary school than students with similar ability, but not held back, pointing to the need for alternative measures to improve the skills of lagging children. One of the commonly fronted explanations is that parents invest more in a child's education when the returns to doing so are higher. Manacorda (2006) found that a large part of the disadvantage for grade failures manifests through immediate drop out: compared to non-failures, failures are at disproportionate risk of abandoning school the year when failure occurs.

Koppenstiener (2014) significantly informed this study in terms of policy under evaluation and analysis technique – this point is discussed in detail in chapter one (significance of the study) and chapter five. Data notwithstanding, empirical results by Glick and Sahn (2010) give a relatively informative and comparative picture regarding the impact of grade retention on one hand and that of grade promotion (automatic promotion) on the other. In addition, the use of longitudinal microdata on about 100,000 Uruguayan students in public non-vocational Junior High school (grades 7-9) to identify the causal effect of grade failure on students' subsequent school outcomes by Manacorda (2006) is detailed in terms of ensuring true effect of a policy is identified. This study and that conducted in Uruguay are different in that; this particular study assessed the effect of automatic promotion on student dropout, while the one in Uruguay focused on the impact of grade retention on student dropout. Both studies acknowledge the detrimental effects of grade retention on the academic and social development of the learners.

The negative effect of grade retention was further emphasized by Myung et al., (2013) in a study conducted in USA. More specifically, the study investigated the effect of retention in grades 1 to 5 on reading and mathematics. They found that previously retained students reach the age for legally dropping out of school or working as well as other developmental milestones, such as becoming a parent, when they are further away from graduation than are continuously promoted, same-age cohorts. Due to these options and constraints, retained students may perceive the costs and benefits of continuing in school until graduation differently than do their matched, promoted peers. That is, even if retention does not harm students academically or psychosocially, it may increase the risk of not completing high school. Myung et al., (2013) and Manacorda (2006) focused on the impact of grade retention on student outcomes, and arrived at the same conclusion.

Froman and Brown (2008) took a dual stand against grade retention i.e. fronting arguments for and against it. One of the most common attributes of third grade students who eventually drop out of school is having been retained sometime in their academic history. It is the opinion of the two scholars that; undoubtedly for some students, grade retention is just what

was needed and, benevolently for them and society, may have set them back on a successful academic path. By the same token, they accept that; equally undeniable is the fact that there are students who have not profited from retention enough to counterbalance what they have lost in the process. In the context of this study and the actual implementation of automatic promotion in Uganda, pronouncements by Froman and Brown (2008) are valid. This is because the design of automatic promotion in Uganda allows for students to be retained if they missed many classes for the one reason or the other, in a school year.

West (2012) while answering the question; is retaining students in the early grades self-defeating?, reviewed earlier studies on elementary school retention, with a special focus on Florida State in USA. He asserted that retained students are actually harmed by the trauma of being held back, the challenge of adjusting to a new peer group, and reduced expectations for their academic performance on the part of teachers and parents. Furthermore, once the retained students reach high school, being over-age for their grade makes them more likely to drop out. In addition, a majority of existing studies confirm that students who have previously been retained are at elevated risk for low academic achievement and early dropout. Moreover, retaining a student in the same grade is a costly educational intervention, if students (as intended) spend an additional year in full-time public education as a result. Given average per pupil spending of roughly $10,700 (the most recent national estimate), the direct cost to society of retaining 2.3 percent of the 50 million students enrolled in American schools exceeds $12 billion annually. This estimate excludes the cost of any remedial services provided specifically to students repeating a grade, as well as any earnings foregone by retained students due to their delayed entry into the labour market.

According to Heubert and Hauser (1999), when previous academic performance and relevant social characteristics are controlled, past grade retention accelerates current school dropout. There is no evidence for claims that new retention policies will be coupled with effective remediation of learning deficits that would be worth their cost or would offset the well-established long-term negative effects of retention.

Klima (2007) conducted a study in the USA high school level titled; the children we leave behind: effects of high-stakes testing on dropout rates, argued the fact that many studies have demonstrated that grade retention is harmful to students, both academically and socially, and the research on retention's negative effects is clear. Out of sixty-six studies conducted on retention from 1990 to 1997, sixty-five found the practice to be ineffective and/or harmful to the retained students. It is difficult to find another educational practice on which the evidence is so unequivocally negative. According to the research, 50% of retained students do not perform better in the second year and 25% actually perform worse. Then, when students' progress to the next grade level after being retained, they perform worse, on average, than their peers who were not retained. In addition, retention is strongly linked to subsequently dropping out of school. Students who are held back and slated to repeat a year are 40% to 50% more likely to drop out of school later on, and those forced to repeat twice have that risk increase to 90%. In fact, poor academic performance linked to retention in a grade is the single strongest school-related predictor of dropping out. Retention is an even stronger predictor of dropping out than socioeconomic class.

Rabinowitz et at., (2001) reviewed existing literature on grade retention at high school level in the USA and found that numerous studies suggest that grade retention significantly increases a student's likelihood of quitting school. On the same point, some studies even point to retention as the single strongest predictor of a decision to drop out. For that reason, one could assume that if increased testing for grade promotion resulted in greater retention, it would ultimately result in higher dropout rates as well. Rabinowitz and his colleagues further argue that failing a high school exit exam, being retained, or, even, just anticipating such failure can push some students over the academic edge, causing them to quit school. The result, they say, will be higher dropout rates. However, they recognize the existence of empirical evidence in support of grade retention and as such call for more research is needed even in this area because it might be that students who consistently do poorly in school would drop out at higher rates irrespective of whether they had been retained at some point(s) because of a high-stakes test.

Jimerson et al., (2002) reviewed earlier research studies on high school dropout in the USA, to give a comprehensive review of the association between grade retention and dropout status. The scholars in their conclusion clearly demonstrate that early grade retention is one of the most powerful predictors of later school withdrawal. As discussed in other research, the short-term benefits of grade retention may dissipate and culminate in later school withdrawal. The likelihood of dropout is considerably greater for students who have been retained more than once. Earlier scholars report that students who are retained in one grade are 40% to 50% more likely to drop out than promoted students and students who are retained in two grades are 90% more likely to drop out. As a unique contribution to the current literature, they note that their review should be used to guide future examinations of the connection between retention and later high school dropout. In addition, the review may be used immediately to inform the general public, educational professionals, and policymakers about the association between grade retention and dropping out. In the same vein, Jimerson (2007) notes that students who were retained are 5 – 11 times more likely to drop out of school. The probability is even higher for students who are retained more than once, making grade retention one of the most powerful predictors of high school dropout.

Hanover Research (2013) examined the extant body of research on grade retention, with a focus on both short- and long-term academic and socio-emotional effects in USA. Findings indicate that, there is little dispute that retained students have a higher likelihood to drop out of high school later in their academic careers; several large-scale statistical analyses have likewise established retention as a strong predictor of student dropout. Regardless of the time at which a student is retained, there is general consensus that any associated positive effects diminish over time. Allensworth (2004) in a study on dropout rates in Chicago - USA after the implementation of the eighth grade promotion gate found that overall dropout rates did not decline. The policy increased the likelihood of low achieving students dropping out. The study was motivated by the Chicago Public Schools (CPS) initiative of high-stakes testing policy that required eighth-grade students to meet a minimum score on the Iowa Tests of Basic Skills before being promoted to

high school. About 1,800 eighth graders were held back from entering ninth grade during the first year of ending social promotion. Even more students were held back from entering ninth grade each of the following three years, with about 3,000 students repeating eighth grade or entering a transition center in the fall of 1997; 3,900 students in the fall of 1998; and 3,300 students in the fall of 1999.

Stapleton et al., (2009) reviewed existing literature on grade retention a cross basic education in the United States of America (USA) in order to assess its merits and demerits. They concluded that retention is not a proper initial intervention, and other interventions should be considered first before embarking on the path of retention. Although there is a large amount of literature on retention and its effects on dropouts, there is very little information on the exact number of students retained who later dropout of high school. Researchers provide longitudinal studies on the effects of retention, but with mobility as an issue, the findings were smaller than they should be. It is necessary to begin a national database of students who were retained and dropped out in order to provide quantitative research that would improve the already available empirical research. In addition teachers should have extensive training on interventions necessary for students who are at-risk for grade retention, and administrators should handle each retention situation with deep consideration. Counselors should have less responsibility in administrative functions and become more focused on assisting students with emotional needs. Counselors should only be an outlet and source of comfort for a student rather than a disciplinarian that a student may learn to resent rather than trust.

Brophy (2006) in his study titled Grade Repetition for IIEP Education Policy Series asserts that; school-imposed grade repetition is associated with social adjustment problems and increases the likelihood of school dropout. Roderick (1994) used event history analysis to explore whether and how grade retention influenced graduation outcomes among one cohort of youths from an urban school system in the United States. According to her high dropout rates among students who repeated grades are often cited as evidence that grade retention is harmful. Repeating a grade from kindergarten to sixth grade was associated with a substantial increase in

the odds of dropping out even after controlling for differences in background and post-retention grades and attendance. She explored whether grade retention may influence school dropout because it makes students overage for grade. Students who ended sixth grade overage for grade experienced substantial disengagement during middle school; nearly one quarter dropped out, and those who remained had significant declines in attendance. She found that the impact of being overage for grade during adolescence may explain a large proportion of the higher dropout rates among retained youths. Rodderick further provides evidence showing that students who are retained in grade face an increased risk of school leaving. Her findings do suggest that being overage for grade may increase the odds of school leaving and that this effect may explain a large proportion of the impact of grade retention.

According to Xia and Glennie (2005), research has consistently found that retained high school students in the US are at a higher risk of leaving school earlier, even after controlling for academic performance and other factors such as race and ethnicity, gender, socio-economic status, family background, etc. Grade retention has been shown to increase the risk of dropping out by 20% to 50%. It has also been reported that grade retention is associated with decreased lifetime earnings and poorer employment outcomes in the long run.

Stearns et al., (2007) found that students (in the USA) who repeat a grade prior to high school have a higher risk of dropping out of high school than do students who are continuously promoted. Therefore, schools that are interested in minimizing their dropout rates should give greater attention to retained students. On top of having lower achievement rates and more disciplinary problems, retained students have lower self-esteem, are more pessimistic about their future, are less engaged with school, and have fewer bonds with teachers than do continuously promoted students. Jacobs and Lefgren (2009) found that retention among younger students does not affect the likelihood of high school completion in the US, but that retaining low-achieving eighth grade students in elementary school substantially increases the probability that these students will drop out of high school.

Holmes (2006) while expressing his view on grade retention in USA under the title "low test scores plus high retention equals more dropouts" highlights the fact that existing literature is unanimous in its linking of retention to dropping out. According to him, even after controlling for factors such as learning achievement, ethnicity, and socioeconomic status, age at school entry, parental education, family income, urban/rural community type, and region of the country, a single retention was related to an 18 to 28 percent increase in the chance of dropping out. He notes that three aspects of retention combine to increase the risk of dropping out: (1) retention in grade is not effective as a remediation strategy; (2) retention is seen as a strong message that the school and teacher see the student as a failure; and (3) retention makes a child older than his or her new grade peers.

Phelps et al., (1992) in a study titled "five to ten years after placement: The long-term efficacy of retention and pre-grade transition", examined the long-term effects of retention and transition placement on school attendance, self-esteem, academic achievement and special education/ remedial service provision of students who were completing their seventh, eighth, and ninth grades in the United States of America. The two researchers noted a 20% to 30% increase in dropout rates for retained students, which suggest a causal relationship between retention and dropping out of school. Implying that retention and transition placement do not significantly benefit students who are experiencing academic difficulties and instead may have negative effects on achievement, self-concept and school attendance. Pre-placement achievement scores illustrated that children both in transition to the next grades (promoted) and retained groups were clearly in need of some type of compensatory educational intervention.

Goldschmidt and Wang (1999) in their study titled "when can schools affect dropout behavior? A longitudinal multilevel analysis" used the National Educational Longitudinal Study (NELS) database, to examine student and school factors associated with students dropping out in different grades in USA. Specifically, they used a hierarchical logistic model to address three issues. First, are early (middle school) and late (high school) dropouts equally affected by traditionally defined risk factors? Second, do school-level factors, after controlling for

differences in enrollment, account for between-school differences in school dropout rates, and can these school factors mediate individual student risk factors? Third, what impact does early predicted risk have on the likelihood of dropping out late? Results showed that a mix of student risk factors change between early and late dropouts, while family characteristics are more important for late dropouts. Consistent with previous research, the results also indicated that being held back is the single strongest predictor of dropping out and that its effect is consistent for both early and late dropouts'. School factors can account for approximately two thirds of the differences in mean school dropout rates, but they do a poor job of mediating specific student risk factors. The results indicate as well that early predicted risk, at both the student level and the school level, significantly affects the odds of a student dropping out late.

Still in the USA, Frey (2005), Craig (2005), and Christenson and Thurlow (2004) all assessed the concept of student dropout among high school students. More specifically, Frey (2005) found retention and high school dropout in the context of USA to be highly correlated. His remarks were drawn after tracking a nationally stratified cohort of 30,030 students from 1,015 schools, who were sophomores in 1980 through the end of the study in 1992. Among the cohort, it was found that whereas the overall rate of dropout was 12.4%, the dropout rate jumped to 27.2% for retainees, leading to the assertion that retainees were twice as likely to drop out as students who were never retained. The study also evaluated age in grade level and its correlation to dropping out. The modal age for entering ninth graders is 14.5 years, and, in this study, students entering at age 15 to 15.25 were twice as likely to subsequently drop out of high school. The figures are even more striking for those students entering at age 15.5 or above—the expected age for those who have been retained once in their educational career. These students were found to be three times as likely to drop out before completing high school, and these calculations remained consistent across gender and ethnicity groups.

Craig (2005) on his part noted that retention is strongly connected with dropout rates and, in fact, is the best single predictor of dropping out. He argued that students who have been retained are between two and eleven times more likely to drop out than promoted students. This

holds true even when retained subjects are carefully matched with low performing, promoted students. Overall, retention has been identified as the single most effective predictor of dropping out due t the fact that students who have been retained suffer lower self-esteem and lower rates of attendance. Existing literature has shown that retention is not only correlated with dropping out, it has been identified as an early predictor of later dropping out from school. Students who have been held back are more likely to drop out than underachieving students.

Christenson and Thurlow (2004) stated that preventing high school dropout and promoting successful graduation is a national concern that poses a significant challenge for schools and educational communities working with youth at risk for school failure. Although students who are at greatest risk for dropping out of school can be identified, they disengage from school and drop out for a variety of reasons for which there is no one common solution. The most effective intervention programs identify and track youth at risk for school failure, maintain a focus on students' progress toward educational standards across the school years, and are designed to address indicators of student engagement and to impact enrollment status—not just the predictors of dropout. Educators must address issues related to student mobility, alternate routes to school completion (including automatic/ social promotion), and alternate time lines for school completion, as well as engage in rigorous evaluation of school-completion programs.

All the three studies i.e. Frey (2005), Craig (2005), and Christenson and Thurlow (2004) all adopted a quantitative method to assess the effect of grade retention on student dropout, and their respective findings are consistent in arguing against grade retention. Similarly, this study adopted qualitative approach to specifically assess the impact of automatic promotion. The fact that all the three studies front arguments in favour of automatically promoting students to save them from exiting the schooling system, albeit in the context of high school in the USA, is very enlightening to this study in its attempts to share the experience of Uganda's primary education.

Drawing from the research findings from earlier studies documented above, the overall message that emerges is that; holding other factors constant, whilst automatic promotion translates into a reduction in the rate at which students are exiting school, grade retention

increases it, both in developed and developing countries. From the point of view of this study, this represents strong evidence in support of the hypothesis that automatic promotion had led to a decrease in the rate at which students are dropping out of primary education in Uganda.

3.2.1 Automatic promotion and students' dropout rate in rural and urban areas

This sub-section of the chapter illustrates earlier studies that assessed the existence of a causal relationship between automatic promotion (grade retention) and dropout rate along school location (rural and urban) dimensions. The purpose being to highlight evidence either for or against the sub-hypothesis that automatic promotion has decreased the rate at which students' are dropping out of rural primary schools relative to those in urban schools. Some of the earlier studies that have focused on this line of analysis include; Tamusuza (2011), Brophy (2006), Ndaruhutse (2008) and Gomes-Neto & Hanushek (1994), to mention but a few.

Tamusuza (2011), and Okumu and Nakajjo (2008) explore the concept of student dropout from the point of view of rural – urban primary schooling in Uganda. The two studies employed qualitative and quantitative research designs respectively. According to Tamusuza (2011) other things being equal, children in rural areas are more likely to drop out than children in urban children. The hazard of dropping out of primary school is 60% higher in rural areas compared to urban areas. Similarly, Okumu and Nakajjo (2008) noted that results of the general model for all pupils in the sample indicate that the probability of a child dropping out from primary school reduces as one moves from rural to urban areas, which is statistically significant at 5%. Student dropout in Uganda's primary education is a theme consistent across this particular study and the two studies just highlighted above. It is worth pointing out that the two research studies (Tamusuza, 2011; and Okumu and Nakajjo, 2008) did not assess the effect of automatic promotion on student dropout; rather they sought to identify the factors that can be attributed to student dropout. Both studies identified a number of factors, including grade retention as being one of the leading causes of student dropping out of primary schooling.

In Brazil, Gomes-Neto and Hanushek (1994) found that dropout rates rise across grades in rural areas compared to urban areas due to high grade retention. This is not particularly surprising given the low overall levels of completion and the increasing age of students in rural areas. The scholars used a unique panel data for students in northeast Brazil to analyze how the schooling system and individual students interact in determining enrollment patterns in primary schools. The effect of grade retention in the context of Brazilian primary schools was further analyzed by Vaidheesh (2013) who noted that retention affects students from poor rural or lower socioeconomic backgrounds more intensely than affluent students. As a result, students who drop out of primary school are more likely to have poorer health, lower rates of political participation, and will be in more need of government services such as welfare assistance than students who complete their primary education. Moreover, for students in rural areas, there are several structural factors that may contribute to them dropping out including seasonal labor demands, lower expectations for school progression, distance to school, and fewer options for secondary schooling. Findings from Brazilian primary education are substantiated by those from Uganda, not least because the research studies quoted from the two countries strongly acknowledge the negative effect of grade retention on student dropout.

Zarif et al., (2014) sought for reasons to explain the high student dropout rate in grade 5 and 6, in rural public schools of district Thatta, Sindh-Pakistan. The authors adopted a qualitative methodology, where they sampled 30 schools from each Taluka of the district of Thatta. In particular they analyzed a number of possible factors and indicators that are social, political, geographical and economic in nature to gauge their impact on the increasing student dropout tendency in target districts. Findings indicate that many factors are associated with student dropout rate, some of which are school level factors such as grade repetition, teacher's absenteeism, school location (rural or urban) and poor quality educational provision. In addition, individual factors such as poor health or malnutrition and motivation explain the high dropout rate. Other reasons are from children's household situations such as child labor and poverty, tribal and communal problems. Although the study used a closed ended questionnaire during

data collection exercise, the selection of respondents appears to have not been i.e. teachers, community members and parents. It would have been very informative if the school administrators (headteachers) and students were part of the respondents interviewed. The findings from the study are thus missing an input from a key group of players when discussing the concept of student dropout and it causes.

In the context of USA, Christle et al., (2007) examined dropout rates in rural and urban Kentucky high schools in the US, using both quantitative and qualitative procedures. They sampled 20 schools with the highest dropout rates and compared to a sample of 20 schools with the lowest dropout rates using a multivariate analysis of variance. Furthermore, 4 schools from each group were selected as case example, and Pearson product moment correlation coefficients computed to identify those school-level variables that showed strong relationships to dropout rates. The findings of this study demonstrated that a number of school variables, including grade retention are differentially related to dropout rate. Specifically, significant positive correlations were found among rural students between dropout rate and 5 of the 12 variables for school characteristics, namely retention rate, Socio-Economic Status (SES), law violation rate, suspension rate, and board violation rate. Information gathered from administrator surveys, staff interviews, and on-site observations provided detailed descriptions of the characteristics of schools with high and low dropout rates.

There is a strong advocacy for the use of mixed methods in research since it enables researchers to analyze secondary data collected, as well as offer plausible, real situation reasons for the results obtained from secondary data. This feature has made results by Christle et al., (2007) very informative for this study. Even after taking into account the fact the study on rural – urban Kentucky in the US focused on high schools as opposed to primary as is the case with this study, and did not look at the effect of automatic promotion, the choice of mixed methods is quite telling

Lyttle-Burns (2011) found that students in rural Appalachian region of the USA face many obstacles in pursuit of a high school diploma. They include practice of grade retention by

the district, poverty, high rates of mobility and a lack of parental involvement. Although leaders and educators within the district show interest and concern in the educational success of their students, their statements and actions are often not reinforced in the home environment. Schools, leaders, and educators are often expected to contribute to the basic needs of students that are not available at home. Students often witness generations of family members who have not earned a high school diploma and sustain themselves through government assistance. School officials try to combat the image of education not being important that this portrays on a daily basis but many feel it is a losing battle. Often students are expected to be the decision maker when it comes to their education because their family members do not feel they are qualified to assist them in this process.

The challenge of students dropping out of rural schools is as highlighted by Lyttle-Burns (2011) above is a theme that is all too familiar in the context of education in Uganda. Although the focus of this study is primary level of education (not high school as was the focus of the author just referenced above), the challenges are relatively similar. The high prevalence of student dropout in rural primary schools of Uganda is one of the justifications for the adoption and implementation of automatic promotion. Another area of difference between this study and of Lyttle-Burns (2011) is in the methodological approach employed. Whilst the latter adopted a sequential mixed methods design, the former used purely quantitative method.

Some scholars have conducted detailed reviews of existing literature on grade retention and automatic promotion (e.g. Brophy, 2006 and Ndaruhutse, 2008). More specifically, Brophy (2006) reviewed existing literature on the grade retention and its effect on student dropout, including from the point of view of rural – urban dichotomy. The study was titled simply; "grade repetition", and conducted for and on behalf of UNESCO's International Institute for Education Planning (IIEP). The scholar asserted that school-imposed repetition increases the likelihood of students dropping out, especially in rural areas. Correspondingly, Ndaruhutse (2008) extensively reviewed and analyzed previous literature on grade repetition and automatic promotion and their effects on student dropout across several components, including rural – urban location of schools.

The main focus was on Sub-Saharan Africa. The main conclusion from this comprehensive literature review is that statistical estimates for Sub-Saharan Africa show that the effects of grade repetition are felt more severely by students studying in rural schools, especially females, and families in the lowest poverty quintile.

Given the detailed nature of the literature review and analysis mentioned about, coupled with the fact that it is derived from an international context (involving many different countries), this study benefited from a wide collection of varied points of view and findings regarding the two opposing education policy initiatives (grade retention and automatic promotion). Admittedly, the two scholars (Brophy, 2006 and Ndaruhutse, 2008) did not provide and/ or generate the empirical evidence referenced in their respective reports, which means that all the pronouncements they made are based on evidence gleaned from other research reports. It is thus difficult to assess the credibility and reliability of some of the claims made by the two scholars about the effect of retention and automatic promotion.

Findings from the earlier studies that assessed the impact of automatic promotion or grade retention on student dropout rate along rural – urban component, as presented in the above indicate that; holding other factors constant, the practice of automatically promoting students leads to an overall reduction in the rate at which students are exiting school, in contrast to grade retention, which increases it. In the general terms, the findings are similar in both developed and developing countries like Uganda. Results from previous studies highlighted above provide strong evidence in support of the hypothesis that automatic promotion has decreased the rate at which students' are dropping out of rural primary schools relative to those in urban schools.

3.2.2 Automatic promotion and dropout rate of male and female students

Earlier studies that investigated the existence of a causal relationship between automatic promotion and dropout rate along gender component i.e. male and female are illustrated under this sub-section of the chapter. The intention being to provide evidence either for or against the sub-hypothesis held by this study, which states that the practice of automatically promoting

students has decreased the rate at which male students are dropping out of primary schools relative to female counterparts.

Student dropout based on gender component was investigated in Pakistan by Chohan and Qadir (2011), Lloyd et al., (2009), and Sawada and Lokshin (2009). Some of the key differences between the three studies include the methodological approach and levels of education reviewed. As already highlighted under section 3.2, Chohan and Qadir (2011) assessed the impact of automatic promotion on student dropout at primary level, using qualitative method. On the contrary, Lloyd et al., (2009), and Sawada and Lokshin (2009) both assessed factors affecting primary and secondary school dropout in Pakistan, using quantitative research design. Overall, the findings indicate that grade retention has increased girls' dropout rates. Both studies emphasize the importance of tackling household and school factors that affect school dropout.

According to Lloyd et al., (2009) female students' dropout rate increases due to grade retention, arrival in the family of an unwanted birth and enrollment in a government (not private) primary school significantly increase the likelihood of dropout, whereas availability of post-primary schooling, having a mother who attended school, and living in a better-off household reduce the probability of dropout. For boys school quality, measured by the percent of residential teachers in the primary school, and living in a more developed community significantly reduce the probability of dropping out; loss of household remittances significantly increases the likelihood of dropout.

Chohan and Qadir (2011) found that male student's dropout more than female students. The reasons for this occurrence are several including the fact that more male students are retained/ made to repeat grades than their female counter parts. Some of the factors identified by both studies as being responsible for student dropout i.e. unwanted pregnancies, availability of post-primary schooling, having a mother who attended school, living in a better-off household and grade retention, are somewhat similar to the actual situation as regards Uganda's primary education. In the context of primary education in Uganda, these findings are consistent with the view point of this study and that of Okumu and Nakajjo, (2008). In general, females receive less

education than males, and they tend to dropout, or are withdrawn earlier for both economic and social-cultural reasons. The opportunity cost of sending female children to school in rural areas, where girls are married quite early, is high because benefits of their schooling will not accrue to their parental household.

Sawada and Lokshin (2009), with the objective of identifying obstacles to school progression using field surveys conducted in twenty-five Pakistani villages, focusing on primary and secondary school students. The full-information maximum likelihood (FIML) estimation of the sequential schooling decision model reveals important dynamics of the gender difference in educational attainment, intra-household resource-allocation patterns, and transitory income and wealth effects. In the descriptive statistics as well as the econometric analyses, they found a higher educational retention rate among females and observe that school progression rates between male and female students after secondary school are comparable. In particular, they found gender-specific and schooling-stage-specific birth-order effects on education. Finally, the scholars found serious supply-side constraints which might arise from a village-level lack of demand for primary schools for girls.

Findings from the three studies in Pakistan just referenced above exhibit mixed patterns relative to the situation in Uganda's primary education. For instance, Chohan and Qadir (2011) show that male students dropped out more than their female counter parts, which is contrary to the reality in Uganda. Findings by Sawada and Lokshin (2009), and Lloyd et al., (2009) on the other hand are consistent with the situation in Uganda – female students dropping out of school more than male students.

In Cambodia, Hirakawa and No (2012) conducted a longitudinal study on dropout and found that female students dropped out of school more than male students, and one of the factors explaining this gender bias in dropout patterns was the relatively high retention rate among female students. This study was conducted in five primary schools and five lower secondary schools in rural parts of Kampong Cham province. Contrary to the results reported in Cambodia, Westbury (1994) found that male students are far more likely than their female counter parts to

repeat an elementary school grade at a ratio of 60% to 40%. This gender bias is a result of a higher tendency for male students repeating grades and teachers' invalid beliefs about children's physiological readiness for schooling which led to decisions to retain more of the slower maturing males. Findings from Cambodia are contrary to those found by Westbury (1994) in a study in Canada titled; "The effect of elementary grade retention on subsequent school achievement and ability". Relative to this study, results from Cambodia and Canada provide differing perspectives, with the situation in Cambodia more akin to the Ugandan one, contrasted with that of Canada.

From the USA, Anderson et al., (2003), Cairns et al., (1999), Chapman (2011) and Jimerson et al., (1997) examined the effect of grade retention on student dropout across gender aspect. More specifically, Anderson et al., (2003) investigated the effect of grade retention on achievement and health outcomes in the USA, focusing on elementary and high schools and found that at the individual level many more boys are retained than girls and that because of poor academic achievement, low standardized test scores, absenteeism and numerous school changes, retained students are likely to dropout. Large family size, low parental education and low family involvement are also related to retention. The tendency of male students being held back more than females, as reported by Anderson et al., (2003) is substantiated by Chohan and Qadir (2011), but different from what is happening in Uganda's primary education. What is more, while this study focus only primary level of education, Anderson and his colleagues focused on primary and high school levels of education.

According to Cairns et al., (1999), the effect of age/ retention on dropout differed as a function of ethnic status. This finding is contained in a study conducted in the USA, focusing on early school (elementary school) dropout, configurations and determinants. On average, over half of the white females who were 1 year older than peers in grade 7 left school early, and one-third of white males who had been behind a year dropped out. Retention of a single year by grade 7 had only a modest effect on the dropout rate in black students, regardless of sex: 8% of the black females and 12% of the black males who had been retained 1 year were early dropouts.

Divergent from this study, Cairns et al., focused on grade retention, not automatic grade promotion, and in addition looked at grade retention by age and what effect that has on dropout.

Jimerson et al., (1997) examined the characteristics of children retained in early elementary school and the effects of retention on dropout and learning achievements throughout the elementary years and again at age 16 years. Results indicate a higher dropout rate for males which may reflect a varied combination of factors, including the practice of retaining learners. The scholars then call for further information to examine why boys may be twice as likely to repeat a grade. On a dissimilar note, the Gender Policy Brief for Uganda's Education Sector published by Forum for Women and Democracy with support from the United Nations Joint Program on Gender Equality (2012) indicated a clear and higher dropout rate for girls both in primary and secondary schools as opposed to boys.

NCES (1995) used the 1992 and 1995 Current Population Survey (CPS) data to examine the proportion of young adults (high school students aged 16 to 24 years) who were retained in school. They also examined the association between grade retention and dropping out. Overall, the data confirms earlier findings that students who are retained are at higher risk of dropping out of school. More specifically, of the 13% 16- year olds through 24-year-olds who repeated one or more grades by 1995, approximately one-quarter had dropped out by 1995, compared to only about 10 percent of the young adults who were never held back in school i.e. 24% and 10%. The assessment was disaggregated along several factors including learners' background characteristics such as age, gender, race and socio-economic status (SES). Although retention rates increased for both males and females, males were nearly two-thirds times more likely to be retained than females in 1995. However, despite the fact that males were more likely to have been retained, the dropout rate for male students who were retained is lower than the dropout rate for female students who were retained. The argument made by NCES in favour of automatic grade promotion (none retention) is consistent with the point of view held by this study, and although the focus of this study was not high school students, the evidence is still valid in light of the inter-connectedness of the various education levels.

Additional studies on grade retention and dropout in US high schools were carried out by Chapman (2011) and Rumberger (1987). Chapman (2011) based on status dropout rates among high school students aged 16–24 found that male students had a higher dropout rate than their females counterpart i.e. 9% to 7%, attributable to grade retention. Rumberger (1987) examined issues involved in trying to understand and solve school dropout as a complex social and educational problem in the US high schools. The author grouped the issues into four areas covering the incidence, causes, consequences, and solutions to the problem. According to him, a large body of empirical research has identified a wide range of factors that are associated with dropping out, and these can be grouped into several major categories i.e. demographic, family-related, peer, school-related, economic, and individual. Consideration of demographic factors shows that males are somewhat more likely to drop out of school than females and that members of racial and ethnic minorities are much more likely to drop out of school than white, Anglo students. At the school level, it is fairly well-documented that poor academic achievement in school, as measured by grades, test scores, and grade retention, is associated with dropping out.

Vaidheesh (2013) and Manacorda (2006) analysed the phenomenon of student dropout along gender dimension in Brazil and Uruguay respectively and found mixed results. In particular, Vaidheesh (2013) argued that the gendered nature of primary school dropout rates is one of the key factors to be considered and addressed. In urban areas of Brazil, girls drop out and repeat grades less often than boys; however, in rural areas, the trend is reversed. Dropping out and low primary school completion is context specific and gendered, therefore solutions must be contextually relevant and attentive to these trends. As mentioned earlier, since grade repetition is a strong predictor of primary school dropping out, over-age students are more likely to drop out of school than students at the correct grade for their age.

Manacorda (2006) used administrative longitudinal micro data on about 100,000 Uruguayan students in public non-vocational Junior High school (grades 7-9) to identify the causal effect of grade failure on students' subsequent school outcomes. He found that boys are much more likely to repeat a grade than girls (34% compared to 26%). By exploiting the

discontinuity in promotion induced by a rule that establishes that a pupil missing more than 25 days during the school year will automatically fail that grade he showed that grade failure leads to between two thirds and one year less additional school grades attended, with female students being the most affected. A large part of the disadvantage for grade failures manifests through immediate drop out: compared to non-failures, failures are at disproportionate risk of abandoning school the year when failure occurs.

In the context of this study the argument is that; consistently female students are retained and dropout at a higher rate compared to their male counter parts. This is slightly different from the situation in Brazil and Uruguay, but supplemented by the obtaining situation in Uganda's education system, including primary level. Research findings from the earlier studies that investigated the effect of automatic promotion or grade retention on the rate at which students are dropping out based on student gender (as demonstrated above) indicate that; holding other factors constant, automatic promotion practice results into an overall reduction in the rate at which male and female students are exiting school, in contrast to grade retention, which increases it. In the context of this study, this represents strong evidence in support of the hypothesis the practice of automatically promoting students has decreased the rate at which male students are dropping out of primary schools relative to female counterparts.

3.3 Automatic promotion and students' learning achievements

The causal effect of grade retention and automatic promotion respectively on students' cognitive learning achievements as a measure of education quality has equally been widely researched and debated about in developed and developing countries. Contained here under is a detailed presentation of some of the earlier studies that assessed the existence of a causal relationship between automatic promotion and students' learning achievements. The rationale here is to underscore previous evidence either for or against the second hypothesis of this study which postulates that; automatic promotion practice has translated in to an increase in students' learning

achievements in Uganda's primary education. Just as was the case in above sub-section, I take stock of earlier research works on the effect of automatic promotion and grade retention.

It is worth pointing out that most of the studies discussed in this section have already been covered in the previous section, reason being that the scholars focused on the impact of either automatic promotion or grade retention on both students' dropout and learning outcomes. Some of the earlier scholarly research works that have adopted this line of analysis include: Ahmeda and Mihiretieb (2015); Myung et al., (2013); Reschly and Christenson (2013); Koppensteiner (2014); Ndaruhutse (2008); Jimerson (2007); Brophy (2006); Manacorda (2006); Silberglitt et al., (2006); Hong and Raudenbush (2005); McCoy and Reynolds (1999), and; Peterson et al., (1987) to mention just a few.

The fact that this study mirrors the one conducted by Koppensteiner (2014) in Brazilian primary education has already mentioned under section 3.1 of this chapter and explained in detailed in Chapters 5 and 1. However, as a brief recap, Koppensteiner (2014) examined the relationship between automatic grade promotion and learning achievements at grade 4 in Brazil found a negative and significant effect of about 6% of a standard deviation. This result is interpreted as the disincentive effect on student effort associated with the introduction of automatic promotion. Taye (2003), and Ahmeda and Mihiretieb (2015) substantiate findings by Koppensteiner (2014) in their studies conducted in primary schools in Ethiopia to assess the effect of automatic promotion on learning achievements. By way of illustration, Taye (2003) showed that most of the teachers i.e. 90% interviewed said grade retention is better than automatic promotion to help underachieving students perform better in latter grades. Ahmeda and Mihiretieb (2015) found that a majority of the teachers (93%) and parents (74%) believed that it is hardly possible for automatically promoted students to catch up to their peers in the next grade level, which in turn has an adverse effect on their interest for learning. Also, large proportions of teachers (93%) and parents (83%) reported that the promotion policy does not enable students to improve their achievement in the next grade level as it does not give enough time for them to recapture what they missed in the previous grade. What is more a majority of

the parents (57%) do not think that automatic promotion negatively affects the students' psychosocial development.

While the two studies conducted in Ethiopian primary education employed qualitative method i.e. documenting views and opinions of the respondents regarding the effect of automatic promotion on learning achievements, Koppensteiner (2014) and this study both employed the quantitative analysis technique (Difference in Differences). There is a difference between the regression result generated in this study and the ones obtained in Brazil and Ethiopia.

Furthermore, Greene and Winters (2006) report findings similar to those reported by Koppensteiner (2014) and Taye (2003). In particular, after two years of the policy, third grade retained students in Florida, USA made significant reading gains relative to the control group of socially promoted students. These academic benefits grew substantially from the first to the second year after retention. That is, students lacking in basic skills who are socially promoted appear to fall farther behind over time, whereas retained students appear to be able to catch up on the skills they are lacking (Greene and Winters, 2006).

Contrary to the findings from Ethiopia and Brazil illustrated above, Mantzicopoulos et al., (1989) examined the role of cognitive, perceptual, visual-motor, behavioral, achievement, and demographic factors affecting non-promotion at kindergarten in a sample of 34 non-promoted and 34 promoted kindergarten children of a suburban area in Northern California, USA. Their findings are contained in their study titled "Non-promotion in Kindergarten: The Role of Cognitive, Perceptual, Visual-Motor, Behavioral, Achievement, Socioeconomic, and Demographic Characteristics." They draw link between elementary school retention and kindergarten retention, which shows that children of low SES, boys, and minority children are retained with greater frequency. Consistent with studies on elementary school non-promotion, retained children in this study lagged behind their promoted peers on measures of pre-academic reading achievement obtained through both group and individually administered tests. It is noteworthy that as early as kindergarten, a child's performance on academic tests is an important factor that differentiates between retained and promoted students.

Myung et al., in their study of 2013 noted that students who are retained in grades 1 to 5 in the USA are performing in middle schools as well as their propensity matched, continuously promoted peers, both academically and in terms of behavioral engagement and student-reported school belonging. Retention does not appear to offer any advantage to these students, nor does it impede their performance in middle school. Importantly, retained students are one year older, on average, than their promoted peers, when they transition to middle school. Silberglitt et al., (2006) used Hierarchical Linear Modeling (HLM) in their longitudinal study to examine reading trajectories of students in basic education (1^{st} to 8^{th} grades). They found that grade retention does not yield advantages in reading trajectories from first- to eighth-grade. In particular, the results indicated that: a) compared to their prior growth rate, retained students not experience either a benefit or deficit in their growth rate during the repeated year, b) compared to similarly performing promoted students, retained students do not experience any benefit or deficit in their growth rates as a result of retention; and c) the growth curve of the randomly selected group was significantly greater than the progress of the retained students

Schwerdt and West (2013) in their analysis exploited a discontinuity in the probability of grade retention in USA under Florida's test-based promotion policy to study the policy's effects on students retained in the third grade up to six years later. Based on same-age comparisons, they found evidence of substantial short-term gains in both math and reading achievement. However, these positive effects fade out over time and become statistically insignificant within five years. They also found that third grade retention and remediation substantially reduces the probability of being retained in later grades but has no clear impact on student absences or special education placement rates. In sum, the authors show that test-based retention has substantial positive effects on reading and math achievement in the short run, has no detrimental effects on the limited set of outcomes we can measure, and generates educational and opportunity costs well below a full year when subsequent grade progression is taken into account. To the extent that early grade retention is more beneficial than later grade retention.

Wu et al., (2008) investigated the relatively short-term and longer term effects of grade retention in USA among 1st graders on the growth of mathematics and reading achievement over 4 years. The authors initially identified a large multiethnic sample (n = 784) of children who were below the median in literacy at school entrance. From this sample, the authors closely matched 1 retained with 1 promoted child (n = 97 pairs) on the basis of propensity scores constructed from 72 background variables and compared growth of retained and promoted children using Rasch-modeled W scores and grade standard scores, which facilitate age-based and grade-based comparisons, respectively. When using W scores, retained children experienced a slower increase in both mathematics and reading achievement in the short term but a faster increase in reading achievement in the longer term than did the promoted children. Based on grade standard scores, retained children experienced a faster increase in the short term but a faster decrease in the longer term in both mathematics and reading achievement than did promoted children. Some of the retention effects were moderated by limited English language proficiency, home-school relationship, and children's externalizing problems.

Umut (2015) in a study titled; "hold back to move forward? Early grade retention and student misbehavior", explored an important way this emotional burden might manifest itself, and presented the first evidence on the effects of grade retention in early grades on student disruptive behavior. This researcher made use of a key feature of the early grade retention policy in Florida. Since 2002, all third graders in Florida, USA are categorized into 'achievement levels' based on their reading performance in curriculum standards-based Florida Curriculum Assessment Test (FCAT). If a student fails to perform at achievement level two or higher, the law requires that he/she should not be promoted to the fourth grade. He utilized this non-linearity created by the retention policy to compare students who score right below and right above the promotion cutoff in a regression discontinuity framework. Results suggest fairly large short-term effects of grade retention on student misbehavior. In particular, he found that grade retention increases disciplinary incidents by about 40% in the two years following the grade retention. Yet these effects dissipate beyond the third year. He also found that these short term adverse effects

concentrated among economically disadvantaged and male students. The overarching conclusion in the recent literature is that grade retention, especially in early grades, leads to significant achievement gains in the short-run. In addition, he found that these short-run benefits come with the burden of higher rates of student misbehavior. These findings might help better assess the costs and benefits associated with increasingly popular test-based retention policies that incorporate instructional support mechanisms for the retained students, such as the current early grade retention policy in California.

Gomes-Neto and Hanushek (1994) in a study conducted in Brazilian elementary schools summarized the effect of repetition on learning by asserting that the central finding from the examination of achievement is that repetition does enhance a student's learning. On average, while students who repeat are below average in performance before repetition, they move to above average after repetition. Therefore, repeating a grade is not pure waste, as some would suggest. On the other hand, it is a very expensive form of schooling. Among repeating students, there is, however, no information on what specific factors determine differential achievement. This is different from the evidence from the United States where achievement is found to decrease with repetition. The argument made is that repetition sufficiently lowers a student's self-esteem so as to negate any learning during the repeated year.

Tomchin and Impara (1992) in a study titled; “unraveling teachers’ beliefs about grade retention”, conducted in the USA found that teachers of elementary school overwhelmingly accepted retention as a school practice. Almost 98% of the teachers surveyed disagreed with the statement, "Children should never be retained." The majority (82%) indicated that retention can be a positive step because it prevents students from facing daily failure in the next higher grade. Teachers also agreed with school policy that students failing two or more subjects should be retained (92%). Furthermore, teachers indicated that knowing retention is a possibility motivates students to work harder (70%) and receiving services of a learning disabilities teacher should not exempt a student from being retained (70%). The majority of teachers also indicated that retention is necessary to maintain grade level standards (67%), but retention does not prevent

classrooms from having wide ranges of student achievement (73%). Teachers were generally in agreement that retention does not permanently label students retained in grades K-3 (92%) or students retained in grades 4-7 (78%).

Gleason et al., (2007) employed latent variable structural equation modeling, to test a theoretical model positing that grade retention has a positive effect on children's teacher- and peer-rated academic competencies and on sociometric measures of peer acceptance. They also expected that the positive effect of grade retention on peer acceptance would be mediated by children's ability to meet academic challenges in their classrooms. Participants were 350 (52.6% male) ethnically diverse and academically at-risk first graders attending 1 of 3 school districts in Texas, USA. An individually administered test of academic achievement, teacher-report and peer-report measures of academic competence, and peer-report measures of peer acceptance were collected on children in first grade and 1 year later, at which time 63 children were repeating first grade and 287 were in second grade. Children's academic competencies, as perceived by peers and teachers, fully mediated the effect of retention on subsequent peer acceptance. They placed their findings in the context of children's actual academic achievement and so as to permit comparisons of the results with those of published studies on the effect of retention on achievement. They compared the WJ-III Broad Reading and Broad Math age and grade standard scores of retained and promoted children at time 2, controlling for the relevant time 1 scores and taking the dependency into account. Retained students scored significantly lower than the promoted students on both time 2 Broad Reading and Math age standard scores. Conversely, retained students scored significantly higher than the promoted students on both time 2 Broad Reading and Math grade standard scores.

Peterson et al., (1987) examined the long-term impact of retention/ promotion decisions on the academic achievement of primary grade students in the US. They found that retention does not have a favorable long-term impact on academic achievement of primary students as measured by relative class standing in the same year. This is especially true considering that promoted students scored nearly as well as retained students by the third year after retention, but

they were taking a test that was one grade level higher than the retained students and thus were answering questions concerning more advanced material. Our results indicate that retained students definitely perform at a higher level in the repeated year than their matched counterparts who have not repeated the year. Handover Research (2013) examined the extant body of research on grade retention, with a focus on both short- and long-term academic and socio-emotional effects in USA. Evidence shows that a majority of grade retention research suggests that academic achievement, specifically as measured by standardized test scores, may be bolstered in the short-term during the year immediately following retention, but that these positive effects diminish significantly over time. Some studies have suggested that the positive effects of retention disappear within just two years of retention.

Lorence et al., (2002) studied about grade retention and social promotion in Texas, USA from 1994 to 1999 in order to assess academic achievement among elementary school students. They note that to make schools more accountable for the performance of students, many school districts as well as entire states proposed more rigorous standards to help ensure that pupils had the basic skills necessary to be successful in school. Many public and private sector decision makers have criticized the common practice of social promotion; that is, allowing students to progress to the next grade level without having already learned the material required for the current grade. The public in general views the practice of social promotion or grade placement as detrimental to low-performing students who are promoted without requisite skills because such students are presumed to fall further behind their more academically proficient classmates. Consequently, some states and school districts proposed or adopted strict policies of retention that require a low-achieving student to remain in the same grade until meeting a specified level of proficiency. However, unlike many public officials, most educational researchers concur that grade retention practices are ineffective in remediating the academic performance of low-achieving students. Unlike mixed empirical evidence on other educational issues, research on elementary school non-promotion is unequivocal. It supports the conclusion that retention is not an effective policy. They further contend that retaining students in the same grade will only harm

their later academic achievement and that retention worsens rather than improves the level of student achievement in years following the repeat year.

Reschly and Christenson (2013) argue that grade retention and social promotion are often portrayed as a dichotomy, though this portrayal is a simplification of the issue. This assertion was made in a study conducted in the US elementary and middle school levels under the titled; "grade retention: historical perspective and new research." According to them at the center of this debate is the question of what to do with students who are not meeting academic and behavioral standards. In their view, the distinction between placement and intervention is seminal to scientifically based practice and subsequent research. What is vital is that struggling learners receive carefully monitored instruction and supplemental interventions that address their learning needs. Manacorda (2006) in his study on grade failure and dropout in Uruguay found that grade failure leads to lower educational attainment after 4 to 5 years since the time when failure first occurred. The effect of grade failure on school outcomes remains consistently negative and of reasonably similar magnitude, characterized by strong negative causal effects of grade failure on a students' subsequent school outcomes.

Belot and Vandenberghe (2009) evaluated the effects of grade retention on attainment by exploiting a reform introduced in 2001 in the French-Speaking Community of Belgium whereby the possibility of grade retention in grade 7 was reintroduced. They used the Synthetic Control Method to identify the best possible pre-treatment control. Data came from three waves of the PISA study (corresponding to periods before and after the reform) that contains test scores of representative samples of 15 year-olds. These were used essentially to answer two questions. First, has the 2001 grade repetition reform at least succeeded at filtering out weaker pupils, pupils who would presumably be disadvantaged by being promoted directly to higher grades? This is a minimum condition for grade retention to be justifiable. Second, do the treated students achieve better/worse when they repeat and attend a lower grade than when they are socially promoted and attend the age 15 reference grade 10? They found significant evidence of positive

screening but they failed to demonstrate that those filtered out perform differently under the grade repetition regime than under the social promotion regime.

Ndaruhutse (2008) for example found that repetition had negative effects on children's learning achievement, attendance record, personal adjustments in school and attitudes towards school as they went on to the next grade. On average, retained students are worse off than their counterparts on both personal adjustments and academic outcomes. She adds that countries with policies of automatic promotion produced higher results in reading compared to those that practice repetition. Jimerson in his 2007 study concluded that grade retention when compared with social promotion of similar children is an ineffective and possibly harmful intervention. Promotion plus, which involves combining grade promotion and effective evidence-based interventions is most likely to benefit children with low achievement or behavior problems.

Brophy (2006) also notes that grade repetition leads to relative and temporary improvement in learning achievements, though this outcome should not be such a surprise precisely because the repeating students are literally a year older and are working through the same curriculum a second time. Grade repetition does not provide more general advances in knowledge or cognitive skills that would enable them to make more satisfactory achievement progress in subsequent grades. Bonvin et al., (2008) present a summary of results from a Swiss nationwide empirical study of the determinants of grade retention, its effects on learning, and its social and emotional consequences. Results show that the decision for grade retention does not rest only on the pupil's actual academic performance but also on the teacher's attitudes and evaluations. With regard to improvement in learning, the study yields contrasting short- and medium-term results: They are positive in the case of same-grade comparisons and negative when same-age comparisons are applied. However, globally, the effectiveness of grade retention is rather unsatisfactory, particularly when one considers its long-term consequences, although there is no evidence of negative social or emotional consequences. It is nevertheless suggested that grade retention should be avoided at the primary school level.

Stapleton et al., (2009) concluded that retention is not a proper initial intervention in the context of USA, and other interventions should be considered first before embarking on the path of retention. This pronouncement was made after they reviewed existing literature on grade retention in order to assess its merits and demerits. Although there is a large amount of literature on retention and its effects on academic achievement and socio-emotional outcomes, there is very little information on the exact number of students retained who later dropout of high school. Teachers should have extensive training on interventions necessary for students who are at-risk for grade retention, and administrators should handle each retention situation with deep consideration. Counselors should have less responsibility in administrative functions and become more focused on assisting students with emotional needs. Counselors should only be an outlet and source of comfort for a student rather than a disciplinarian that a student may learn to resent rather than trust. Earlier scholars provide longitudinal studies on the effects of retention, but with mobility as an issue, the findings were smaller than they should be. It is necessary to begin a national database of students who were retained and dropped out in order to provide quantitative research that would improve the already available empirical research.

Wu et al., (2010) in their 4-year longitudinal study in USA, investigated the effects of retention in first grade on children's externalizing and internalizing behaviors; social acceptance; and behavioral, cognitive, and affective engagement. From a large multiethnic sample (n = 784) of children below the median on literacy at school entrance, 124 retained children were matched with 251 promoted children on the basis of propensity scores (probability of being retained in first grade estimated from 72 baseline variables). Relative to promoted children, retained children were found to benefit from retention in both the short and longer terms with respect to decreased teacher-rated hyperactivity, decreased peer-rated sadness and withdrawal, and increased teacher-rated behavioral engagement. Retained children had a short-term increase in mean peer-rated liking and school belongingness relative to promoted children, but this advantage showed a substantial decrease in the longer term. Retention had a positive short-term effect on children's perceived school belonging and a positive longer term effect on perceived

academic self-efficacy. Retention may bestow advantages in the short-term, but longer term detrimental effects on social acceptance may lead to the documented longer term negative effects of retention

McCoy and Reynolds (1999) found that grade retention is at best an insufficient intervention strategy for promoting student achievement, especially for many children in urban, metropolitan areas such as Chicago, USA. Although results should be viewed within the context of the low-income sample and the correlational study design, the major implications is that grade retention does not appear to benefit many of the children it is designed to help. Homes (1989) noted that when promoted and retained students were compared one to three years later, the retained students' average levels of academic achievement were at least 0.4 standard deviations below those of promoted students. In these comparisons, promoted and retained students were the same age, but the promoted students had completed one more grade than the retained students. According to Holmes, on average, retained children are worse off than their promoted counterparts on both personal adjustment and academic outcomes. Roderick (1995) in her study captioned "grade retention and school dropout: Policy debate and research questions" conducted in the US, used same-age comparisons and found that in general promoted students perform better than retained students in the year after retention and that the academic performance of retained pupils continues to lag behind that of promoted youths in later years.

Andrew (2014) in his study of cumulative advantage in the educational career examined the scarring effects of primary-grade retention in the United States of America. He used propensity score matching and sibling fixed-effects models, to evaluate evidence for primary-grade retention effects on high school completion and college entry and completion. He found consistent evidence of a causal effect of early primary school grade retention on high school completion. These effects operate largely through middle school academic achievements and expectations, suggesting that students who recover from the scar of grade retention on high school completion largely do so earlier rather than later in the educational career. Students can continue to recover from the effects of grade retention through early high school, not only

through their academic achievements but through their expectations of high school completion as well. Models suggest that early primary grade retention scars the educational career mainly at high school completion, though there are important, unconditional effects on college entry and completion as a result. He concludes by placing these findings in the larger grade-retention literature and discussing future research on heterogeneities in and mechanisms of retention effects.

Belot and Vandenberghe (2014) assessed the relationship between learning effort by pupils and the risk of grade repetition by exploiting a reform introduced in 2001 in the French-Speaking Community of Belgium, synonymous with a reinforced overall threat of grade repetition. According to them, pupils and/or their family could make significant efforts to avoid grade repetition and its important opportunity cost. The possibility to impose grade repetition sanctions and the end of grades 8 to 12 has always existed, but in year 2001, policy makers reinstated the possibility to repeat grade 7, putting an end to the regime of "social promotion" applicable to that grade since 1995. They utilized data from two waves of the PISA study corresponding to periods before and after the reform to evaluate the medium-term effects of this reform. The first measure of performance considered was the position in the curriculum (or grade) reached at the age of 15, and they showed that it deteriorated after 2001. In addition, they considered the reform's impact on test scores. Focusing on grade 10, they failed to verify the necessary condition for grade repetition threat to lead to higher test scores. They concluded that an enhanced threat of grade retention after 2001 did not lead to better medium-term outcomes, even among the segments of the population the most at risk of grade repetition.

Chohan and Qadir (2011) analyzed teachers' perceptions in Pakistan and concluded that automatic promotion policy facilitated quantitative improvement but showed negative consequences on the quality of primary education. It reduced the struggle for getting better position among hardworking students and lowered the motivation among teachers as well. Moreover, teachers' responses reflected that merely promoting students to next class does nothing positive with their well-being. Peterson et al., (1987) examined the long-term impact of

retention/promotion decisions on the academic achievement of primary grade students in the US. First, second and third-grade retainees were matched on several variables with same-age students who were not retained. Results of same-year comparisons indicated that retained students significantly improve their relative class standing by the end of the retained year, and in some cases they maintain this advantage over a 2-year period; however, after 3 years there are no differences between retained and promoted students. Comparisons of same-grade level performance provided some evidence that second and third-grade retainees experience more sustained benefits from retention, although these benefits are delayed one year.

Jimerson et al., (1997) examined characteristics of children retained in early elementary school in the US and the effects of retention on achievement and adjustment throughout the elementary years and again at age 16 years. When compared to a group of non-retained children who displayed similar levels of early achievement and were comparable on two measures of intelligence, the retained subjects were more likely to be males with significantly poorer adjustment. Parents of comparison children were higher on IQ and were more involved with the school than parents of retained children. Controlling for initial levels of achievement and adjustment, little evidence was found supporting retention as an intervention for improving educational outcomes. The retained group showed a temporary advantage in math achievement, but this disappeared as both groups faced new material. Moreover, the retained group exhibited significantly lower emotional health in the sixth grade. It is concluded that elementary grade retention was an ineffective intervention for both achievement and adjustment.

Westbury (1994) noted that grade repetition does not correct the original learning problem. Therefore, failing a student does nothing to improve high school readiness. Educators must seek alternatives to grade repetition that correct learning problems early and hold students through high12 school graduation. He suggests these alternative measures should be explored and tested. Karweit (1999) investigated the correlates and consequences of grade repetition on student academic progress and social and emotional development using the first grade cohort data from Prospects. The author found that same grade comparisons of regularly promoted and

retained children indicated positive academic achievement effects for retention in the year of retention, with decreasing effectiveness in subsequent years. When these comparisons are adjusted for family background factors and prior test scores, the differences shrink appreciably. However, the general pattern of large differences between retained and never-retained students prior to retention, followed by smaller differences after retention, was found as well. Same grade comparisons of low performing students who are and are not retained indicated a strong positive effect for retention in the year of retention which was substantially reduced in the year following. The same-age comparisons generally not yield positive results for retention. Therefore, the effects of retention vary with the basis of comparison utilized.

According to Chimombo (2005) the opponents of repetition contend that it does not improve the achievement of slow learners, and that, repetition, by calling attention to the repeaters' poor performance, damages their self-image. Repetition affects student learning, student motivation, and self-esteem, the examination success rate, the enrolment rate, the dropout rate and the mean time required to produce a graduate. Xia and Glennie (2005) stated that an overwhelmingly large body of studies has consistently demonstrated negative academic effects of retention. Contrary to popular belief, researchers have almost unanimously found that early retention during kindergarten to grade three is harmful, both academically and emotionally. Many studies find that retention does not necessarily lead to increased work effort among students as predicted.

Stanard (2003) in her study captioned "High school graduation rates in the United States: Implications for the Counseling Profession" reviewed earlier studies on U.S. public high school graduation rates. She concluded that retention even in the lower elementary grades significantly increases the likelihood that a student will drop out of high school. According to her, counselors should be involved in school policy and procedure development to ensure that these policies and procedures do not exacerbate the problems. In particular, problematic behaviors of students often lead to punitive measures like poor or failing grades, retention, suspension, and expulsion. These measures offer little incentive for students to come to school or to do schoolwork, and they begin

to see themselves as incapable of succeeding in school. Collaborative efforts between counselors, parents, teachers, and school administrators should focus on developing policies and procedures to manage problematic student behaviors and to foster the success of these students rather than dealing with the problem by pursuing policies that seem to be pushing at-risk students out of school.

Frey (2005) reviewed existing literature under the topic "Retention, Social Promotion, and Academic Redshirting: What Do We Know and Need to Know?", and concluded that significantly, 52% of the socially promoted students graduated from high school, whereas only 24% of the retained students the same. In addition, academic outcomes, especially reading and mathematics, as measured by the Iowa Test of Basic Skills in the US, a norm-referenced test were different between retained and non-retained students by 9.5 score points. By extension, early retention (Grades 1–3) had a greater effect on reading achievement than later retention (Grades 4–7). Similar results were obtained for mathematics achievement, with a difference of 8.9 points after linear regression.

Gifford et at., (2006) in their study captioned "Locus of Control: Academic Achievement and Retention in a Sample of University First-Year Students", studied more than 3,000 first-year students in the US to assess ACT as a traditional pre-college predictor, along with a new potential pre-college predictor, locus of control, to determine their effectiveness in predicting first-year student academic achievement as measured by end-of-first-year cumulative GPA. Research findings indicate that college grades contribute to student retention. Lower grades are negatively associated with retention, while higher grades predict academic success. The scholars assert that their results contribute to the body of literature on student retention and academic success, with students retained to their sophomore year earning a significantly higher mean cumulative GPA than students who were not retained to their sophomore year.

Mantzicopoulos and Morrison (1992) examined the impact of retention at kindergarten on academic achievement and behavior through the end of second grade in the US. The subjects of their study were 53 children, retained at kindergarten, who were matched to a group of 53

promoted peers on demographic characteristics, a measure of school readiness, and pre-academic achievement in reading and mathematics. Results indicated an academic advantage of the retained children during their second year in kindergarten. This advantage was not maintained past kindergarten. Although retained children demonstrated a decline in attention problems during their second year of kindergarten, they continued to perform below the norm for their school districts on academic achievement. These findings are documented in a research project captioned "Kindergarten retention: Academic and behavioral outcomes through the end of second grade." The tow scholars conclude that retention is not an effective policy. There are clear indications that the practice not only fails to remediate children's academic problems, but is also associated with negative self-concepts in children, negative attitudes toward school, and higher dropout rates. Moreover, the practice is often linked to negative academic, social, and emotional outcomes in both the lower and upper grades.

Hughes et al., (2010) investigated the association between grade retention in first grade and passing the third grade state accountability tests, the Texas Assessment of Knowledge and Skills (TAKS) reading and math, in a sample of 769 students who were recruited into the study when they were in first grade. Of these 769 students, 165 were retained in first grade and 604 were promoted. Using propensity matching, they created five imputed datasets (average N = 321) in which promoted and retained students were matched on 67 comprehensive covariates. Using Generalized Estimating Equations (GEE) models, they obtained the association between retention and passing the third grade TAKS reading and math tests. The positive association between retention and math scores was significant, whereas the association was marginally significant for reading scores. Their study was conducted under the title "An investigation of the relationship between retention in first grade and performance on high stakes tests in third grade."

Phelps et al., (1992) examined trends over time, the long-term effects of retention and transition placement on school attendance, self-esteem, academic achievement and special education/ remedial service provision of students who were completing their seventh, eighth, and ninth grades. They found that retention and transition placement do not significantly benefit

students who are experiencing academic difficulties and instead may have negative effects on achievement, self-concept and school attendance. The study was conducted in the USA under the title; "five to ten years after placement: The long-term efficacy of retention and pre-grade transition." Pre-placement achievement scores illustrated that children both in transition and retained groups were clearly in need of some type of compensatory educational intervention.

Moller et al., (2006) in a study under the title "Smooth and rough roads to academic achievement: Retention and race/class disparities in high school", used growth modelling to examine the National Education Longitudinal Study (1988–1992) in the USA to determine if reading and mathematical achievement trajectories for black, white, poor, and non-poor high school students vary by their experiences with retention. Results show that retention is one of the strongest predictors of both initial scores and rates of growth. Students retained prior to the eighth grade have initial achievement scores 5.09 points lower than normally promoted students. Furthermore, students who are retained experience fewer gains in achievement than normally promoted students. The scholars contend that retention harms students as retained students have lower grades and test scores, and they are more likely to develop problem behavior and quit school.

Results from the earlier scholars who have evaluated the impact of either automatic promotion or grade retention on students' learning outcomes (cognitive and non-cognitive) illustrate the fact that; ceteris paribus, automatic promotion leads to better students' learning achievements in the short run and long run. Grade retention on the other hand is detrimental to students' academic progress and eventual outcomes. This is true for both developed and developing countries, including Uganda. In the context of this study, this represents strong evidence in support of the hypothesis that automatic promotion has led to an increase in students' learning achievements at primary level of education in Uganda.

3.3.1 Automatic promotion and students' learning outcomes in rural and urban areas

One of the sub-hypotheses postulated that automatically promoting students has increased the learning achievements of students studying in rural schools compared to those studying in urban schools. This sub-section of the chapter therefore demonstrates earlier studies that investigated the existence of a causal relationship between automatic promotion or grade retention and students' learning outcomes along school location (rural and urban) component. The objective is teasing out evidence either for or against the above referenced sub-hypothesis.

Liddell and Rae (2001) carried out a longitudinal investigation of primary school progress for a sample of children in rural South Africa, to predict early grade retention. The authors investigated factors that were measureable at the start of Grade 2 that could prove useful in predicting subsequent learning achievements and retention. According to authors, rural children's experience of primary school was relatively disrupted, involving stepping in and out of the schooling cycle and regularly transferring from school to school. This feature clearly plays out even in primary schooling in the rural settings of Uganda, where students are attending school intermittently. The assessment of the effect of automatic promotion on learning achievements along rural – urban considerations was undertaken with the full knowledge of the by this school attendance pattern. One of the objectives of this study is to highlight the effectiveness of automatic promotion policy in promoting equity in learning achievements across rural and urban students, in Uganda's primary schooling.

Besides the results reported by Liddell and Rae (2013) above, they also showed that Grade 1 retention was a good predictor of future learning achievements. In addition, the authors showed that Grade 1 academic achievement as well as caregiver education and cognitive test scores are important predictors of retention in the subsequent grades. The authors show that no children were retained in Grade 5 of the year 1997, and this was attributed to the fact that in the same year, grade retention was abolished. This served as a positive reflector towards the adoption and implementation of the national policy preventing children from being retained. However, the policy was not implemented the following year, resulting in a further 5% of the

cohort being retained in 1998. The paradox of grade retention and automatic promotion in the context of Africa is further deliberated upon by Ndaruhutse (2008), who showed that countries with policies of automatic promotion produced higher results (including among vulnerable groups such students in rural areas) in reading compared to those that practice repetition.

The relationship between rural learning achievements and grade retention was also examined in the Brazilian primary schooling by Hults (2013) and Bruns, et al., (2010). Whilst Bruns, et al., (2010) looked grade retention in the context of primary education, Hults (2013) assessed the implications of a high repetition rate on learning outcomes among students under basic education. Both studies reported a negative association between grade retention and learning achievements among students studying in rural schools. More specifically, Bruns, et al., (2010) noted that students from the lowest income quintile (especially from rural areas) are spending on average three extra years completing primary school, and the large majority of rural schools are attended by students in the lowest income quintile. Keeping in mind that poor children worldwide are also more likely to start behind or fall behind, the Ministry of Education must see this as a tremendous opportunity to improve the outcomes of a population with many needs. The authors conducted a study for the World Bank captioned "achieving world-class education in Brazil: The next agenda".

Hults (2013) reported that stigmas attached to students who repeated grades, especially in rural areas often deter the attention of teachers who have only limited time to focus their energies during class. This cycle is exacerbated as children repeat a grade several times. Analysis of PISA data from Brazil showed that even those children who do graduate do not come out with the skills and content knowledge that other mid-income countries achieve. Brazilian 15-year-olds lag behind the international leaders by around 200 points in math outcomes, and are 110 behind the OECD math average. They also lag 80 points behind the OECD reading scores. The scholar recognizes the evidence that grade repetition can bolster a student's learning in some cases, however what is happening in Brazil is an exaggeration of this otherwise innocuous technique.

The average on Brazilian primary school student takes 11 years to complete the eight year basic education cycle.

The two studies conducted by Hults (2013) and Bruns, et al., (2010) were not geared towards assessing the impact of automatic promotion on learning achievements in rural areas, rather on the impact grade repetition has on learning outcomes of learners in rural schools in Brazil. What is more, Bruns et al., (2010) conducted their study for the World Bank and suggested recommendations for the Ministry of Education, which more often than not compromises the reporting of research findings in the spirit of "political correctness" between the World Bank and the national government, say of Brazil.

According to Marshall (2003) repeating does not solve the problem of teaching students in rural schools skills they didn't learn the first time around. Students who repeat grades are more likely to repeat (again) than students who have not repeated grades. The scholar made this pronouncement after assessing the concept of grade repetition among primary schools in Honduras. The factors that contribute to repeating are not removed by making the student repeat. Existing body of research on past interventions aimed at reducing repetition has one overarching theme: the problem of repetition is systemic and therefore requires solutions aimed at both the familial and educational causes in a way that involves all the stakeholders and the unique circumstances of the regions in question.

Similar to the study in Honduras, Chen et al., (2010) examined the relationship between grade retention and school performance in poor areas in rural China, and found that there is no positive effect of grade retention on school performance of the students that were retained in rural areas. Whether in the short term (the year immediately after a student was retained) or longer term (by grade 5), they reject the hypothesis that grade retention improves the scores of the students that were retained. This result is true for students that were retained in grade 2, grade 3 and grade 4. In fact, in the analysis of some students that were retained (especially those that were retained in grade 2) grade retention was shown to have a statistically significant and negative effect on school performance.

The findings from Honduras and Chinese primary education (rural setting) were arrived as a result of examining different dimensions of grade retention. Although the focus by Marshall (2013) and Chen et al., (2010) was evidently not on automatic promotion and its effect, their findings have been instrumental in helping this study understand the detrimental effect of grade retention on learning achievements. From the point of view of education stakeholders in Uganda, grade retention is beneficial to improving learning achievements. By assessing the impact of automatic promotion on learning achievements along school location, this study seeks to provide evidence that will help the discussion between those in support and those against the practice of promoting students automatically.

Deducing from the findings presented by the earlier studies that assessed the impact of automatic promotion or grade retention on students' learning achievements along rural – urban dimension it is clear that; ceteris paribus, the practice of automatically promoting students leads to an overall improvement in cognitive and non-cognitive learning achievements of students in rural and urban settings. By contrast, grade retention has been found to worsen learning achievements in both locations. The findings are consistent in developed and developing countries like Uganda. In as far as this study is concerned, results from the above mentioned studies provide strong evidence in support of the sub-hypothesis that automatic promotion has led to an increase in students' learning achievements in Uganda's rural and urban primary school.

3.3.2 Automatic Promotion and learning achievements of male and female students

The last sub-hypothesis of this study suggested that automatic promotion has increased learning achievements of male students compared to female students. Guided by this pronouncement, this sub-section of the chapter structures some of the previous scholarly works that assessed the existence of a causal relationship between automatic promotion/ grade retention and students' learning outcomes along gender dimension. This is necessitated by the need to present evidence either for or against the sub-hypothesis referred to above.

Meisels and Liaw (1993) examined the phenomenon of retention in kindergarten through Grade 8 in the US, using data from the National Education Longitudinal Study. They found that on average, non-retained students demonstrated higher grades, test scores, and fewer academic, emotional, and behavioral problems than the retained group. Moreover, retention was found to be associated with more negative outcomes for female, White, and higher SES students. In short, retention does not equalize outcomes even when retained students have been in school a year longer. Since the main focus of the study by the two scholars was on grade retention, their results strengthen the arguments against retention policies. There are obvious differences in the level of socio-economic development (especially education) between Uganda and the USA, however, the call for the implementation of alternative methods, including automatic promotion in order to assist students at risk of academic failure is particularly relevant for this study.

Nannyonjo (2007) asserted that enrolling children into primary education at the appropriate age and promoting them each year is a good policy measure for Uganda. However, in tandem with enforcement of automatic promotion, it may be necessary to administer regular tests and homework that would identify pupil's weaknesses, and address them through remedial teaching to ensure acquisition of the desired levels of competency. Moreover, she found no overall significant difference between Ugandan boys and girls in their primary 6 English test scores. What is interesting is that Nannyojo (2007) used the same dataset as this study – National Assessment of Progress in Education (NAPE). However, unlike this study Nannyonjo (2007) used data for only and Primary Six (P6) and her study did not examine the effect of automatic promotion on learning achievements.

The effect of retention on learning achievements along gender in the US was further evaluated by Gottfried (2012), with a focus on Philadelphia School District over a 6 year period. Specifically, the scholar carried out an empirical examination of how classroom gender composition relates to the standardized-testing performance of grade-retained students in their post-retained years. The analysis was carried out using a sample of entire cohorts of urban elementary school children in the district. The results are consistent with those arrive at by

Meisels and Liaw (1993) – when retained students are placed in classrooms with higher average and greater standard deviation in peer ability, they tend to achieve lower testing outcomes in their post-retention years compared to their continuously promoted counterparts. Gottfried (2012) further showed that these relationships are not solely driven by having low levels of achievement. In as far as this study is concerned, the negative effect of grade retention on male and female learning outcomes reported above is justification for assessing the effect of automatic promotion on learning outcomes along gender from the point of view of primary schooling in Uganda. This is especially so, given the overall outcry against the practice of automatically promoting students

Motala et al., (2009) and Jimerson (1999) both focused on the challenge of grade retention among middle school students in South Africa and USA respectively. Moreover, quantitative research design was adopted/ employed by both these studies. Based on data from two districts in two different provinces in South Africa, Motala et al., (2009) reviewed school participation patterns. Particular attention was paid to dropout, age-grade progression and repetition in understanding the dynamics of access. Findings showed that boys repeat more often than girls except at Grades 11 and 12, which poses a problem to learner performance and achievement. The largest proportion of male and female learners repeating was in Grade 8, where 3.8% of female learners were repeating compared to 6.4% of male learners. According to the scholars a combination of retention and low learning achievements translated in to boys in Grade 12 leaving school and ended up not returning.

Jimerson (1999) found that overall, retained students have a greater probability of poorer educational and employment outcomes during late adolescence. Specifically, retained students had lower levels of academic adjustment at the end of 11th grade, were more likely to drop out of high school by age 19, were less likely to receive a diploma by age 20, were less likely to be enrolled in a postsecondary education program, received lower education/employment status ratings, were paid less per hour, and received poorer employment competence ratings at age 20 in comparison to a group of low-achieving students. After controlling for variable gender,

Jimerson (1999) found that male students were more likely to be retained than females, as evidenced by the fact that the retained group had significantly more males than the low-achieving but promoted group (74% and 56%, respectively).

Just like all the earlier studies reviewed under this sub-section, Motala et al., (2009) and Jimerson (1999) reference automatic promotion as one of the alternatives that can be adopted and implemented to mitigate retention, while at the same time promoting better learning outcomes. Furthermore, several studies that have examined the association between grade retention and learning achievements along gender have reported cases of reverse causality. This is because low learning grades may lead grade retention, especially in the absence of automatic promotion and prior grade retention affects learners psychologically, which affects learning achievements. Besides, studies on grade retention have consistently demonstrated that students who are retained are more likely to drop out of school prior to graduation than students who are not retained. The effect of automatic promotion and grade retention on male and female learning outcomes illustrated above is actually contrary to the overall debate in Uganda, grade retention is preferred to automatic promotion. This study thus benefits from the evidence against grade retention and welcomes calls for the implementation of automatic promotion as a viable alternative.

Research findings from earlier studies that examined the impact of automatic promotion or grade retention on students' learning achievements based on gender (male – female) dimension show that; ceteris paribus, automatically promoting students leads to an overall improvement in cognitive and non-cognitive learning achievements of male and female students. By contrast, grade retention has been found to worsen learning achievements for both sexes. There is relative consistency in research findings across developed and developing countries like Uganda. In terms of this study, results from the above mentioned studies provide strong evidence in support of the hypothesis that automatic promotion had led to an increase in learning achievements of male and female students in Uganda's primary schools.

3.4 Conclusion to the Literature Review

The purpose of the literature review was to assess and synthesize prior research studies on the impact of automatic promotion and grade retention on student dropout rate and learning achievements. The review was structured in response to the two main research questions, as well as their respective sub-research questions. Besides responding to the two research questions, the review sought to document evidence from prior studies in support or otherwise of the hypotheses postulated. Overall the review revealed the existence of a significant pool of strong empirical research evidence both in developing and developed countries, indicating the fact that the practice of automatically promoting students (especially in early grades) is supportive of their academic, personal, social and psychological development. By the same token, making learners to repeat grades (grade retention) is detrimental to their development, academically, personally, psychologically and socially. In the context of this study, the overall outcome of this literature review was a strong evidence in support of the all the hypotheses postulated.

CHAPTER FOUR:

METHODOLOGY

4.1 Introduction

This part of the study is a detailed illustration of the methodological approach that was adopted in the process of responding to the research questions, thus achieving the set objectives. Specifically, the chapter is broken in to nine (9) sections, excluding the introduction and the summary of the chapter. The introduction is followed by section (4.2) containing the theoretical framework explaining the theory upon which the study is based, including the theoretical linkages between the outcome variables and the main independent variables. This is followed by section (4.3) reflecting the conceptual framework demonstrating perceived linkages between the dependent and independent variables. The hypotheses that were stated and later tested are presented and discussed in the next section (4.4). Following the hypotheses section is section 4.5, which contains the policy impact assessment technique/ method (Difference in Differences) that was adopted in this study. The Difference in Differences analysis technique is presented in non-linear and linear structures. Section 4.6 contains an explanation of the approach used to assign schools into treatment status. Section 4.7 demonstrates the overall conditions under which causality is inferred under the DID model, including the case for this particular study. A detailed description of the data sets used and their respective sampling designs are shown in sections 4.8 and 4.9 respectively. The process of data cleaning/ data mining is discussed in section 4.10, while descriptive statistics are contained in section 4.11.

4.2 Theoretical Framework

This study is structured within the human capital theory, which attributes increased productivity of individuals (male or female either in rural or urban areas) to education and training, as a result of acquiring relevant skills and knowledge. Increased productivity ultimately raises workers'

future income and their lifetime earnings. Human capital therefore is the accumulated stock of skills and talents, and it manifests itself in the educated and skilled workforce in the country/ region. Literature on human capital theory identifies different types and/ or means of education and these are formal education (primary, secondary and higher levels of education), non-formal education, on the job training and specialized vocational education (Becker, 1964).

Human capital is at times measured in terms of persons-years of education and it can be increased through formal or informal education or training. In this sense, human capital is not limited to formal education. It includes experience; practical learning that takes place on the job, as well as, non-traditional technical training regimens that enhance skill development. Human capital can have significant positive effects on economic development at the macroeconomic level in a number of ways (Ogunade, 2011). Human capital theory thus suggests that individuals and society derive economic benefits from investing in people primarily through education (Sweetland, 1996). According to Boissiere (2004), education is the cornerstone of economic growth and social development, and primary education provides the foundation for secondary and tertiary education and training, and lays the foundation for a more productive labor force through promoting literacy and numeracy.

Human capital improves economic growth by having a positive growth effect on total factor productivity of a given economy. Miller and Upadhyay (2000) using data from 83 countries were able to show that human capital has a significant effect on output when it is included as a factor of production. The inclusion of human capital in the production function lowers the elasticity of output with respect to labor when compared to the production function without human capital. This shows a positive relationship between human capital investment and total factor productivity, which affects GDP. In this case, human capital is not accounted for as an input in the production function, but rather increases economic growth through its effect on total factor productivity, exports and ultimately GDP. The interaction between human capital and increased total factor productivity is moderated by the trade orientation of the particular economy in question (Miller and Upadhyay, 2000).

In this regard, countries all over the world (developed and developing, including Uganda) strive to maximize human capital development by investing in primary education and education in general. In order to promote efficiency and effectiveness of these investments, thus ensuring value for money, governments have and continue to implement various policy initiatives. In the case of Uganda, one such policy is the automatic promotion policy, which seeks to enhance efficiency in the provision of quality primary education. This study therefore highlights the impact of automatic promotion on students' dropout rate and learning achievements in the country. Proficiency in literacy and numeracy, and lower rates of student dropouts at the primary level is a reliable predictor of students' acquisition of foundational skills and knowledge required for future personal and socio-economic development.

4.2.1 Automatic promotion and students' dropout rate

The policy on automatic promotion in Uganda was adopted and implemented in order to improve efficiency in primary education and in the perceived interest of students' social psychological well-being. The argument being that grade retention as well as the potential of it happening more often than not leads to the affected (retained) students dropping out of school. This is because grade retention subjects the affected students to social psychological trauma, arising from the fact that they see their peers being promoted to the next grades. These makes them lose confidence in their ability to succeed in academics, and as such tend to have low self-esteem and lack motivation. Moreover, retention stigmatizes affected students and impairs their natural ability to interact and socialize with their peers, which leads to alienation of the victims thus resulting in eventual exiting of school (dropping out).

Therefore, automatic promotion policy is a viable alternative because it helps eliminate the above highlighted social psychological negative effects, which enhances a student's chances of staying at school. On the equity front, automatically promoting students ensures that both sexes of students (male and female), whether in rural or urban locations stay in school and finish the primary cycle of schooling. Grade retention on the contrary tends to promote inequality in

schooling, especially since in the context of Uganda female students and students in rural schools are more likely to be retained, and more often than not end up dropping out of schooling. The likelihood of being retained emanates from the fact that females students tend to be held back to help with household chores compared to their male counterparts. In addition, students (male and female) in rural schools are susceptible to dropping out of school, given the high retention rate in these schools coupled with the tendency to engage in activities such as household chores, early marriages, income generation and so forth, which are not supportive of formal education.

Automatic promotion policy thus supports the overall concept of human capital development, since it reduces if not eliminates grade retention. Holding other factors constant, the mitigation of grade retention, reduces students' dropout rate (promotes continued student enrolment), which enables them to stay in the schooling cycle for a longer duration and gain knowledge and skills relevant to their active participation as productive citizens.

4.2.2 Automatic promotion and students' learning achievements

In addition to enhancing efficiency, automatic promotion was implemented with the view to promote quality of primary education and education in Uganda in general. Grade repetition leads to crowding in classrooms, leading to high pupil classroom ratio (PCR), high pupil teacher ratio (PTR) and high pupil textbook ratio (PBR), consequently reducing the quality of education as projected by the low cognitive and non-cognitive learning outcomes. Automatically promoting students helps ensure less crowding in classrooms and as such helps mitigate against side effects associated with large classrooms. Besides that, automatic promotion helps subject learners to longer pedagogical duration, which fosters sustained teacher – learner interaction through the teaching and learning process. Grade repetition and learning achievements have a reverse causal relationship in the sense that students who score low academic grades are likely to be retained and retention leads to low learning achievements for retained learners, especially when compared to their automatically promoted counterparts.

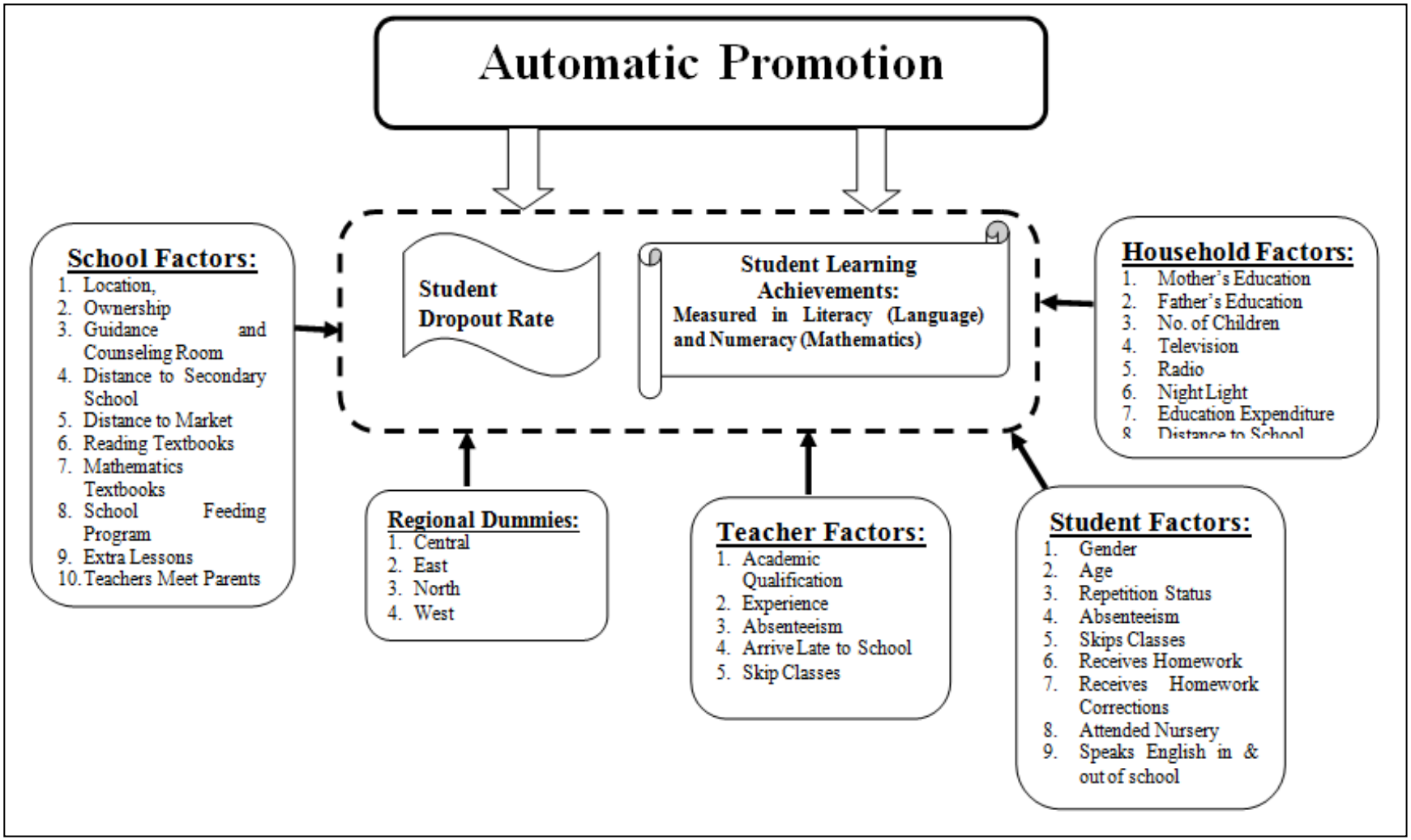
The situation in Uganda is such that grade retention tends to occur more frequently among female students and students studying in schools located in rural areas of the country. The main reasons are scoring low academic grades and missing many classes in the course of the academic year. Low grades are relatively more prevalent among female student compared to male students, and more common among students studying in rural schools as opposed to those studying in urban school. This status can be explained by many factors including grade retention, irregular attendance by students and teachers and students' participation in household chores.

In the context of human capital development theory, automatically promoting learners greatly enhances their chances of acquiring cognitive and non-cognitive skills and knowledge, which enables them to participate actively in the country's workforce - ceteris paribus. This is because the interaction between the teachers and learners, under the teaching and learning process is lengthened with the adoption and implementation of automatic promotion policy.

4.3 Conceptual Framework

The conceptual framework (see Figure 4.1) for this study is designed based on the two research questions and earlier works by Ndaruhutse (2008) and King et al., (1999). Ndaruhutse (2008) under the study titled; "Grade repetition in primary schools in Sub-Saharan Africa: an evidence base for change", explored the effect of grade retention on students' learning achievements and probability of dropping out of a schooling system all together. King et al. (1999) in their study titled; "Promotion with and without Learning: Effects on Student Dropout" found that that enrollment decisions are heavily influenced by student academic performance in the previous year, and that promotions that are uncorrelated with merit have a negligible impact on school continuation.

Figure 4.1: Conceptual framework for estimating the effect of automatic promotion policy



Source: Created by Author based on Ndaruhutse (2008) and King (1999)

The framework is a graphical illustration of the scholar's perception regarding the relationship between the policy on automatic promotion on one hand and students' dropout and learning achievements on the other, relative to other factors that influence the two outcome variables under consideration. Essentially, the conceptual framework depicts the direction of effect on the two dependent variables from two vantage points. The first section forms the main scope of this policy assessment and it reflects the effect of automatic promotion of students' dropout and learning achievements. The second section shows a categorization of school, teacher, student and household variables that influence students' dropout and learning achievements.

While examples of school related variables include location, ownership, infrastructure and instructional materials, teacher related variables include gender, education level, teaching experience, absenteeism and conducting students' assessments. Age, gender, absenteeism, repetition and school attendance make up some of the student related variables. Parents' education, household education expenditure, number of children and socio-economic status (SES) are some of the household factors considered to influence students' continued enrolment and learning.

4.4 Hypotheses

The hypotheses guiding the process of estimating the effect of automatic promotion policy on education efficiency (dropout rate) and quality (learning achievements) are structured and tested in line with the research questions and objectives discussed in chapter one. The study had two main hypotheses, consistent with the two main research questions and two main objectives. Each hypothesis was broken down in to two sub-hypotheses to correspond with the sub-research questions and sub-objectives. Under here is a detailed discussion of the two main hypotheses and their respective sub-hypotheses.

Hypothesis 1: *Automatic Promotion has led to a decrease in the rate at which students are dropping out of primary education in Uganda.*

Several studies have been conducted to assess the impact of automatic promotion or grade retention on students' dropout rate, and strong evidence has been found in support of the above hypothesis. For instance, Roderick (1995) assessed dropout problem among grade 1 to grade 8 learners in the USA and found that repeating a grade once increases the likelihood of dropping out by approximately 50%. The risk is much higher in instances where a student repeats more than once. Similar findings are contained in a relatively similar study conducted in the US by Rumberger (1995) who found that students who were retained in grades 1 to 8 were four times more likely to drop out between grades 8 and 10 than students who were not retained, even after controlling for socio-economic status, 8th grade school performance, and a host of background and school factors. Moreover, sophomores who reported that they had repeated at least one previous grade dropped out at more than twice the rate of youths who reported that they had never repeated a grade.

In his 2001 study, Rumberger re-emphasized his argument against grade retention by stating that with the exception of a few recent studies that have suggested that retention may have some positive effects on academic achievement, virtually all the empirical studies to date suggest that retention, even in lower elementary grades, significantly increases the likelihood of dropping out. Students who are retained or who are over age for a grade drop out at significantly higher rates, even when controlling for prior achievement or grades and attendance. In addition, students who are retained drop out at higher rates, regardless of whether retention occurs early or later in their school careers. Frey (2005) assessed the impact of grade retention and social promotion and found that when the overall rate of dropout is recorded, the dropout rate for retainees tends to be higher, leading to the assertion that retainees are twice as likely to drop out as students who were never retained. She extended her analysis to encompass age in grade level,

with the modal age for entering ninth grade being 14.5 years. Results showed that students entering at age 15 years are twice as likely to subsequently drop out of high school. The figures are even more striking for those students entering at age 15.5 or above. These students were found to be three times as likely to drop out before completing high school, and these calculations remained consistent across gender and ethnicity groups. Factoring in rural-urban and gender aspects in the analysis of students' dropout rate, the following sub-hypotheses are stated.

1.1 Automatic promotion has decreased the rate at which students' are dropping out of rural primary schools relative to those in urban schools. I postulate that the implementation of automatic promotion policy has translated in a reduction in the rate at which students studying in rural primary schools are dropping out relative to those studying in urban schools. This hypothesis is supported by several scholars including but not limited to the following; Tamusuza (2011) who found that primary school children in rural areas of Uganda are more likely to drop out than children in urban children. The probability of dropping out of primary schooling is 60% higher in rural areas compared to urban areas. Brophy (2006) argued that school-imposed repetition increases the likelihood of students dropping out, especially in rural areas. Existing literature on grade repetition and automatic promotion in the context of Sub-Saharan Africa shows that the negative effects of grade repetition are felt more severely by students studying in rural schools and families in the lowest poverty quintile (see Ndaruhutse, 2008).

Gomes-Neto and Hanushek (1994) analysed how the schooling system and individual students interact in determining enrollment patterns in primary schools in Brazil and found that dropout rates rise across grades in rural areas compared to urban areas due to high grade retention. One of the possible reasons for this is the low overall levels of completion and the increasing age of students in rural areas. Further evidence from the Brazilian primary education is provided by Vaidheesh (2013), who found that grade retention, affects students from poor rural or lower socioeconomic backgrounds more intensely than affluent students. Students in

rural areas have several structural factors that may contribute to them dropping out including seasonal labor demands, lower expectations for school progression, distance to school, and fewer options for secondary schooling. Moreover, students who drop out of primary school are more likely to have poorer health, lower rates of political participation, and will be in more need of government services such as welfare assistance than students who complete their primary education.

1.2 The practice of automatically promoting students has decreased the rate at which male students are dropping out of primary schools relative to female students. Under this hypothesis, the scholar presumes that the implementation of the policy on automatic promotion has reduced the rate at which male students are dropping out dropping out relative to female students. This hypothesis lends support from the international commitments on education as contained in the Education For All (EFA) Goals and Millennium Development Goals (MDGs), which stress the existence of gender disparity and inequality against female students and as a consequence call for the achievement of equal participation of girls and boys in all forms of education based on their proportion in the relevant age-groups in the population, thus ensuring educational equality between boys and girls. In addition, early scholars such as Okumu and Nakajjo (2008) and Hirakawa and No (2012) found that female students receive less education than males, and they tend to dropout, or are withdrawn earlier mainly due to grade retention and for both economic and social-cultural reasons. Moreover, girls' continued enrolment is not helped by the fact that the opportunity cost of sending female children to school in rural areas (where girls are married quite early), is high because benefits of their schooling will not accrue to their parental household. Vaidheesh (2013) arrived at mixed results after considering the gendered nature of primary school dropout rates s in Brazil. He found that in urban areas girls repeated grades and dropped out less often than boys, however, in rural areas, the trend was

reversed. Dropping out and low primary school completion is context specific and gendered, therefore solutions must be contextually relevant and attentive to these trends.

Evidence contrary to the one presented above is presented by some scholars including but not limited to Henry (2009), Chohan and Qadir (2011); Westbury (1994) and Anderson et al., (2003). These scholars all found that male student's dropout more than their female counterparts. On average, male students are far more likely than their female counterparts to repeat an elementary school grade at a ratio of 60% to 40%. This gender bias is attributed mainly to the practice of grade retention and teachers' invalid beliefs about male students' physiological readiness for schooling which led to decisions to retain them. Moreover, at the individual level, many more boys are likely to have a history of numerous school changes, absenteeism and poor academic achievements. Rodderick (1995) used cohort analysis method to assess whether retention rates and the proportions of students who are over-age for grade vary significantly by gender. The main focus was on sixth-graders who were over-age for grade at ages 6, 9 and 14 years. Results showed that almost 40% of all 14-year-old males were over-age for grade compared to 20% of all females. Since grade repetition is a strong predictor of primary school dropping out, over-age students are more likely to drop out of school than students at the correct grade for their age.

Hypothesis 2: *Automatic Promotion has led to an increase in students' learning achievements at primary level of education in Uganda.*

This hypothesis lends support from many early scholars such as Ndaruhutse (2008) who found that countries implementing automatic promotion including those forming the Sub-Saharan Africa region, produced higher learning results compared with those that practice repetition. Hong and Yu (2007) used propensity score stratification to examine the effects of early-grade retention relative to promotion on children's reading and math achievement during the

elementary years in the USA. They found that on average, kindergarten retention showed immediate negative effects in both reading and mathematics at the end of the treatment year. First grade retention shows negative effects that stay almost constant from 1 year after treatment to 3 years later. Their general conclusion is that there is no evidence to support the argument that early-grade retention brings benefits to the retainees' reading and math learning outcomes at the end of the elementary years.

Jimerson et at., (2006) highlighted the lack of empirical evidence to demonstrate academic advantages for retained students relative to comparison groups of low-achieving promoted peers. Among the analyses favoring retained students, two thirds reflected differences during the repeated year, but initial gains were not maintained over time. Results of the meta-analyses do not support the use of grade retention as an early intervention to enhance academic achievement. Moreover, a majority of analyses examining socio-emotional outcomes indicated no significant differences between those students who were retained and low-achieving but-promoted students. Furthermore, related research indicated that many retained students have difficulties with their peers. Thus, the results of the meta-analyses synthesizing over 300 analyses of socio-emotional and behavioral adjustment, from over 50 studies during the past 75 years, fail to support the use of grade retention as an early intervention to enhance socio-emotional and behavioral adjustment.

According to Marsico Institute for early learning and literacy in the University of Denver - USA, it is often thought that retention in early grades may not lead to the same negative outcomes as retention in later grades; however, the majority of the studies in the meta-analyses included children retained from kindergarten through third grade. Across studies, retention at any grade level has been associated with later high-school dropout as well as other deleterious long-term outcomes. Evidence showing a benefit of retention is virtually non-existent whereas evidence showing no effect or harm is plentiful. Although proponents of retention have referenced a few isolated cases suggesting that retention done well benefits the most struggling

students, the existing evidence suggests instead that promotion done well may provide equal or greater benefits in the short-term, and is very likely to be a less harmful strategy in the long-run. Factoring in rural-urban and gender aspects in the analysis of learning achievements, the following sub-hypotheses are stated.

2.1 Automatically promoting students has increased learning achievements of students studying in rural schools compared to those studying in urban schools. The scholar suggests that automatic promotion practice has translated into improved learning outcomes for students studying in rural primary schools compared to those studying in urban schools. This hypothesis lends support from findings by Chen et al., (2010), indicating the absence of a positive effect on academic performance of students studying in school located rural areas, attributable to grade retention. Moreover, countries with policies of automatic promotion produced higher results, including among vulnerable groups such students in rural areas in reading compared to those that practice repetition (see Ndaruhutse, 2008).

In addition, stigmas attached to students who repeat especially in rural areas often deter the attention of teachers who have only limited time to focus their energies during class. This cycle is exacerbated as children repeat a grade several times. Relevant PISA data shows that even those children who do graduate do not come out with the skills and content knowledge that other mid-income countries achieve. Children aged 15-years lag behind the international leaders by around 200 points in math outcomes, and are 110 behind the OECD math average. They also lag 80 points behind the OECD reading scores. Earlier studies recognize the evidence that grade repetition can bolster a student's learning in some cases, however what is happening in developing countries is an exaggeration of this otherwise innocuous technique. On average one primary school student in developing countries takes 11 years to complete a seven or eight year basic education cycle (see also Hults, 2013).

Calls by existing literature for the need to focus on low-income and rural schools, becomes evident when research on the topic is taken into account. Students from the lowest income quintile are spending on average three extra years completing primary school, and the large majority of rural schools are attended by students in the lowest income quintile. Keeping in mind that poor children worldwide are also more likely to start behind or fall behind, the Ministry of Education must see this as a tremendous opportunity to improve the outcomes of a population with many needs (Bruns, et al., 2010). Existing body of research on past interventions aimed at reducing repetition has one overarching theme: the problem of repetition is systemic and therefore requires solutions aimed at both the familial and educational causes in a way that involves all the stakeholders and the unique circumstances of the regions in question. Repeating does not solve the problem of teaching student in rural schools skills they didn't learn the first time around. Students who repeat grades are more likely to repeat (again) than students who have not repeated grades. The factors that contribute to repeating are not removed by making the student repeat (Marshall, 2003). Overall, the impact of grade retention has been assessed both in the short term and in the longer term, and there is strong empirical evidence showing a negative association between grade retention and academic performance of students in rural areas.

2.2 Automatic promotion has increased learning achievements of male students compared to female students. Through this hypothesis, the author holds the view that automatically promoting primary school learners, has enhanced learning achievements of male students compared to those of female students. This hypothesis was motivated by Nannyonjo (2007) who acknowledged the fact that, enrolling children at the appropriate age and promoting them each year is a good policy measure for Uganda. However, in tandem with enforcement of automatic promotion, it may be necessary to administer regular tests and homework that would identify pupil's weaknesses, and address them through remedial teaching to ensure acquisition of the

desired levels of competency. Additionally, empirical examination of how classroom composition relates to the standardized-testing performance of grade-retained students in their post-retained years (Gottfried, 2012).

Analysis results demonstrate that as retained students are placed in classrooms with higher average and greater standard deviation in peer ability, they tend to achieve lower testing outcomes in their post-retention years compared to their continuously promoted counterparts. Further investigation also shows that these relationships are not solely driven by having low levels of achievement. Scholars that have examined the phenomenon of retention in kindergarten through Grade 8 using data from the National Education Longitudinal Study have found that on average, non-retained students demonstrated higher grades, test scores, and fewer academic, emotional, and behavioral problems than the retained group. Moreover, retention was found to be associated with more negative outcomes for female, White, and higher SES students. In short, retention does not equalize outcomes along gender, even when retained students have been in school a year longer. These results strengthen the arguments against retention policies. It is important to implement alternative methods of assisting students at risk of academic failure (Meisels and Liaw, 1993).

4.5 Analysis Method/ Technique

The technique used to estimate the effect of automatic promotion on students' dropout rate and cognitive learning achievements, is the Difference in Differences (DID) approach. This approach is a quasi-experimental method used in econometrics to estimate the effect of a treatment or intervention at a given period in time. The simplest set up is one where outcomes are observed for two groups for two time periods. One of the groups (treatment group) is exposed to a treatment in the second period but not in the first period. The other group (control group) is not exposed to the treatment in either period. The use of DID method became very widespread in the field of evaluating the impact of a policy or program, especially after research work by

Ashenfelter and Card (1985). Other early scholars greatly associated with this estimation method include Card and Krueger (1994), Meyer (1995), and Hastings (2004).

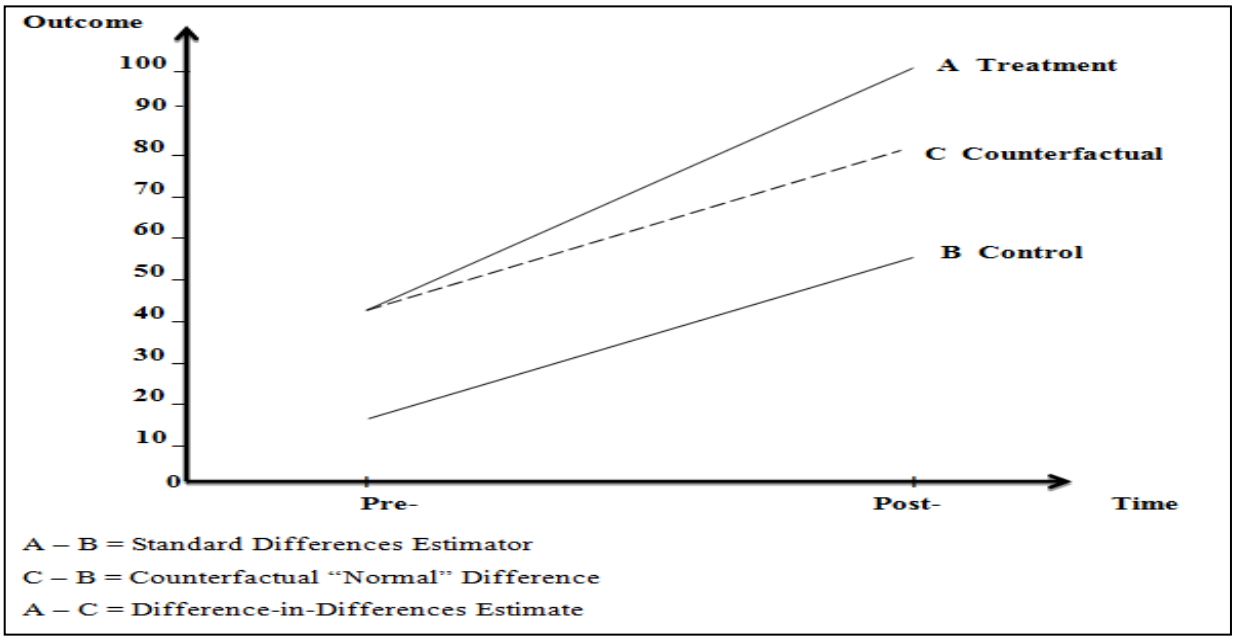
As mentioned above, DID assumes two groups (treatment and control) and two time periods (pre-treatment and post-treatment), such that outcomes of the two groups are observed during the two periods. The treatment group is exposed to a treatment in the post-treatment (second) period but not in the pre-treatment (first) period. The control group is not exposed to the treatment in either period. In the case where the same units within a group are observed in each time period, the average gain in the control group is subtracted from the average gain in the treatment group. This removes biases in second period comparisons between the treatment and control groups that could be a result of permanent differences between those groups, as well as biases from comparisons over time in the treatment group that could be a result of trends. DID is applicable with either experimental data or non-experimental (observational) data. Figure 4.2 and Table 4.1 respectively illustrate the DID estimator in graphical form and tabular structural.

According to Abadie (2005), DID estimator is based on strong identifying assumptions. In particular, the conventional DID estimator requires that, in the absence of the treatment, the average outcomes for the treated and control groups would have followed parallel paths over time. This assumption may be implausible if pre-treatment characteristics that are thought to be associated with the dynamics of the outcome variable are unbalanced between the treated and the untreated. That would be the case, for example, if selection for treatment is influenced by individual-transitory shocks on past outcomes.

In addition, Bertrand et al., (2004) argue that most studies employing Differences-in-Differences estimation (DID) use many years of data and focus on serially correlated outcomes but ignore that the resulting standard errors are inconsistent. They therefore conclude by suggesting that, because of serial correlation, conventional DID standard errors may grossly understate the standard deviation of the estimated treatment effects, leading to serious overestimation of t-statistics and significance levels. There is a need for a careful examination of

residuals as well performing simple tests of serial correlation, since computing standard errors that are robust to serial correlation appears relatively easy to implement in most cases and as such should become standard practice in applied work.

Figure 4.2: Graphical illustration of the Difference in Differences Estimator



Source: Created by Author based on Wooldridge (2009)

From Figure 4.2 the difference between slope of line A and slope of line B is the standard difference estimator, and the difference between the slope of the broken line C and that of line B is the counterfactual normal difference. According to Shadish et al., (2002), a counterfactual is a potential outcome, or the state of the affairs that would have happened in the absence of the cause. Thus, for a treated unit, a counterfactual is the potential outcome under the non-treatment state; conversely, for a non-participant unit, the counterfactual is the potential outcome under the treatment state. The key assumption of the counterfactual framework is that each unit in the target population has a potential outcome under each treatment state, even though each

individual can be observed in only one treatment state at any point in time (Loi and Rodrigues, 2012).

Deducing from Table 4.1, counterfactual 1 is the pre-experiment difference between treatment and control, assuming this difference is fixed over time, represented by $\boldsymbol{\beta_2}$ in column 2 and row 5. Counterfactual 2 is the control group time difference, assuming this would have been true for treatment group, represented by $\boldsymbol{\beta_1}$ in column 4 and row 3. In Figure 4.2 DID estimator is the difference between the slope of line A and the slope of line C, and in Table 4.1 it is represented by $\boldsymbol{\beta_3}$ in column 4 and row 5.

Table 4.1: Tabular Representation of the Difference in Differences Estimator

Treatment Status	**Treatment period**		**Difference**
	Before	**After**	**After -Before**
Control	β_0	$\beta_0 + \beta_1$	β_1
Treatment	$\beta_0 + \beta_2$	$\beta_0 + \beta_1 + \beta_2 + \beta_3$	$\beta_1 + \beta_3$
Treatment - Control	β_2	$\beta_2 + \beta_3$	β_3

Source: Created by Author based on Wooldridge (2009)

Where;

$\boldsymbol{\beta_0}$ is the constant/ intercept, $\boldsymbol{\beta_1}$ is the treatment group specific effect to account for average permanent differences between treatment and control groups, $\boldsymbol{\beta_2}$ is the time trend common to control and treatment groups, $\boldsymbol{\beta_3}$ is the true treatment effect (coefficient of interest). The expression ($\boldsymbol{\beta_0+\beta_1+\beta_2}$) provides the counterfactual i.e. the sample mean of the treatment group had it not been treated. The logical criterion for a good estimator is that it be unbiased which means that on average the estimate will be correct, or mathematically that the expected value of the estimator is as follows; $E[\hat{\beta}_3] = \beta_3$. The difference in differences estimator is governed by all the conventional Ordinary Least Squares (OLS) assumptions as well as the following three; 1)

the model in equation is correctly specified. For example, the additive structure imposed is correct; 2) the error term is on average zero: $E[\varepsilon_i] = 0$; and 3) the error term is uncorrelated with the other variables in the equation (this is the parallel assumption and the most critical) as specified by the following expression;

$$cov(\varepsilon_{it}, T_t) = 0, \;\; cov(\varepsilon_{it}, S_i) = 0 \; and \; cov(\varepsilon_{it}, S_i * T_t) = 0$$

4.5.1 General Specification of the Difference in Differences (DID) Model

As a quick recap, DID assumes two groups (treatment and control) and two time periods (pre-treatment and post-treatment), such that outcomes of the two groups are observed during the two periods. The treatment group is exposed to a treatment in the post-treatment (second) period but not in the pre-treatment (first) period. The control group is not exposed to the treatment during either period. For notation purposes, supposing a decision has been taken to evaluate the impact of a program or treatment on an outcome ***Y*** over a population of individuals. Supposing further that there are two groups indexed by treatment status ***S = 0, 1*** where ***0*** indicates individuals who do not receive treatment, i.e. the control group, and ***1*** indicates individuals who do receive treatment, i.e. the treatment group.

Assuming that individuals in the two groups are observed during the course of two time periods (before and after treatment), ***T = 0, 1*** where ***0*** indicates a time period before the treatment group receives treatment, i.e. pre-treatment, and ***1*** indicates a time period after the treatment group receives treatment, i.e. post-treatment. Every observation is therefore indexed by the letter ***i = 1, ..., N***, so that individuals will typically have two observations each, one pre-treatment and one post-treatment. Letting $\bar{Y}_0^T$ and $\bar{Y}_1^T$ be the sample averages of the outcome for the treatment group before and after treatment, respectively, and letting $\bar{Y}_0^C$ and $\bar{Y}_1^C$ be the corresponding sample averages of the outcome for the control group. Subscripts correspond to time period and superscripts to the treatment status. The model is applicable to both experimental (such as natural experiment or panel) data and non-experimental data (repeated/ pooled cross sections). In the

case of experimental data, the model for a generic member of any of the groups can be written as shown in *Equation 1*.This is because experimental data guarantees randomization, which is not the case with non-experimental data.

$$Y_{it} = \beta_0 + \beta_1 S_i + \beta_2 T_t + \beta_3 (S_i * T_t) + \varepsilon_{it} \qquad (1)$$

Where Y_{it} is the outcome variable of interest, T_t is a dummy variable for the second time period, S_i is a dummy variable for treatment status. While S_i captures possible differences between the treatment and control groups prior to the policy change, T_i captures aggregate factors that would cause changes in Y_{it} even in the absence of a policy change. The coefficient of interest, β_3 multiplies the interaction term, (S_i*T_t) which is a dummy variable equal to one for those observations in the treatment group in the second period and zero otherwise. The coefficients given by β_0, β_1, β_2, β_3, are all unknown parameters and ε_{it} is a random, unobserved "error" term which contains all determinants of Y_{it} which the model omits. By inspecting the equation it should hold that the coefficients have the following interpretation; β_0 = constant term, β_1 = captures time-invariant difference in overall means between two groups, β_2 = capture the time trend common to control and treatment groups, β_3 = true effect of treatment.

The purpose of the program/ policy evaluation is to find a "good" estimate of β_3, $\widehat{\beta}_3$, given the data available. From the above illustration, it can be deduced that the difference in differences or "double difference" estimator is the difference in the average outcome in the treatment group before and after treatment minus the difference in the average outcome in the control group before and after treatment – it is literally a "difference of differences." DID estimator is therefore illustrated by *Equation 2.*

$$\widehat{\beta}_3 = (\overline{Y}_1^T - \overline{Y}_0^T) - (\overline{Y}_1^C - \overline{Y}_0^C) \qquad (2)$$

In the context of this study, the treatment is automatic promotion and the treated and control groups are comprised of students in government and private school respectively. The decision to use students as the unit of analysis instead of schools (private and government) was taken because ultimately the policy is geared towards ensuring that students stay in the primary schooling cycle so as to be able to gain knowledge and skills required for their academic and personal development. It is the students who are taught and assessed, who repeat classes and who drop out of the schooling cycle, so evaluating policy effect at this level is critical for comprehensive policy decisions. This line of analysis is further justified by the fact that international commitments on education (EFA Goals and MDGs) and more recently the Sustainable Development Goals (SDGs), whose achievement the policy is meant to enhance, are targeted at learners (male & female) whether in rural or urban settings for purposes of ensuring equitable and sustainable socio-economic development.

The adoption of the DID method was justified on two accounts, the first being that observational (repeated cross section) data on student learning assessment at school and student level was the only one readily available. Secondly, DID has the ability to minimize if not eliminate any biases that might arise from permanent latent differences between treatment and control groups as well as biases resulting from common trends overtime. Therefore, whilst students from government and private schools are respectively the treatment and control groups, years 2004 and 2010 represent the before and after time element. The two groups are indexed by treatment status ***(S=1,0)***, whereby ***S=1*** indicates students who received treatment (those in government schools) and ***S=0*** indicates students who did not receive the treatment (those in private schools). Students' dropout rate and learning achievements are denoted by ***Y*** and are observed over two time periods ***(T=1,0)*** where ***T=1*** indicates a time period after the treated group received treatment and ***T=0*** indicates a time period before the treated group received treatment. In addition, every student observed in either group pre and post treatment is indexed by the letter $i=1,...,N$.

As already alluded to in the above paragraph, non-experimental data was accessed and utilized to examine the impact of automatic promotion on the probability of students' dropping and their learning achievements respectively. Implying that in order to effectively respond to the research questions posed, and subsequently achieving the objectives of the study (estimating the average treatment effect on the two outcome variables), the DID was specified both in non-linear and linear regression formats. DID in non-linear framework was used to assess the impact of the policy on the probability of students dropping out *(a dichotomous/ dummy variable)* of Uganda's primary education cycle. Conversely, DID in linear framework was used to estimate the effect of automatic promotion policy on students' learning outcomes *(a continuous variable).* Sub-sections 4.5.2 and 4.5.3 respectively present DID in non-linear and linear regression frameworks.

4.5.2 Difference in Differences in Non-Linear Regression Framework

The basis for DID in non-linear format is *Equation 1*. More specifically, *Equation 1* is applicable in instances where data is experimental, however, since this study employed non-experimental data, other factors (school, teacher, household and student) which potentially influence the dependent variable were controlled for. The purpose of factoring in other factor is to mimic a natural experiment so as to be able to satisfy the parallel assumption of the model. Difference-in-Differences in non-linear form is specified in a probit model format. Here the outcome variable ***Y*** takes a binary form (i.e. 1 or 0), so that ***Y=1*** if a school reported that students dropped out of school and ***Y=0*** otherwise. A vector of regressors ***X***, assumed to influence ***Y*** are considered such that a general probit model is structured as shown by *Equation 3.*

$$\Pr(Y = 1|X) = \Phi(X'\beta) \qquad (3)$$

Where ***Pr*** is the probability, ***Φ*** is the cumulative distribution function (CDF) of the standard normal distribution, ***β*** is the parameter estimated by maximum likelihood approach such that ***X'β***

$= \boldsymbol{\beta_1 + \beta_2 X_{i2} + \ldots + \beta_p X_{ip}}$ and $\boldsymbol{i = 1, \ldots, N}$ are assumed independent. From *Equation 3* it can be noted that;

$X_i\beta = \beta_1 S_i + \beta_2 T_t + \beta_3 (S_i * T_t) + \beta_4 \delta + \beta_5 \varphi + \beta_6 \mu + \beta_7 \pi + \beta_8 \rho$. Such that $\boldsymbol{T_t}$ is equal to one if the observation is from the post-treatment period and zero if from the pre-treatment period; and $\boldsymbol{S_i}$ is equal to one if the observation is from the treatment group and zero if from the control group. Letting the Greek small letter *DELTA* ($\boldsymbol{\delta}$) represent school factors, the Greek small letter *PHI* ($\boldsymbol{\varphi}$) represent regional dummies, the Greek small letter *MU* ($\boldsymbol{\mu}$) represent teacher explanatory variables, the Greek small letter *PI* ($\boldsymbol{\pi}$) represent student factors and the Greek small letter *RHO* ($\boldsymbol{\rho}$) represent household explanatory variables, the non-linear model appears as shown by *Equation 4*. We can the write the conditional expected value of $\boldsymbol{y}$ to be a general function of the linear index function.

Equation 4:

$$E[Y_{it}|S_i, T_t, \delta, \varphi, \mu, \pi, \rho] = \beta_0 + \beta_1 S_i + \beta_2 T_t + \beta_3 (S_i * T_t) + \beta_4 \delta + \beta_5 \varphi + \beta_6 \mu + \beta_7 \pi + \beta_8 \rho + \varepsilon_{it}$$

Equation 5 in this case is a probit (normal) transformation, and I let the conditional probability that $\boldsymbol{y = 1}$ be expressed as a function of the same linear index already shown in *Equation 1*.

Equation 5:

$$P[y = 1|S_i, T_t, \delta, \varphi, \mu, \pi, \rho] = \beta_0 + \beta_1 S_i + \beta_2 T_t + \beta_3 (S_i * T_t) + \beta_4 \delta + \beta_5 \varphi + \beta_6 \mu + \beta_7 \pi + \beta_8 \rho + \varepsilon_{it}$$

Whereby;

$$P[y = 1|S = 1, T = 1, \delta, \varphi, \mu, \pi, \rho] = \beta_0 + \beta_1 + \beta_2 + \beta_3 + \beta_4 + \beta_5 + \beta_6 + \beta_7 + \beta_8$$

$$P[y = 1|S = 1, T = 0, \delta, \varphi, \mu, \pi, \rho] = \beta_0 + \beta_2 + \beta_4 + \beta_5 + \beta_6 + \beta_7 + \beta_8$$

$$P[y = 1|S = 0, T = 0, \delta, \varphi, \mu, \pi, \rho] = \beta_0 + \beta_1 + \beta_4 + \beta_5 + \beta_6 + \beta_7 + \beta_8$$

$$P[y = 1|S = 0, T = 1, \delta, \varphi, \mu, \pi, \rho] = \beta_0 + \beta_4 + \beta_5 + \beta_6 + \beta_7 + \beta_8$$

Therefore the Difference in Differences (DID) estimator is given by;

$$P[y = 1|S = 1, T = 1, \delta, \varphi, \mu, \pi, \rho] - P[y = 1|S = 1, T = 0, \delta, \varphi, \mu, \pi, \rho]$$

$$-$$

$$P[y = 1|S = 0, T = 1, \delta, \varphi, \mu, \pi, \rho] - P[y = 1|S = 0, T = 0, \delta, \varphi, \mu, \pi, \rho]$$

Such that;

$$(\beta_0 + \beta_1 + \beta_2 + \beta_3 + \beta_4 + \beta_5 + \beta_6 + \beta_7 + \beta_8) - (\beta_0 + \beta_2 + \beta_4 + \beta_5 + \beta_6 + \beta_7 + \beta_8)$$

$$-$$

$$(\beta_0 + \beta_4 + \beta_5 + \beta_6 + \beta_7 + \beta_8) - (\beta_0 + \beta_1 + \beta_4 + \beta_5 + \beta_6 + \beta_7 + \beta_8)$$

Implying that estimator = $\boldsymbol{\beta_3}$

The parameter $\boldsymbol{\beta_1}$ allows the linear index (and hence the $\boldsymbol{P(y = 1|x)}$) to be different for all subjects in the post-treatment period compared to the pre-treatment period. $\boldsymbol{\beta_2}$ allows the linear index (and hence the $\mathbf{P(y = 1|x)}$) to be different for treatment subjects compared to control subjects. $\boldsymbol{\beta_3}$ allows the linear index to be different in the post-treatment period and hence the conditional probability that $\boldsymbol{P(y = 1|x)}$ to be different over and above the difference attributable to the nonlinearity of the model for subjects in the treatment group versus the control group. It is the additional difference in the differences that provides a measure of the treatment effect on the treated.

4.5.3 Difference in Differences in Linear Regression Framework

Given the fact that observational data was used in this study, equation 1 was modified accordingly to control for observational school, teacher, student and household covariates, such that the Difference in Differences model in linear framework now takes the structure illustrated by equation 6.

Equation 6:

$$y_{it} = \beta_0 + \beta_1 S_i + \beta_2 T_t + \beta_3 (S_i * T_t) + \beta_4 \delta + \beta_5 \varphi + \beta_6 \mu + \beta_7 \pi + \beta_8 \rho + \varepsilon_{it}$$

Then taking expectation of the outcome variable ***y*** given the treatment status (treated and control), treatment period (pre-treatment and post-treatment) & selected explanatory variables, leads to equation 7;

Equation 7:

$$E[Y_{it}|S_i, T_t, \delta, \varphi, \mu, \pi, \rho] = \beta_0 + \beta_1 S_i + \beta_2 T_t + \beta_3 (S_i * T_t) + \beta_4 \delta + \beta_5 \varphi + \beta_6 \mu + \beta_7 \pi + \beta_8 \rho + \varepsilon_{it}$$

Whereby;

$$E[y|S = 1, T = 1, \delta, \varphi, \mu, \pi, \rho] = \beta_0 + \beta_1 + \beta_2 + \beta_3 + \beta_4 + \beta_5 + \beta_6 + \beta_7 + \beta_8$$

$$E[y|S = 1, T = 0, \delta, \varphi, \mu, \pi, \rho] = \beta_0 + \beta_2 + \beta_4 + \beta_5 + \beta_6 + \beta_7 + \beta_8$$

$$E[y|S = 0, T = 0, \delta, \varphi, \mu, \pi, \rho] = \beta_0 + \beta_1 + \beta_4 + \beta_5 + \beta_6 + \beta_7 + \beta_8$$

$$E[y|S = 0, T = 1, \delta, \varphi, \mu, \pi, \rho] = \beta_0 + \beta_4 + \beta_5 + \beta_6 + \beta_7 + \beta_8$$

Therefore the Difference in Differences (DID) estimator is given by;

$$E[y|S = 1, T = 1, \delta, \varphi, \mu, \pi, \rho] - E[y|S = 1, T = 0, \delta, \varphi, \mu, \pi, \rho]$$

$$E[y|S=0,T=1,\delta,\varphi,\mu,\pi,\rho]-E[y|S=0,T=0,\delta,\varphi,\mu,\pi,\rho]$$

Such that;

$$(\beta_0+\beta_1+\beta_2+\beta_3+\beta_4+\beta_5+\beta_6+\beta_7+\beta_8)-(\beta_0+\beta_2+\beta_4+\beta_5+\beta_6+\beta_7+\beta_8)$$

$$-$$

$$(\beta_0+\beta_4+\beta_5+\beta_6+\beta_7+\beta_8)-(\beta_0+\beta_1+\beta_4+\beta_5+\beta_6+\beta_7+\beta_8)$$

Implying that estimator = $\boldsymbol{\beta_3}$

Note: The difference in $E[y_{it}|S_i,T_t,\ \delta,\varphi,\mu,\pi,\rho]$ from the pre-treatment period to the post-treatment period for the treatment group is $\beta_1 + \beta_3$. The difference in $E[y_{it}|S_i,T_t,\ \delta,\varphi,\mu,\pi,\rho]$ from the pre-treatment period to the post-treatment period for the control group is β_1, and thus, the difference in the differences in $E[y_{it}|S_i,T_t,\ \delta,\varphi,\mu,\pi,\rho]$ between the treatment and control groups from the pre-treatment to the post-treatment periods is β_3. Thus, β_3 is an estimate of the treatment effect on the treated.

4.6 Assignment to treatment

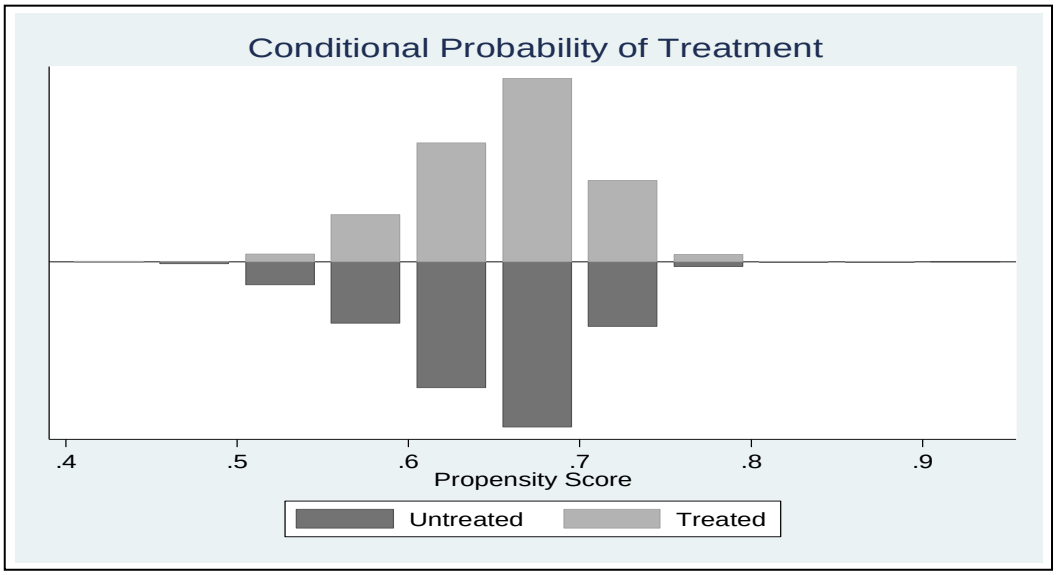
The assignment was not done randomly, with the government simply announcing the adoption and implementation of the policy only in government/ public schools. The policy is therefore not implemented in private schools. The government's decision was inspired by the desire to first of all cut financial costs it incurs as a result of students repeating and secondly to reduce wastage of money as a result of students' dropping out of school. Under the UPE program, government pays tuition in the form of capitation grants for all the students enrolled and as such cases of student repetition and dropout imply financial burden/ loss to the government as well as households. This is a major challenge, especially given the fact that in Uganda, there are more government/ public primary schools than private ones (12,203 out of 18,079), implementing UPE. Moreover, the decision represents the government's effort to enhance the achievement of EFA goals and MDGs, especially goals associated with equitable access to education, quality and efficiency.

Given the fact that assignment to treatment status was not random, the existence of differences between the treatment and control group is recognized and acknowledged. The task then becomes to investigate the magnitude and stability or otherwise of the differences between the two groups, overtime. Analysis results from the t-test for the equality of means between the two groups over the two time periods indicate very minimal albeit significant differences. Table 4.2 and Table 4.3 illustrate an overall similarity of summary statistics across treated and control groups based on school, teacher, student and household covariates for P3 and P6 respectively. In addition to the t-statistic, the normalized differences between means by treatment status as a scale free measure of the balancing properties for the covariates was computed using *equation 8*.

$$norm - diff = \frac{\overline{X_0} - \overline{X_1}}{\sqrt{S^2_{X_0} + S^2_{X_1}}} \qquad (8)$$

Where $\overline{X_0}$ and $\overline{X_1}$ are respectively the mean values of control and treated groups. $S^2_{X_0}$ and $S^2_{X_1}$ are the sample variances for control and treated groups respectively.

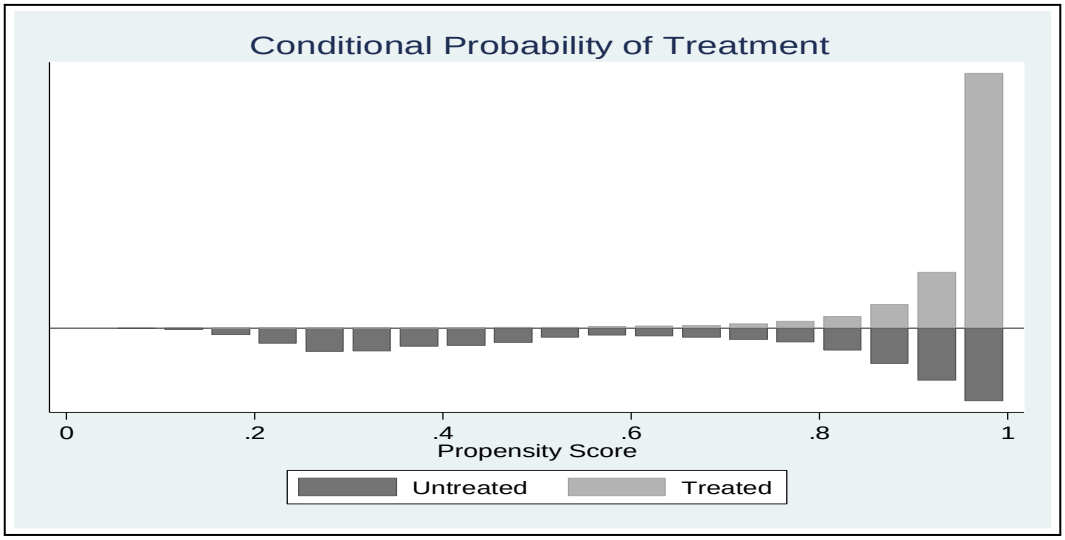
Figure 4.3: Histogram for the propensity score (2004) – P3.



Source: Created by Author (2016)

From Tables 4.2 and 4.3, it is evident that the values of respective covariate normalized differences are small and less than the standard absolute value of 0.25 (see Imbens & Wooldridge, 2009; and Koppensteiner, 2014). Moreover, the overlap and common support analysis was undertaken using propensity score, and the results are shown in Figure 4.3 and Figure 4.4. The use of propensity score in a DID framework is instrumental in dealing with cofounding in observational studies examining the impact of a policy (see Stuart et al., 2014). There is common support and overlap in the multivariate distribution of variables and a relatively uniform distribution of the propensity score for the treated and control groups. Common support and overlap conditions were assessed for purposes of ensuring that existing combinations of observed characteristics across the two groups are identical (see Bryson et al., 2002; and Caliendo & Kopeinig, 2005). Figure 4.4, shows that some observations do not fall within the common support region, however their number relative to the total number is small and as such treatment effect can plausibly be estimated and causality inferred (see Bryson et al., 2002; and Caliendo & Kopeinig, 2005). In addition to the propensity score and normalized differences analysis, initial balancing test of the covariates was carried out and sample results are contained in Appendix 21 (testing of the balancing property for variables used during the analysis).

Figure 4.4: Histogram for the propensity score (2004) – P6



Source: Created by Author (2016)

4.7 Inferring Causality

Under the DID framework, causality is inferred when the parallel assumption holds, depending on whether it is experimental or non-experimental data. The assumption posits that the average change in the outcome variable for the treated in the absence of treatment is equal to the observed change in the outcome variable for the control group. In the context of experimental data analysis a simple comparison of the mean of the outcome in the treatment and control groups is justified on grounds that randomization guarantees they should not have any systematic differences in any other pre-treatment variable (Morgan & Winship, 2012; Angrist & Krueger, 1999; Meyer, 1995). By contrast utilizing non-experimental data requires that in the absence of treatment, the unobserved difference between treatment and control groups is relatively stable over time, since randomization is not feasible (Angrist & Pischke, 2008; Antonakis et al., 2010; Murnane & Willet, 2011).

In this study, allocation to treatment status among the treated group (government primary schools) and control group (private primary schools) was not randomly carried out and as such randomization is not guaranteed. Moreover, there are differences and similarities between the two groups, which it must be added are relatively stable over time. Stability of the trend between government and private schools is supplemented by the fact that selection of schools and students' to participate in the annual national assessment is randomly carried out, as explained under sub-section 4.8 (data description). Differences are in the form of better management, location, number of students, primary education quality indicators (test scores, pupil classroom ratio, pupil teacher ratio and pupil textbook ratio) and internal efficiency indicators (repetition rate, dropout rate, survival rate and completion rate).

A majority of students in private schools (control group) are in urban areas, characterized by better management, better education quality and internal efficiency indicators, better structures/ facilities, higher enrolment figures and relatively better working conditions for teachers. The reverse is true for students in government schools (treated group) who study

mostly in rural areas. That said there are students studying in private school in rural areas, operating under similar conditions as those in government schools in the same setting. By the same token, there are students studying in government schools located in urban centers being managed under conditions akin to those in urban private schools. The similarities between the two groups exist in the area of curriculum and syllabus, teacher recruitment, training and deployment, language of instruction and assessment, pre-service and in-service training programs. The mandate of developing, revising and disseminating all curricula (i.e. pre-primary, primary, secondary and BTVET) rests with the National Curriculum Development Centre (NCDC), a semi-autonomous institution of the Ministry of Education, Science, Technology and Sports (MoESTS), Uganda. Once a curriculum for given level of education, say primary sub-sector has been approved then all schools (government and private) are obligated to implement it. Primary curriculum consists of English language, mathematics, Kiswahili, religious education, local languages, creative arts and physical education, social studies and integrated science, but NAPE assesses only literacy (reading and writing) and numeracy (mathematics).

Primary education in Uganda is decentralized, however, teacher recruitment and training is a responsibility of the central government. Overall teacher training program is overseen by the Department of Teacher Education (DTE) of the Ministry of Education, Science, Technology and Sports, which articulates the policies, processes appointments and supervises college administration and professional development programs. The pre-service program consists of two years of training in content and pedagogy, with three school practice periods of 8 weeks each. In-service students follow the training program for a period of four years. They attend college during school holidays, take school practice twice. There are 47 primary teachers colleges (PTCs) in Uganda; 45 are owned and funded by the government and 2 are owned by faith-based bodies. 23 of the government colleges are core institutions that run both pre- and in-service programs and 22 are non-core institutions that have only pre-service programs. The language of

instruction and assessment all through the education system is English, which happens to be the official language of the country.

4.8 Data Description

The data used during this empirical analysis is non-experimental and was obtained from two sources; the Ministry of Education, Science, Technology and Sports (MoESTS) and Uganda Bureau of Statistics (UBOS). From the MoESTS, I got the National Assessment of Progress in Education (NAPE) datasets for 2004 and 2010. From Uganda Bureau of Statistics (UBOS), I collected information on household characteristics, especially those related to primary education. Specifically, I acquired the Uganda National Household Survey (UNHS 2004 & 2010) data set. NAPE is managed and administered for and on behalf of the MoESTS by a semi-autonomous institution called Uganda National Examination Board (UNEB). The assessment is part of the Education Management Information System (EMIS) database, funded jointly by the Government of Uganda and the World Bank. It is conducted every year at primary and secondary levels of education, to randomly selected schools and students. It is a pooled cross-section, containing learning achievements in literacy (English) and numeracy (Mathematics) and covariates related to schools, teachers and students. At the primary level (the focus of this study), the assessment is conducted in primary three (P3) and primary six (P6) in order to ascertain the level of students' learning achievement and to monitor changes in the achievement levels over time. Before the advent of NAPE, the only assessment information used for monitoring and evaluating learning achievements was results from Primary Leaving Examination (PLE) and reports by examiners on these examinations. For more effective monitoring and evaluation outcomes, it was necessary to supplement the information from PLE since PLE is done only by students in the final year of the primary school cycle, primary seven (P7).

PLE is therefore primarily a tool for selection of students into post primary institutions and is designed accordingly. NAPE on its part puts emphasis on competences and skills that a

cohort of students has acquired and is capable of acquiring in relation to the objectives of the curriculum. The assessment is thus conducted at P3 and P6 (before students reach the final year of the cycle), so as to ascertain the level of learning outcomes at lower primary represented by P3 and upper primary represented by P6, thus allowing for any necessary remedial measures to be implemented. While P3 marks the end of lower primary (upper primary transition), P6 though not the final grade of primary represents the end of upper primary (lower secondary transition).

At P3 the assessment in literacy score measures students' competencies in reading comprehension and writing and numeracy score measures students' competencies in counting objects, adding numbers, subtracting numbers, multiplying numbers, dividing numbers, sorting shapes, telling time, solving sums involving money and buying and selling, solving sums involving capacity in daily life, writing and drawing fractions, associating a number to a number, writing number symbols from words and vice versa. Literacy score at P6 measures students' competencies in reading comprehension, writing and grammar and numeracy score measures students' competencies in performing operations on numbers (adding, subtracting, multiplying and dividing), number system and place value, number patterns and sequence, measures, graphs and interpretations, fractions and geometry. Literacy and numeracy scores in both grades are standardized at 100 points, with a student deemed as being proficient in English or Mathematics if he/ she scores 40 points in a particular subject. The official primary school enrolment age is 6 years and that of graduation is 12 years. Therefore, the official age for P3 is 8 years and that of P6 is 11 years, however, there are cases of under age and overage enrolment all through the primary schooling cycle. Appendix 1 and Appendix 2 are respectively histograms for literacy (reading) score and numeracy (math) score at P3. Appendices 3 and 4 are respectively histograms for literacy score and numeracy score at P6. While Appendices 5 and 6 demonstrate the kernel density distribution of data (literacy and numeracy) relative to normal distribution at P3, Appendices 7 and 8 portray kernel density distribution of data (literacy and numeracy) relative to normal distribution at P6.

4.9 Sampling Design for NAPE and UNHS

The sampling design used in the process of collecting NAPE data is the two-stage stratified cluster. The first stage involved selecting a random sample of schools stratified by district, with all the districts in the country being included in the sample frame. In the second stage, a random sample of students present in the school on the day of the survey was selected from P3 and P6 classes. From each district a minimum of 10 primary schools are sampled and from each school a minimum simple random sample of about 20 students (male and female) are selected per class. In 2004 the total number of schools sampled and assessed was 290 of which government schools were 203 and private schools were 87. In 2010, the number of primary schools sampled was 1098, constituted by 769 owned by the government and 329 privately owned. The total number of observations used during the analysis process was 30,053 and 26,720 for P3 and P6 respectively.

It is worth pointing out that in Uganda, there are more government/ public primary schools than privately ones, and that enrolment patterns are such that; lower grades (P1 to P3) have larger student numbers than upper grades (P4 to P7). Moreover, Uganda is a pre-dominantly rural country as evidenced by the fact that 84% of the population lives in rural areas and only 16% in urban areas. All these features form part and parcel of the criterion used when sampling schools and students to participate in the national assessment.

The UNHS survey is carried out using a two-stage stratified sampling design such that at the first stage, Enumeration Areas (EAs) were grouped by districts and rural-urban location; then drawn using Probability Proportional to Size (PPS). At the second stage, households which are the ultimate sampling units were drawn using Systematic Sampling. The two data sets (NAPE and UNHS) were merged and subsequently analyzed using Stata data analysis and statistical software version 13. The rich data sets provided a backdrop against which it was possible to carry out an empirical analysis of the effect of automatic promotion on students' continued

enrolment and learning achievements. In particular, NAPE provided the dependent variable for quality of education (learning achievements), internal efficiency (dropout) and covariates related to schools, regional dummies, students and teachers, while UNHS provided information on household variables.

4.10 Data Cleaning

One of the first and most important steps in any data processing task is to verify that the data values are correct or, at the very least, conform to some set of rules. For example, a variable called gender would be expected to have only two values; a variable representing height in inches would be expected to be within reasonable limits. Whether this is done or not, it is still useful to run your data through a series of data checking operations (Rahm and Do, 2009). This process has been given different terminologies, depending on the researcher(s), albeit with the same meaning and/ or definition. Some of the terms frequently used include; Error Checking, Error Detection, Data Validation, Data Cleaning, Data Cleansing, Data Scrubbing, and Error Correction. This study adopts the term "data cleaning" and it is a process used to determine inaccurate, incomplete, or unreasonable data and then improving the quality through correction of detected errors and omissions. The process may include format checks, completeness checks, reasonableness checks, limit checks, review of the data to identify outliers (geographic, statistical, temporal or environmental) or other errors, and assessment of data by subject area experts (e.g. taxonomic specialists). These processes usually result in flagging, documenting and subsequent checking and correction of suspect records. Validation checks may also involve checking for compliance against applicable standards, rules, and conventions (Chapman, 2005).

During the data cleaning process under this study, the focus was on a series of actions geared towards understanding the data and preparing it for the eventual analysis. These actions primarily involved visualizing data with the help of Stata commands such as summarize, describe, plot (scatter graphs and histograms). After visualizing data, the next step was to merge

the two datasets (NAPE and UNHS) and generating the key variables required for the implementation of the difference in differences (DID) model namely; post2005, treatment status and the interaction term. The inspection of data revealed cases of outliers, missing values (data) and repeated observations and variables. Outliers, missing values (data), repeated variables and repeated observations were eliminated with the help of Stata's drop command.

The presence of outliers in particular can lead to inflated errors rates and substantial distortions of parameters and statistics estimates when using either parametric or nonparametric tests. Causal observation of the literature suggests that researchers rarely report checking for outliers of any sort. This inference is supported by empirical evidence showing that approximately 8% of the time have authors reported testing assumptions of the statistical procedure(s) used in their studies, including checking for the presence of outliers. Although definitions vary, an outlier is generally considered to be a data point that is far outside the norm for a variable or population. It can also be described as an outlier an observation that deviates so much from other observations as to arouse suspicions that it was generated by a different mechanism. Outliers have also been defined as values that are dubious in the eyes of the researcher and contaminants (Osbourne and Overbay, 2004).

Missing data is a problem because nearly all standard statistical methods presume complete information for all the variables included in the analysis. A relatively few absent observations on some variables can dramatically shrink the sample size. As a result, the precision of confidence intervals is harmed, statistical power weakens and the parameter estimates may be biased (Soley-Bori, 2013). Appropriately dealing with missing values can be challenging as it requires a careful examination of the data to identify the type and pattern of missingness, and also a clear understanding of how the different imputation methods work.

4.11 Descriptive Statistics

Descriptive statistics is the term given to the analysis of data that helps describe, show or summarize data in a meaningful way such that, for example, patterns might emerge from the data. However, descriptive statistics do not allow a researcher to make conclusions beyond the data analyzed or reach conclusions regarding any hypotheses made. They are simply a way to describe our data. Descriptive statistics are thus very important because if a scholar simply presented his/her raw data it would be hard to visualize what the data was showing, especially if there was a lot of it. Descriptive statistics therefore enables researchers to present data in a more meaningful way, which allows simpler interpretation of the data. As an example, supposing a researcher has coursework/ test results for 100 university students, he/ she may be interested in knowing the overall performance of those students, or in the distribution or spread of the marks. Generating descriptive statistics enables the researcher to understand this.

This sub-section therefore illustrates in tabular form the data used to examine the effect of automatic promotion on the two dependent variables under consideration. Tables 4.2 and 4.3 illustrate summary descriptive statistics for the outcome variables for P3 and P6. In particular, the tables portray selected school, teacher, student and household variables. The summary is structured according to the variable name, mean scores/ proportions, standard deviation, P-Value and the normalized differences (norm-diff) for the two groups, over two time periods. Appendix 9 contains a detailed explanation of all the dependent and independent variables, including the three exogenous variables, used during the process of assessing the impact of automatic promotion policy. In order to compare annual household expenditure on education in Uganda for the years 2004 and 2010, I use Consumer Price Indexes (CPI) for two respective years. According to Bank of Uganda (BoU) website, the CPI for 2004 was 92.21 and that of 2010 was 149.97. The basic idea is to get the ratio of 2010 CPI to 2004 CPI and then multiplying it with household education expenditure in 2004, thus making it comparable between the two years. By way of an illustration, the above presentation is summarized as follows;

$$\frac{2010CPI}{2004CPI} = \frac{149.97}{92.21} = 1.626$$

Now supposing a household's annual expenditure on education in 2004 was US$1,000 then in 2010 the same expenditure will be equivalent to US$1,626 – i.e. $(1000 * 1.626) = 1626.$

Table 4.2: Dependent and Independents Variables used to analyze the effect of Automatic Promotion at P3

Variables	Before (2004)						After (2010)					
	Control		Treated				Control		Treated			
N=30,053	Mean	SD	Mean	SD	P-Value	Norm-diff	Mean	SD	Mean	SD	P-Value	Norm-diff
School Factors												
Location (Rural or Urban)	0.210	0.408	0.131	0.337	0.000	0.149	0.435	0.495	0.613	0.381	0.000	–0.285
Guidance and Counselling	0.388	0.487	0.369	0.443	0.000	0.029	0.356	0.479	0.286	0.452	0.000	0.106
Distance to Sec. School	4.079	2.957	5.595	13.144	0.006	–0.113	6.223	19.160	5.341	11.820	0.007	0.039
Distance to Market	2.546	4.500	2.121	3.962	0.014	0.071	1.894	4.616	2.187	3.938	0.005	–0.048
Reading Textbooks	0.930	0.253	0.924	0.263	0.599	0.016	0.925	0.262	0.921	0.268	0.581	0.011
Mathematics Textbooks	0.895	0.306	0.917	0.275	0.068	–0.053	0.926	0.260	0.910	0.284	0.033	0.042
Student Writing Surface	0.998	0.042	0.974	0.156	0.000	0.149	0.970	0.168	0.973	0.161	0.526	–0.013
Student Sitting Surface	0.976	0.150	0.962	0.188	0.086	0.058	0.968	0.175	0.968	0.173	0.853	0.000
School Feeding Program	0.205	0.072	0.202	0.402	0.000	0.007	0.133	0.340	0.181	0.385	0.000	–0.093
Extra Lessons	0.506	0.491	0.521	0.499	0.000	–0.021	0.570	0.495	0.521	0.499	0.000	0.070
Teachers Meet Parents	0.898	0.301	0.917	0.274	0.120	–0.047	0.922	0.267	0.916	0.276	0.433	0.016
Teacher Factors												

Variables	Before (2004)						After (2010)					
	Control		Treated				Control		Treated			
N=30,053	Mean	SD	Mean	SD	P-Value	Norm-diff	Mean	SD	Mean	SD	P-Value	Norm-diff
Teacher Education	3.310	1.107	3.307	1.011	0.946	0.002	3.182	0.981	3.315	1.006	0.000	–0.095
Teacher Experience	9.618	5.684	9.624	6.529	0.465	–0.001	9.675	5.985	9.558	6.428	0.491	0.013
Teacher Comes Late	0.982	0.182	0.957	0.201	0.004	0.092	0.979	0.143	0.961	0.192	0.000	0.075
Teacher Absenteeism	0.941	0.234	0.923	0.265	0.123	0.051	0.977	0.147	0.922	0.267	0.000	0.180
Teacher Skips Classes	0.828	0.377	0.783	0.443	0.000	0.077	0.808	0.393	0.728	0.441	0.000	0.135
Student Factors												
Gender	0.528	0.499	0.511	0.499	0.438	0.024	0.532	0.499	0.511	0.499	0.099	0.030
Age in Years	9.421	1.476	10.62	1.564	0.000	–0.559	9.739	1.558	10.64	1.567	0.000	–0.410
Student Repeated	0.384	0.486	0.534	0.498	0.000	–0.216	0.540	0.498	0.528	0.499	0.393	0.017
Student receive homework	0.929	0.256	0.937	0.242	0.451	–0.023	0.938	0.239	0.929	0.256	0.162	0.026
Student receive corrections	0.925	0.262	0.937	0.242	0.272	–0.034	0.938	0.239	0.929	0.256	0.162	0.026
Student comes late	0.955	0.206	0.988	0.105	0.000	–0.143	0.986	0.113	0.983	0.127	0.278	0.018
Student Absenteeism	1.000	0.000	0.995	0.061	0.128	0.082	1.000	0.000	0.995	0.063	0.009	0.079

Variables	Before (2004)						After (2010)					
	Control		Treated				Control		Treated			
N=30,053	Mean	SD	Mean	SD	P-Value	Norm-diff	Mean	SD	Mean	SD	P-Value	Norm-diff
Student Skips Classes	0.895	0.306	0.781	0.413	0.000	0.222	0.884	0.319	0.798	0.401	0.000	0.168
Student Attended Nursery	0.430	0.495	0.486	0.499	0.010	–0.080	0.587	0.492	0.483	0.499	0.000	0.148
Student speaks English	0.863	0.343	0.851	0.355	0.456	0.024	0.822	0.382	0.849	0.358	0.005	–0.052
Household Factors												
Mothers Education	0.835	0.371	0.802	0.397	0.061	0.061	0.831	0.374	0.797	0.401	0.001	0.062
Fathers Education	0.877	0.327	0.879	0.326	0.923	–0.004	0.896	0.304	0.875	0.329	0.018	0.047
Children in a Household	1.230	1.127	1.272	1.133	0.400	–0.026	1.341	1.141	1.493	0.169	0.000	–0.132
Source of Light at Night	0.315	0.465	0.373	0.483	0.005	–0.087	0.247	0.431	0.095	0.294	0.000	0.291
Household owns a Radio	0.712	0.452	0.725	0.446	0.509	–0.020	0.667	0.471	0.572	0.494	0.000	0.139
Household owns a TV	0.297	0.457	0.347	0.476	0.017	–0.076	0.230	0.421	0.095	0.294	0.000	0.263
Expenditure on Education	40.806	141.11	41.448	186.49	0.936	–0.003	34.363	145.72	36.89	169.77	0.569	–0.011
Distance to Primary School	4.015	3.142	3.819	2.935	0.125	0.046	3.793	2.972	3.776	2.960	0.833	0.004

Source: Created by Author using NAPE (2004 and 2010) and UNHS (2004 and 2010)

Table 4.3: Dependent and Independents Variables used to analyze the effect of Automatic Promotion at P6

Variables	Before (2004)						After (2010)					
	Control		Treated				Control		Treated			
N=26,720	Mean	SD	Mean	SD	P-Value	Norm-diff	Mean	SD	Mean	SD	P-Value	Norm-diff
School Factors												
Location (Rural or Urban)	0.720	0.449	0.702	0.457	0.175	0.028	0.706	0.455	0.742	0.437	0.000	–0.057
Guidance and Counselling	0.286	0.452	0.285	0.451	0.956	0.002	0.305	0.46	0.28	0.449	0.000	0.039
Distance to Sec. School	5.943	16.19	5.836	15.37	0.813	0.005	5.731	14.16	5.348	12.08	0.037	0.021
Distance to Market	2.271	4.415	2.283	4.392	0.925	–0.002	2.153	4.024	2.116	3.745	0.508	0.007
Reading Textbooks	0.903	0.294	0.931	0.253	0.000	–0.072	0.916	0.276	0.925	0.263	0.025	–0.024
Mathematics Textbooks	0.903	0.295	0.916	0.276	0.114	–0.032	0.912	0.283	0.912	0.283	0.967	0.000
Student Writing Surface	0.978	0.144	0.969	0.17	0.065	0.040	0.972	0.162	0.973	0.161	0.953	–0.004
Student Sitting Surface	0.975	0.153	0.964	0.184	0.03	0.046	0.969	0.172	0.968	0.174	0.764	0.004
School Feeding Program	0.174	0.379	0.183	0.386	0.45	–0.017	0.18	0.384	0.178	0.382	0.694	0.004
Extra Lessons	0.502	0.5	0.531	0.499	0.043	–0.041	0.531	0.499	0.516	0.499	0.032	0.021
Teachers Meet Parents	0.915	0.278	0.916	0.277	0.910	–0.003	0.92	0.270	0.915	0.278	0.211	0.013

Variables	Before (2004)						After (2010)					
	Control		Treated				Control		Treated			
N=26,720	Mean	SD	Mean	SD	P-Value	Norm-diff	Mean	SD	Mean	SD	P-Value	Norm-diff
Teacher Factors												
Teacher Education	3.330	0.978	3.320	1.011	0.710	0.007	3.328	1.000	3.294	1.011	0.018	0.024
Teacher Experience	9.416	6.304	9.47	6.414	0.771	–0.006	9.361	6.329	9.656	6.469	0.001	–0.033
Teacher Comes Late	0.967	0.177	0.959	0.197	0.151	0.030	0.966	0.179	0.960	0.195	0.015	0.023
Teacher Absenteeism	0.921	0.268	0.925	0.261	0.594	–0.011	0.927	0.259	0.924	0.264	0.427	0.008
Teacher Skips Classes	0.732	0.443	0.734	0.441	0.874	–0.003	0.738	0.439	0.73	0.443	0.199	0.013
Student Factors												
Gender	0.800	0.400	0.771	0.419	0.018	0.050	0.512	0.499	0.508	0.499	0.520	0.006
Age in Years	13.53	1.477	13.76	1.390	0.000	–0.113	13.65	1.535	13.86	1.424	0.000	–0.100
Student Repeated	0.524	0.499	0.531	0.499	0.635	–0.010	0.530	0.499	0.529	0.499	0.889	0.001
Student receive homework	0.916	0.277	0.937	0.241	0.003	–0.057	0.928	0.258	0.93	0.253	0.437	–0.006
Student receive corrections	0.917	0.275	0.937	0.242	0.007	–0.055	0.927	0.258	0.93	0.253	0.404	–0.008
Student comes late	0.983	0.126	0.982	0.129	0.847	0.006	0.983	0.128	0.983	0.127	0.965	0.000
Student Absenteeism	0.998	0.033	0.996	0.062	0.074	0.028	0.996	0.059	0.995	0.065	0.342	0.011

Variables	Before (2004)						After (2010)					
	Control		Treated				Control		Treated			
N=26,720	Mean	SD	Mean	SD	P-Value	Norm-diff	Mean	SD	Mean	SD	P-Value	Norm-diff
Student Skips Classes	0.784	0.411	0.809	0.392	0.031	–0.044	0.799	0.400	0.803	0.397	0.527	–0.007
Student Attended Nursery	0.480	0.499	0.481	0.499	0.955	–0.001	0.488	0.499	0.485	0.499	0.637	0.004
Student speaks English	0.837	0.368	0.845	0.361	0.442	–0.016	0.852	0.354	0.850	0.357	0.676	0.004
Household Factors												
Mothers Education	0.802	0.398	0.799	0.400	0.797	0.005	0.801	0.398	0.799	0.400	0.691	0.004
Fathers Education	0.878	0.326	0.876	0.329	0.789	0.004	0.875	0.33	0.878	0.327	0.498	–0.006
Children in a Household	1.421	1.145	1.374	1.143	0.157	0.029	1.386	1.156	1.429	1.172	0.009	–0.026
Source of Light at Night	0.214	0.41	0.216	0.411	0.829	–0.003	0.207	0.405	0.193	0.395	0.012	0.025
Household owns a Radio	0.676	0.467	0.696	0.459	0.143	–0.031	0.672	0.469	0.682	0.465	0.121	–0.015
Household owns a TV	0.201	0.4	0.21	0.407	0.418	–0.016	0.196	0.397	0.185	0.388	0.066	0.020
Expenditure on Education	42.4	223.58	42.32	198.59	0.989	0.0003	37.49	172.65	38.04	168.66	0.822	–0.002
Distance to Primary School	3.78	2.917	3.839	2.96	0.495	–0.014	3.841	2.935	3.822	2.951	0.649	0.005

Source: Created by Author using NAPE (2004 and 2010) and UNHS (2004 and 2010)

4.12 Summary of Chapter Four

This chapter illustrated the systematic and theoretical methods undertaken during the process of assessing the effect of automatic promotion policy on the two outcome variables (dropout rate and learning achievements). The chapter started by anchoring the study to the human capital development theory as postulated by earlier scholars in the field of socio-economic development. The scholar's perception of the relationship between the dependent variables on one hand and the independent variables on the other was graphically demonstrated. The perception was guided by scholarly works of King et al., (1999) and Ndaruhutse (2008). The relevant hypotheses constructed in harmony with the research questions and objectives of the study, and to be tested were likewise highlighted and discussed in details, drawing from earlier research studies. Moreover, the difference in differences (DID) model as the analysis technique of choice was introduced and extensively discussed (in text, graphically and in table form), highlighting its strength, weaknesses and its overall applicability and relevance to the study. The fact that of the two dependent variables, one of them is continuous (learning achievements) and the other is discrete (dropout rate), the DID model was structured in linear and non-linear frameworks respectively.

Furthermore, the two datasets that facilitated this policy impact evaluation were exhaustively described, touching on issues such as the types of the two datasets, their respective sources, age coverage of NAPE (being the main dataset) the years relevant to the study, the number of observations in each dataset and the sampling designs employed when each dataset was being collected. Data cleaning was carried out for purposes of ensuring that it is correct and conforms to the basic rules. The chapter concludes with a presentation of the descriptive statistics for the merged data, so as to enable simpler understanding and interpretation of the data. The descriptive statics are organized according to the two grades under consideration (P3 and P6) and according to the pre and post treatment time periods, as well as treatment status (control and treated groups).

CHAPTER FIVE:

RESULTS/ FINDINGS

5.1 Introduction

This chapter of the dissertation presents regression results generated in response to the research questions posed under chapter one, thus ensuring that the objective that the study set out to achieve is met. The overall objective of the study was to examine the effect the adoption and implementation of automatic promotion in Uganda's primary education sub-sector has had on education efficiency (represented by dropout rate) and quality (represented by learning achievements). However, over and above estimating the effect of implementing automatic promotion, the study assessed its incidence along two dimensions namely; location of the schools (rural or urban) and students' gender.

The empirical results were generated using the difference in differences (DID) model already presented and discussed under the methodology chapter. In particular, equation 5 was operationalized using Stata version 13 in response to the first research question and its sub-research questions. Equation 7 was implemented using Stata 13 in order to respond to the second research question and its attendant sub-research questions. The findings are therefore organized according to the research questions such that section 5.3 shows the regression results responding to research question one. Responses to sub-research question 1.1 and 1.2 are contained in sub-section 5.3.1 and 5.3.2 respectively. Section 5.4 of the chapter presents results in response to research question two, and sub-sections 5.4.1 and 5.4.2 respectively provide responses to sub-research questions 2.1 and 2.2.

Under the DID framework, the requirement is to interpret and discuss only the coefficient of the interaction term, for the case of a linear regression and only the marginal effect of the interaction term for the case of non-linear (probit or logit) regression. This study abides by this requirement and consequently only summary results of exogenous variables, specifically

generated for purposes of assessing the impact of the policy are presented under this chapter. Complete or detailed regression results, including all the school factors, teacher factors, student factors and household factors used during policy impact assessment, are presented as appendices. However, before delving into presenting the findings from this policy impact evaluation, the author presents a brief comparison and contrast between this study and the one conducted by Koppensteiner in 2014 in the Brazilian state of Minas Gerais, and this is contained under section 5.2. The comparison is necessitated by the fact that this study was greatly informed by Koppensteiner's.

5.2 Comparison with Koppensteiner's study of 2014.

First and foremost it is worth re-stating the fact that this study mirrors a study by Koppensteiner (2014) in terms of the overall purpose, the analysis method/ technique, the policy being assessed and the outcome variable under consideration. In particular, both studies undertook to estimate the impact of automatic promotion policy on students' cognitive learning achievements. While the author explicitly set out to examine the effect of the policy on students' dropout rate and learning achievements, Koppensteiner's focus was primarily on the effect of automatic grade promotion on students' academic performance, with the assessment of the impact on dropout rate not being the main focus of his study. Suffice to say that both studies controlled for selected variables that influence students' dropout rate and learning outcomes. The exact composition of the selected factors vary between the two studies, however, the general composition can be grouped into four categories and these are; school variables, teacher variables, student variables and household/ community variables.

As already highlighted in chapter 4, I utilized a difference-in-differences (DID) policy impact evaluation method/ technique, which is the same method used by Koppensteiner (2014). Both studies employed nationally generated datasets (repeated cross-sections). Koppensteiner in his study used repeated cross-section dataset from two sources namely: 1) Information on school

characteristics comes from the annual Brazilian school census that is conducted by the National Institute for the Study and Research on Education (INEP) under the control of the Federal Ministry of Education (MEC); and 2) The second part of the data comes from the State System of the Evaluation of Public Education (Sistema Mineiro de Avaliação da Educação Pública: SIMAVE), which includes the program for the evaluation of primary and secondary schools (Programa de Avaliação da Educação Básica: PROEB).

The Brazilian school census compiles data annually from all primary and secondary schools in Brazil. The exceptionally rich data includes information on the location and administrative dependence of schools, physical characteristics (quantity of premises and class rooms, equipment and teaching material), participation in national, state and municipal school programs, the number of teachers and administrative staff, average class-size, detailed information on student flows (number of students in each grade according to age, repetition, drop-out and student transfer rates) among other information.

Similar to Koppensteiner's study, this study likewise employed non-experimental data (repeated cross-sections), obtained from two sources and these are: 1) the Ministry of Education, Science, Technology and Sports (MoESTS); and 2) Uganda Bureau of Statistics (UBOS). From the MoESTS, I got the National Assessment of Progress in Education (NAPE) datasets for 2004 and 2010. From Uganda Bureau of Statistics (UBOS), I collected information on household characteristics, especially those related to primary education. Specifically, I acquired the Uganda National Household Survey (UNHS 2004 & 2010) datasets. NAPE contains learning achievements in literacy (English) and numeracy (Mathematics) and covariates related to schools, teachers and students characteristics. At the primary level (the focus of this study), the assessment is conducted in primary three (P3) and primary six (P6) in order to ascertain the level of students' learning achievement and to monitor changes in the achievement levels over time. The two grades represent lower primary and upper primary respectively. Before the advent of NAPE, the only assessment information used for monitoring and evaluating learning

achievements was results from Primary Leaving Examination (PLE) and reports by examiners on these examinations. For a more effective monitoring and evaluation, it was necessary to supplement the information from PLE since PLE is done only by students in the final year of the primary school cycle, primary seven (P7).

Despite the relative similarities highlighted above, there are significant differences between my study and Koppensteiner's, notably; the grades at which the policy impact assessments were undertaken, the countries in which the studies were conducted and the time periods/ years under consideration. Koppensteiner in his study mainly focused on grade 4 students in the Brazilian state of Minas Gerais, the second most populous state in Brazil with an estimated population of about 19 million (IBGE, 2007), for the years 2003 and 2006. This study focused on grade 3 (lower primary) and grade 6 (upper primary) in Uganda, and the pre-treatment and post-treatment time periods are 2004 and 2010. I focused on the two grades because NAPE is designed to assess learning outcomes at lower and upper primary, so it was imperative to assess the effect of the policy at the same levels.

5.3 Effect of automatic promotion on students' dropout rate in Uganda's primary education.

This section illustrates the estimated effect of the policy on the probability of students dropping out of school at primary three (P3) and primary six (P6). However, as an overview, it's worth noting that when computing and interpreting interaction terms for nonlinear models, the standard practice is not to stop at interpreting coefficients. This is because unlike in the linear regression case, where regression coefficients are the marginal effects, under probit, logit and tobit regression this is not the case. There is an additional step of computation required in order to get the marginal effects, after performing the usual non-linear regression (probit regression in the case of this study). Typically, the interest is in the ceteris paribus effects of changes in the regressors affecting the features of the outcome variable. That is to say, how much the

(conditional) probability of the outcome variable changes when you change the value of a regressor, holding all other regressors constant at some values. In the more recent versions of Stata, the second step involves using margins command to estimate the marginal effect at the means *(margins, dydx(*)).*

This line of analysis and interpreting the marginal effect of non-linear interaction terms (using Stata's margins command) is consistent with scholarly works by Ai & Norton (2009); Phuni (2012); Zelner (2009); and Hoetker (2007). That is not to say this study doesn't take on board computational and interpretation challenges associated with marginal effect of interaction terms as pointed and/ or highlighted by Williams (2012) and Bius (2010). However, the two scholars do not provide a clear alternative approach to computing the marginal effect for interaction term for both linear and non-linear models. On the basis of the above overview, before presenting the estimated impact (marginal effect) of the policy on the probability of students dropping out in the two grades under consideration, Table 5.1 shows a summary output of the first step of non-linear regression (probit regression results) for the effect of automatic promotion on students' dropout rate at P3 and P6 after controlling for other selected variables (school, regional dummies, teacher, student and household). Appendix 10 contains full probit regression results, for the three exogenous variables, as well as other selected variables (school, regional dummies, teacher, student and household) that were included in the model.

Table 5.1: Probit regression results of the effect of automatic promotion on students' dropout at P3 & P6

Variables	**P3**			**P6**		
	Coef.	**Robust Std. Err.**	**z**	**Coef.**	**Robust Std. Err.**	**z**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Post2005	1.100	0.142	7.72	–0.138	0.055	–2.49
Treatmentstatus	0.488	0.107	4.56	–0.032	0.061	–0.53
Interactionterm	–0.598	0.128	–4.67	0.039	0.067	0.59

Variables	P3			P6		
	Coef.	Robust Std. Err.	z	Coef.	Robust Std. Err.	z
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	2.840	0.237	11.96	3.259	0.335	9.73
School Factors[1]		Yes			Yes	
Regional Dummies[2]		Yes			Yes	
Teacher Factors[3]		Yes			Yes	
Student Factors[4]		Yes			Yes	
Household Factors[5]		Yes			Yes	
Observations		30053			26720	
Psuedo R2		0.085			0.067	

Source: Created by Author (2016)

Table 5.2 illustrates summary results (highlighting mainly the three exogenous variables generated for the DID framework) of the marginal effect of automatic promotion on the probability of students' dropping out at P3 and P6 in Uganda. Appendix 11 presents detailed results for the three exogenous variables and other selected variables (school, regional dummies, teacher, student and household) that were included in the model. The probit regression results (marginal effect) show that over the period 2005 to 2010, automatic promotion appears to have had a negative effect on the probability of students dropping out at lower primary represented by P3. At upper primary, represented by P6, and over the same period under consideration, the policy appears to have had no effect on the likelihood of students dropping out. The negative marginal effect at P3 can be interpreted as a reduction in the likelihood of a student dropping out, attributable to the implementation of the policy.

[1] See Appendix 10 for details of the school related factors controlled for during the process of assessing the impact of automatic promotion policy on students' dropout rate in Uganda's primary education.
[2] See Appendix 10 for details of the regional dummy variables controlled for during the analysis process
[3] See Appendix 10 for details of the teacher related factors controlled for during the analysis process
[4] See Appendix 10 for details of the student related factors controlled for during the analysis process
[5] See Appendix 10 for details of the household related factors controlled for during the analysis process

Specifically, implementation of automatic promotion appears to have translated into approximately 7 percentage points decrease in the probability of students at lower primary (P3) dropping out, statistically significant at 95% Confidence Interval (CI= –0.1057, –0.0432). The effect of the policy at P3 is shown by the intersection between the interactionterm raw and columns 1 and 3 (dy/dx = –0.074 and z-statistic = –4.67), of Table 5.2. At upper primary (P6), the marginal effect of the policy is shown by dy/dx = 0.004 and z-statistic = 0.59 (see the intersections between the interactionterm raw and columns 4 and 6 respectively), statistically insignificant at 95% Confidence Interval (CI= –0.0107, 0.0219). The information contained in Table 5.2 is in response to the first research question, designed to help assess the impact of automatic promotion on students' dropout rate in Uganda's primary education.

Table 5.2: Marginal effect of automatic promotion on the probability of students dropping out at P3 and P6

Variables	**P3**			**P6**		
	dy/dx	**Delta-method Std. Err.**	**z**	**dy/dx**	**Delta-method Std. Err.**	**z**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Post2005	0.136	0.018	7.69	–0.017	0.007	–2.49
Treatmentstatus	0.060	0.013	4.55	–0.004	0.008	–0.53
Interactionterm	–0.074	0.015	–4.67	0.004	0.008	0.59
School Factors[6]		Yes			Yes	
Regional Dummies[7]		Yes			Yes	
Teacher Factors[8]		Yes			Yes	
Student Factors[9]		Yes			Yes	

[6] See Appendix 11 for details of the school related factors controlled for during the process of assessing the marginal effect of automatic promotion policy on students' dropout rate in Uganda's primary education
[7] Appendix 11 for details of the regional dummy variables controlled for during the analysis process
[8] Appendix 11 for details of the teacher related variables controlled for during the analysis process
[9] Appendix 11 for details of the student related variables controlled for during the analysis process

Variables	P3			P6		
	dy/dx	Delta-method Std. Err.	z	dy/dx	Delta-method Std. Err.	z
Household Factors[10]	Yes			Yes		
Observations	30053			26720		

Source: Created by Author (2016)

The effect at grade 3 is comparable to that found by Koppensteiner (2014). In other words, while my study found a significant negative effect (dy/dx = –0.074, z-statistic = –4.67 and 95% CI = –0.1057, –0.0432), Koppensteiner found that automatic grade promotion in state of Minas Gerais in Brazil had a significant negative effect at grade 4, equivalent to a mean reduction of 0.31 student per school/ cohort. Sub-section 5.3.1 contains probit regression results and the marginal effect of automatic promotion on the probability of students in rural and urban schools dropping out, for P3 and P6. This is in response to sub-research question 1.1, which inquired about the existence of a causal relationship between the implementation of the policy and rural-urban dropout rates. Sub-section 5.3.2 contains estimation results (probit output and marginal effect) for the effect of implementing the policy on the probability of male and female students dropping out of school, for P3 and P6. The findings in this sub-section are in response to sub-research question 1.2, geared towards investigating the impact of implementing the policy on dropout rates among male and female students.

5.3.1 Effect of automatic promotion on students' dropout rate in rural schools, relative to those in urban schools.

One of the significant differences between this study and that conducted by Koppensteiner (2014) is that; under this study the incidence of the policy effect was decomposed along rural – urban dimension. Reason being the need to assess the effectiveness of the policy in promoting

[10] Appendix 11 for details of the household variables controlled for during the analysis process

education efficiency (reduce dropout rate) among students studying in rural and urban settings in an equitable manner. Table 5.3, illustrates a summary of probit regression results, with the full probit regression results being reflected in Appendix 12. In addition, Table 5.4 and Appendix 13 respectively illustrate summary results and full results of the marginal effect of automatic promotion practice on the probability of students' dropping out along rural-urban component. In general terms, with the exception of P3 urban primary schools, findings contained in Table 5.4 show that automatic promotion practice seems to have had no effect on the likelihood of students in rural and urban schools dropping out in the two grades under review.

In particular, the policy seems to have had a positive effect on P3 students studying in urban school, which is statistically significant at 95% Confidence Interval (CI = –0.0366, 0.1056) as can be seen in the points of intersection between the interactionterm raw and columns 3 and 4 (dy/dx = 0.071 and z-statistic = 4.04). This result is thus interpreted as an increase in the probability of P3 students in urban primary schools dropping out, by approximately 7 percentage points, attributed to the practice of automatically promotion. By contrast, the value of the marginal effect at P3 rural is –0.056 (z-statistic = –1.68), which is not statistically significant at 95% Confidence Interval (CI = –0.1222, 0.0093), see the intersection between the interactionterm raw and columns 1 and 2. This implies that the policy appears to have had no effect on the likelihood of students dropping out of primary schooling at P3 rural setting.

Table 5.3: Probit regression results of the effect of automatic promotion on students drop out of schools located in rural and urban areas – P3 and P6

Variables	**P3**				**P6**			
	Rural		**Urban**		**Rural**		**Urban**	
	Coef.	**z**	**Coef.**	**z**	**Coef.**	**z**	**Coef.**	**z**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Post2005	0.374	1.53	0.354	2.96	–0.147	–2.20	–0.112	–1.14
Treatmentstatus	– 0.147	–0.64	0.124	1.28	-0.044	–0.59	0.017	0.16

Variables	P3				P6			
	Rural		Urban		Rural		Urban	
	Coef.	z	Coef.	z	Coef.	z	Coef.	z
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Interactionterm	–0.427	–1.68	0.675	4.03	0.010	0.13	0.097	0.80
Constant	2.668	8.90	1.587	5.07	2.531	10.04	2.410	5.92
School Factors[11]	Yes		Yes		Yes		Yes	
Regional Dummies	No		No		No		No	
Teacher Factors[12]	Yes		Yes		Yes		Yes	
Student Factors[13]	Yes		Yes		Yes		Yes	
Household Factors[14]	Yes		Yes		Yes		Yes	
Observations	20194		9859		19388		7332	
Psuedo R2	0.083		0.110		0.072		0.059	

Source: Created by Author (2016)

Considering the effect at upper primary (P6), the policy appears to have had no effect on the probability of students in both rural and urban primary schools dropping out. As can be in the points of intersection between the interactionterm raw and columns 5 and 6 of Table 5.4, the marginal effect for P6 rural is 0.001 (z-statistic = 0.13), statistically insignificant at 95% Confidence Interval (CI = –0.0179, 0.0213). Moreover, results for P6 urban schools indicate a marginal effect of 0.012 (z-statistic = 0.80), not statistically significant at 95% Confidence Interval (CI = –0.0154, 0.0441), see the intersection between the interactionterm raw and Columns 7 and 8 of Table 5.4.

[11] See Appendix 12 for details of the school related factors controlled for during the process of assessing the impact of automatic promotion policy on students' dropout rate in the context of rural – urban component.
[12] Appendix 12 for details of the teacher related variables controlled for during the analysis process
[13] Appendix 12 for details of the student related variables controlled for during the analysis process
[14] Appendix 12 for details of the household related variables controlled for during the analysis process

Table 5.4: Marginal effect of automatic promotion on the probability of students dropping out of schools located in rural and urban settings – P3 and P6

Variables	P3				P6			
	Rural		Urban		Rural		Urban	
	dy/dx	z	dy/dx	z	dy/dx	Z	dy/dx	z
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post2005	0.049	1.53	0.037	2.95	–0.018	–2.20	–0.014	–1.14
Treatmentstatus	–0.019	–0.64	0.013	1.28	–0.005	–0.59	0.002	0.16
Interactionterm	–0.056	–1.68	0.071	4.04	0.001	0.13	0.012	0.80
School Factors[15]	Yes		Yes		Yes		Yes	
Regional Dummies	No		No		No		No	
Teacher Factors[16]	Yes		Yes		Yes		Yes	
Student Factors[17]	Yes		Yes		Yes		Yes	
Household Factors[18]	Yes		Yes		Yes		Yes	
Observations	20194		9859		19388		7332	

Created by Author (2016)

5.3.2 Effect of automatic promotion on the rate at which male students are dropping out of school, compared to female students.

Another key area of difference between Koppensteiner (2014) and the author's study is the disaggregation of the effect incidence along gender element. As already noted in the previous section, Koppensteiner in his study of 2014 did not estimate the effect of automatic promotion on dropout rate among male and female students. By contrast, this study made this line of policy

[15] See Appendix 13 for details of the school related factors controlled for during the process of assessing the impact of automatic promotion policy on students' dropout rate in the context of rural – urban component.
[16] Appendix 13 for details of the teacher related variables controlled for during the analysis process
[17] Appendix 13 for details of the student related variables controlled for during the analysis process
[18] Appendix 13 for details of the household related variables controlled for during the analysis process

effect analysis one of its main objectives, since it helps shade light on the effectiveness of the policy in promoting education efficiency in an equitable manner (gender equity), in the context of primary education in Uganda. Table 5.5 depicts a summary of probit regression output for the effect of the policy on the students' dropout rate at P3 and P6, structured along gender component. A full set of the probit regression results for the three exogenous variables and other selected variables (school, regional dummies, teacher, student and household) that were included in the model is illustrated in Appendix 14.

Furthermore, whereas Table 5.6 contains the marginal effect (in summary form) of automatic promotion practice on the likelihood of male and female students dropping out of primary schooling, Appendix 15 demonstrates the full set of results, including for the three exogenous variables and other selected variables that were included in the model. From Table 5.6, two general observations can be made, the first being that the policy appears to have translated into a reduction in the likelihood of students dropping out of primary schooling for both male and female students at P3. The second observation is that at P6 the policy seems to have had no effect on the probability of both male and female students dropping out of school. The intersection points between the interactionterm raw and Columns 1 and 2, show that the probability of male students at lower primary (P3) dropping out decreased by approximately 7 percentage point (dy/dx = –0.071 and z-statistic = –3.19), statistically significant at 95% Confidence Interval (CI = –0.1156, –0.0276). The marginal effect on P3 female students is evidenced by the intersection between the interactionterm raw and columns 3 and 4 (dy/dx = –0.074 and z-statistic = –3.27), statistically significant at 95% Confidence Interval (CI = –0.1188, –0.0298). Similar to male students, this represents approximately a 7 percentage point decrease in the likelihood of female students dropping out of primary schooling.

Table 5.5: Probit regression results of the effect of automatic promotion on male and female students drop out – P3 and P6

Variables	P3				P6			
	Male		Female		Male		Female	
	Coef.	z	Coef.	z	Coef.	z	Coef.	z
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post2005	1.132	5.47	1.052	5.32	–0.052	–0.85	–0.716	–4.12
Treatmentstatus	0.473	3.06	0.475	3.21	–0.032	–0.50	–0.172	–0.87
Interactionterm	–0.585	–3.20	–0.586	–3.27	0.083	1.09	0.132	0.65
Constant	2.504	9.22	2.189	5.90	2.336	8.00	3.163	8.60
School Factors[19]	Yes		Yes		Yes		Yes	
Regional Dummies[20]	Yes		Yes		Yes		Yes	
Teacher Factors[21]	Yes		Yes		Yes		Yes	
Student Factors[22]	Yes		Yes		Yes		Yes	
Household Factors[23]	Yes		Yes		Yes		Yes	
Observations	15407		14646		15066		11654	
Psuedo R2	0.084		0.084		0.056		0.089	

Source: Created by Author (2016)

At P6, the intersections between Columns 5 and 6, and the interactionterm raw indicate that the practice of automatic promotion seems to have had no effect on the probability of male students dropping out of primary schooling, a point emphasized by 0.010 marginal effect, statistically insignificant at 95% Confidence Interval (CI = –0.0078, 0.0289), and z-statistic = 1.09. Likewise there appears to have been no effect on the probability of P6 female students

[19] See Appendix 14 for details of the school related factors controlled for during the process of assessing the impact of automatic promotion policy on students' dropout rate in the context of male – female component.
[20] Appendix 14 for details of the regional dummies controlled for during the analysis process
[21] Appendix 14 for details of the teacher related variables controlled for during the analysis process
[22] Appendix 14 for details of the student related variables controlled for during the analysis process
[23] Appendix 14 for details of the household related variables controlled for during the analysis process

dropping out, as demonstrated by the marginal effect = 0.016 (z-statistic = 0.65), statistically insignificant at 95% Confidence Interval (CI = –0.0324, 0.0643), see the intersection between columns 7 and 8, and the interactionterm raw.

Table 5.6: Marginal effect of automatic promotion on the probability of male and female students dropping out – P3 and P6

Variables	P3				P6			
	Male		Female		Male		Female	
	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post2005	0.138	5.44	0.133	5.30	–0.006	–0.85	–0.087	–4.11
Treatmentstatus	0.057	3.05	0.060	3.21	–0.004	–0.50	–0.021	–0.87
Interactionterm	–0.071	–3.19	–0.074	–3.27	0.010	1.09	0.016	0.65
School Factors[24]	Yes		Yes		Yes		Yes	
Regional Dummies[25]	Yes		Yes		Yes		Yes	
Teacher Factors[26]	Yes		Yes		Yes		Yes	
Student Factors[27]	Yes		Yes		Yes		Yes	
Household Factors[28]	Yes		Yes		Yes		Yes	
Observations	15407		14646		15066		11654	

Source: Created by Author (2016)

[24] See Appendix 15 for details of the school related factors controlled for during the process of assessing the marginal impact of automatic promotion policy on students' dropout rate in the context of male – female component.
[25] Appendix 15 for details of the regional dummies controlled for during the analysis process
[26] Appendix 15 for details of the teacher related variables controlled for during the analysis process
[27] Appendix 15 for details of the student related variables controlled for during the analysis process
[28] Appendix 15 for details of the household related variables controlled for during the analysis process

5.4 Effect of automatic promotion on students' learning achievements in Uganda's primary education.

Section 5.1 of this chapter stated that both studies (this one and the one by Koppensteiner (2014)) undertook to investigate the existence of a causal relationship between automatic promotion and students' academic performance/ learning achievements in Uganda and Brazil respectively. This section (section 5.4) therefore presents linear regression results from the author's analysis. Tables 5.7 and 5.8 present a summary version of the estimated impact of implementing automatic promotion policy on students' learning achievements (literacy and numeracy) at P3 and P6. Full estimation results are reflected in Appendix 16, including the three exogenous variables and selected variables included in the model. Over the period 2005 to 2010, the impact on literacy at P3 is approximately 8 percentage points (dy/dx = 7.905 and t-statistic =6.88), statistically significant at 95% Confidence Interval (CI = 5.3207, 9.7552). In the same grade and over the same period, the effect on numeracy is about 14 percentage points (dy/dx = 14.387 and t-statistic =13.42), statistically significant at 95% Confidence Interval (CI = 11.1456, 15.8593).

Table 5.7: Effect of automatic promotion on literacy and numeracy scores at P3

Treatment Status	Literacy			Numeracy		
	Treatment period		Difference	Treatment period		Difference
	Before	After	After -Before	Before	After	After -Before
Control	76.589	85.869	9.280	67.653	71.257	3.604
	(2.701)	(3.846)	(1.145)	(2.594)	(3.683)	(1.089)
Treated	47.568	64.753	17.185	38.927	56.918	17.991
	(1.600)	(3.894)	(2.294)	(3.620)	(3.729)	(2.161)
Treated – Control	–29.021	–21.116	**7.905**	–28.726	–14.339	**14.387**
	(1.101)	(0.048)	**(1.149)**	(1.026)	(0.046)	**(1.072)**

Source: Created by Author (2016)

Note: mean outcomes for treatment and control before and after treatment, and Robust Standard Errors in Parenthesis. See Annex 16 for the detail regression results, including school variables, regional dummies, teacher related variables, student related variables and household variables.

Table 5.8: Effect of automatic promotion on literacy and numeracy scores at P6

Treatment Status	Literacy			Numeracy		
	Treatment period		Difference	Treatment period		Difference
	Before	After	After -Before	Before	After	After -Before
Control	85.145	93.795	8.650	67.349	75.462	8.113
	(2.791)	(3.378)	(0.587)	(2.714)	(3.232)	(0.518)
Treated	79.820	89.953	10.133	63.461	72.145	8.684
	(2.155)	(3.436)	(1.281)	(2.164)	(3.295)	(1.131)
Treated –	–5.325	–3.842	**1.483**	–3.888	–3.317	**0.571**
Control	(0.636)	(0.058)	**(0.694)**	(0.550)	(0.063)	**(0.613)**

Source: Created by Author (2016)

Note: Mean outcomes for treatment and control before and after treatment, and Robust Standard Errors in Parenthesis. See Annex 16 for the detail regression results, including school variables, regional dummies, teacher related variables, student related variables and household variables.

At P6, the results of the estimated effect over the same period (2005 to 2010) exhibit a mixed pattern. The policy appears to have had a positive effect on P6 reading score of approximately 1 percentage point (coef = 1.483 and t-statistic = 2.14), statistically significant at 95% Confidence Interval (CI = 0.3392, 3.7173). On the contrary, it appears to have had no effect on P6 math score, as demonstrated by the coefficient = 0.571 (t-statistic = 0.93), not statistically significant at 95% Confidence Interval (CI = –0.3855, 1.8572). The information contained in Table 5.7, Table 5.8 and Appendix 16 is in response to the second research question, designed to help assess the impact of automatic promotion on students' learning achievements in literacy and numeracy at P3 and P6. These findings are contrary to Koppensteiner (2014) who found a

negative and significant effect of about 7% of a standard deviation, which under plausible identifying assumptions the estimate can be interpreted as the disincentive effect on student effort associated with the introduction of automatic promotion.

Section 5.4 is constituted by two sub-sections 5.4.1 and 5.4.2. Sub-section 5.4.1 contains linear regression results for the effect of automatic promotion practice on cognitive learning achievements of P3 and P6 students' studying in rural schools relative to those studying in urban schools. This sub-section (5.4.1) is further divided into two parts (part ***(i)*** and part ***(ii)***). The first part highlights the effect of automatic promotion on cognitive learning achievements among P3 students studying in rural schools relative to those in urban schools. The second part shows the effect of the policy on cognitive learning achievements of P6 students in rural schools relative to those in urban schools. Sub-section 5.4.2 presents estimation results for the effect of implementing the policy on male students cognitive learning achievements, compared to their female counterparts at P3 and P6. Similar to sub-section 5.4.1, this sub-section (5.4.2) is also broken into two segments (segment ***(i)*** and segment ***(ii)***). Segment one presents the effect of automatic promotion practice on cognitive learning achievements of male students compared to female students in P3. The second segment shows the effect of implementing the policy on cognitive learning achievements of male students compared to their female colleagues at P6.

5.4.1 Effect of AP on learning achievements of students in rural & urban schools.

As a recap, the first sub-research question of the second research question sought to ascertain the effect of implementing the policy on learning outcomes of primary students studying in rural and urban primary schools. Assessing the effect of automatic promotion on learning achievements of students in rural and urban settings is one of the significant differences between this study and that conducted by Koppensteiner (2014). This line of policy impact evaluation was not undertaken by Koppensteiner in his study of 2014. Specifically, under this study the incidence of the policy effect was decomposed along rural – urban dimension for purposes of examining the

effectiveness of the policy to promote the quality of primary education (increase literacy and numeracy score) among students studying in rural and urban settings in an equitable manner. This is critical in the context of Uganda, where the national literacy and numeracy rates are relatively below the national targets and international/regional levels. Moreover, a majority of Uganda's population (approximately 83%) lives in rural areas. In Uganda, just like most of the countries in the world, students studying in rural areas consistently register lower learning achievements compared to urban counter parts. The effect of the policy on rural learning achievements relative to urban learning outcomes for P3 and P6 is contained under segment (i) and segment (ii), respectively.

(i) Rural and urban learning achievements at primary three (P3)

Tables 5.9 and 5.10 show (in summary form) that during the period 2005 to 2010, P3 literacy in rural and urban settings as having increased by approximately 9 percentage points (coef = 8.706 and t-statistic = 3.78) and 12 percentage points (coef = 12.229 and t-statistics = 9.20) respectively. The effect on literacy in rural areas is statistically significant at 95% Confidence Interval (CI = 4.4778, 13.8946), and that on urban literacy is statistically significant at 95% Confidence Interval (CI = 10.7235, 15.7436). This represents a 3 percentage point difference in the effect on literacy learning outcomes between urban and rural primary schools. As regards numeracy scores at P3, the implementation of automatic promotion resulted into about 13 percentage points (coef = 12.940 and t-statistic = 6.01) in rural areas, statistically significant at 95% Confidence Interval (CI = 8.5124, 16.8421), and 17 percentage points (coef = 16.951 and t-statistic = 13.78) in urban areas, statistically significant at 95% Confidence Interval (CI = 14.5632, 19.5849). This implies approximately 4 percentage points difference in effect. Appendix 17 illustrates the full regression results for the estimated effect of automatic promotion on students' learning achievements for P3 rural and urban schools.

Table 5.9: Automatic promotion and rural literacy and numeracy scores at P3

Treatment Status	Rural Literacy			Rural Numeracy		
	Treatment period		Difference	Treatment period		Difference
	Before	After	After -Before	Before	After	After -Before
Control	68.273	68.574	0.301	57.542	59.152	1.610
	(3.592)	(5.767)	(2.175)	(3.386)	(5.408)	(2.022)
Treated	31.677	40.684	9.007	25.246	39.796	14.550
	(1.440)	(5.917)	(4.477)	(1.332)	(5.506)	(4.174)
Treated –	–36.596	–27.890	**8.706**	–32.296	–19.356	**12.940**
Control	(2.152)	(0.150)	**(2.302)**	(2.054)	(0.098)	**(2.152)**

Source: Created by Author (2016)

Note: Mean outcomes for treatment and control before and after treatment, and Robust Standard Errors in Parenthesis. See Annex 17 for the detail regression results, including school variables, regional dummies, teacher related variables, student related variables and household variables.

Table 5.10: Automatic promotion and urban literacy and numeracy scores at P3

Treatment Status	Urban Literacy			Urban Numeracy		
	Treatment period		Difference	Treatment period		Difference
	Before	After	After –Before	Before	After	After –Before
Control	86.099	91.623	5.524	80.366	82.058	1.692
	(5.553)	(6.744)	(1.191)	(5.438)	(6.535)	(1.097)
Treated	51.736	69.489	17.753	50.119	68.762	18.643
	(4.80)	(7.000)	(2.520)	(4.457)	(6.783)	(2.326)
Treated –	–34.363	–22.134	**12.229**	–30.247	–13.296	**16.951**
Control	(1.073)	(0.256)	**(1.329)**	(0.981)	(0.248)	**(1.229)**

Source: Created by Author (2016)

Note: Mean outcomes for treatment and control before and after treatment, and Robust Standard Errors in Parenthesis. See Annex 17 for the detail regression results, including school variables, regional dummies, teacher related variables, student related variables and household variables.

(ii) Rural and urban learning achievements at Primary Six (P6)

At P6 regression results are mixed in the sense that the policy appears to have had an effect on only rural literacy/ language score, as shown in Table 5.11. The effect is positive (Coef = 2.354 and t-statistic = 2.92) and statistically significant at 95% confidence interval (CI = 1.9363, 4.3714). Over the period 2005 to 2010, it appears the implementation of the policy has not had any effect on rural numeracy, as seen by the Coef = 0.941 (t-statistic = 1.32), not statistically significant at 95% confidence interval (CI = 0.2237, 1.3185).

Table 5.11: Automatic Promotion and Rural Learning Achievement Scores at P6

Treatment Status	Rural Literacy			Rural Numeracy		
	Treatment period		Difference	Treatment period		Difference
	Before	After	After -Before	Before	After	After -Before
Control	72.907	78.371	5.464	56.910	63.273	6.363
	(3.050)	(3.734)	(0.684)	(2.971)	(3.574)	(0.603)
Treated	68.491	76.309	7.818	54.064	61.368	7.304
	(2.311)	(3.801)	(1.490)	(2.332)	(3.648)	(1.316)
Treated –	–4.416	–2.062	**2.354**	–2.846	–1.905	**0.941**
Control	(0.739)	(0.067)	**(0.806)**	(0.639)	(0.074)	**(0.713)**

Source: Created by Author (2016)

Note: Mean outcomes for treatment and control before and after treatment, and Robust Standard Errors in Parenthesis. See Annex 18 for the detail regression results, including school variables, regional dummies, teacher related variables, student related variables and household variables.

In addition, looking at P6 urban, automatic promotion practice seems to have had no effect on both literacy and numeracy scores (Table 5.12). For P6 urban literacy score, the ineffectiveness of the policy effect is represented by the Coef = –1.719 (t-statistic = – 1.30), not statistically significant at 95% confidence interval (CI = –2.4632, 0.8309). Regarding P6 urban numeracy, the policy effect is represented by the Coef = –0.946 (t-statistic = –0.80), not statistically significant at 95% confidence interval (CI = –1.6911, 0.9157).

Table 5.12: Automatic Promotion and Urban Learning Achievement Scores at P6

Treatment Status	Urban Literacy			Urban Numeracy		
	Treatment period		Difference	Treatment period		Difference
	Before	After	After –Before	Before	After	After –Before
Control	102.578	118.664	16.086	80.876	92.845	11.969
	(6.106)	(7.229)	(1.123)	(5.942)	(6.953)	(1.011)
Treated	95.112	109.479	14.367	74.487	85.510	11.023
	(4.908)	(4.710)	(2.444)	(4.877)	(4.699)	(2.200)
Treated –	–7.466	–9.185	**–1.719**	–6.389	–7.335	**–0.946**
Control	(1.198)	(2.519)	**(1.321)**	(1.065)	(2.254)	**(1.189)**

Source: Created by Author (2016)

Note: Mean outcomes for treatment and control before and after treatment, and Robust Standard Errors in Parenthesis. See Annex 18 for the detail regression results, including school variables, regional dummies, teacher related variables, student related variables and household variables.

5.4.2 Effect of automatic promotion on learning achievements of male & female students.

As a quick review, the second sub-research question of research question two was constructed with the aim of examining the incidence of the policy effect on the gender component (male and female). In order to understand the effectiveness of automatic promotion policy in promoting primary education quality, represented by students learning achievements, in an equitable

manner, this study factored into the analysis gender component. The main reason being the need to gauge whether automatic promotion practice is promoting learning outcomes of both male and female reasons. This represents another key area of difference between Koppensteiner (2014) and the author's study. As already noted in the previous section, Koppensteiner's policy impact analysis conducted in Brazil in 2014 did not estimate the effect of automatic promotion on learning achievements among male and female students. This line of policy impact assessment is likewise critical in the context of Uganda, where the national literacy and numeracy rates among female students are relatively below those of their male counterparts. The estimation results for the policy on male students' cognitive learning achievements at P3 and P6, compared to their female counterparts are presented under segment (i) and segment (ii), respectively.

(i) Female and male learning achievements at P3

Table 5.13 and Table 5.14 illustrate summary regression results for the effect of automatic promotion practice on students learning achievements for male students compared to female students at P3. A full set of the regression results, including selected variables included in the DID model are presented in Appendix 19. Based on results contained in Table 5.13 and Table 5.14, it can be noted that during the period 2005 to 2010 male and female literacy scores at P3 have increased by about 7 percentage points (coef = 7.163 and t-statistic = 4.38) and 9 percentage points (coef = 8.659 and t-statistic = 5.40) respectively, implying 2 percentage points difference in effect incidence. The effect on male literacy was statistically significant at 95% confidence interval (CI = 5.7736, 9.4627) and that on female literacy was statistically significant at 95% confidence interval (CI = 6.1884, 12.1445).

Table 5.13: Automatic Promotion and Male Learning Achievement Scores at P3

Treatment Status	Male Literacy			Male Numeracy		
	Treatment period		Difference	Treatment period		Difference
	Before	After	After -Before	Before	After	After -Before
Control	74.518	84.730	10.212	66.599	71.596	4.997
	(3.655)	(5.295)	(1.640)	(3.462)	(5.007)	(1.545)
Treated	47.190	64.565	17.375	39.128	57.820	18.962
	(2.092)	(5.366)	(3.274)	(2.022)	(5.080)	(3.058)
Treated –	–27.328	–20.165	**7.163**	–27.471	–13.776	**13.695**
Control	(1.563)	(0.071)	**(1.634)**	(1.440)	(0.073)	**(1.513)**

Source: Created by Author (2016)

Note: Mean outcomes for treatment and control before and after treatment, and Robust Standard Errors in Parenthesis. See Annex 19 for the detail regression results, including school variables, regional dummies, teacher related variables, student related variables and household variables.

During the same period and in the same grade, numeracy score for male and female students respectively increased by approximately 14 percentage points (coef = 13.695 and t-statistics = 9.05) and 15 percentage points (coef = 15.105 and t-statistic = 10.01), implying approximately a 1 percentage point difference in effect incidence. The effect on male numeracy was statistically significant at 95% confidence interval (CI = 11.4622, 16.6564) and that on female numeracy was statistically significant at 95% confidence interval (CI = 11.2381, 17.6847).

Table 5.14: Automatic Promotion and Female Learning Achievement Scores at P3

Treatment Status	Female Literacy			Female Numeracy		
	Treatment period		Difference	Treatment period		Difference
	Before	After	After -Before	Before	After	After -Before
Control	77.709	86.025	8.316	70.207	72.347	2.140
	(3.954)	(5.542)	(1.588)	(3.889)	(5.412)	(1.523)
Treated	46.764	63.739	16.975	40.037	57.282	17.245
	(2.410)	(5.601)	(3.191)	(2.434)	(5.466)	(3.032)
Treated –	–30.945	–22.286	**8.659**	–30.170	–15.065	**15.105**
Control	(1.544)	(0.059)	**(1.603)**	(1.455)	(0.054)	**(1.509)**

Source: Created by Author (2016)

Note: Mean outcomes for treatment and control before and after treatment, and Robust Standard Errors in Parenthesis. See Appendix 19 for the detail regression results, including school variables, regional dummies, teacher related variables, student related variables and household variables.

(ii) Automatic promotion and male and female learning achievements at P6

A summary of the regression results for the estimated effect of automatic promotion practice on students learning achievements for male students compared to female students at P6 are illustrated in Table 5.15 and Table 16. Appendix 20 demonstrates a full set of the regression results, including selected variables included in the DID model. With the exception of P6 female literacy score, the implementation of automatic promotion policy appears to have had no effect on learning achievements at P6 over the period 2005 to 2010. Specifically, the effect on female literacy score is positive (Coef = 3.560 and t-statistic = 2.41), statistically significant at 95% confidence interval (CI = 1.7836, 5.4765), as can been seen in Table 5.16.

Table 5.15: Automatic Promotion and Male Learning Achievement Scores at P6

Treatment Status	Male Literacy			Male Numeracy		
	Treatment period		Difference	Treatment period		Difference
	Before	After	After -Before	Before	After	After -Before
Control	81.876	91.468	9.592	67.923	76.694	8.771
	(3.725)	(4.403)	(0.678)	(3.671)	4.282)	(0.611)
Treated	76.793	86.765	9.972	63.999	72.654	8.655
	(3.014)	(4.506)	(1.492)	(3.048)	(2.926)	(1.344)
Treated –	–5.083	–4.703	**0.380**	–3.924	–4.040	**–0.116**
Control	(0.711)	(0.103)	**(0.814)**	(0.623)	(1.356)	**(0.733)**

Source: Created by Author (2016)

Note: Mean outcomes for treatment and control before and after treatment, and Robust Standard Errors in Parenthesis. See Annex 20 for the detail regression results, including school variables, regional dummies, teacher related variables, student related variables and household variables.

The policy seems to have had no effect on female numeracy (Coef = 1.505 and t-statistic = 1.22), not statistically significant at 95% confidence interval (CI = 0.9249, 3.3746). Moreover, it seems automatic promotion practice has had no effect on P6 male literacy and numeracy scores (Table 5.15). The effect on male literacy is 0.380 (t-statistic = 0.47), not statistically significant at 95% Confidence Interval (CI = –0.7394, 1.4518). The effect on male numeracy is –0.116 (t-statistic = –0.158), statistically insignificant at 95% Confidence Interval (CI = –1.2392, 0.7148).

Table 5.16: Automatic Promotion and Female Learning Achievement Scores at P6

Treatment Status	Female Literacy			Female Numeracy		
	Treatment period		Difference	Treatment period		Difference
	Before	After	After -Before	Before	After	After -Before
Control	93.507	99.956	6.449	75.436	82.148	6.712
	(4.252)	(5.522)	(1.270)	(4.056)	(5.106)	(1.050)
Treated	87.024	97.033	10.009	71.404	79.621	8.217
	(2.825)	(5.574)	(2.749)	(2.879)	(5.166)	(2.287)
Treated –	–6.483	–2.923	**3.560**	–4.032	–2.527	**1.505**
Control	(1.427)	(0.052)	**(1.479)**	(1.177)	(0.060)	**(1.237)**

Source: Created by Author (2016)

Note: Mean outcomes for treatment and control before and after treatment, and Robust Standard Errors in Parenthesis. See Annex 20 for the detail regression results, including school variables, regional dummies, teacher related variables, student related variables and household variables.

5.5 Hypotheses Testing

The process of testing a hypothesis is geared towards ensuring that sound judgments and/ or conclusions about a claim in a given research study are arrived at. Hypothesis testing typically starts with the conversion of a research question or research questions into null and alternative hypotheses. In as far as this study is concerned, there were two main hypotheses, corresponding to the two main research questions. The two main hypotheses were each broken down into two sub-hypotheses, in the same way that the two main research questions were each broken down into two sub-research questions. This section of the chapter therefore gives an overview to the hypothesis testing process undertaken.

Hypothesis 1:

The first hypothesis is; "automatic promotion has led to a decrease in the rate at which students are dropping out of primary education in Uganda". The two corresponding sub-hypothesis are: 1.1) "automatic promotion has decreased the rate at which students' are dropping out of rural primary schools relative to those in urban schools"; and 1.2) "the practice of automatically promoting students has decreased the rate at which male students are dropping out relative to their female counterparts". The null hypothesis for the first hypothesis is; "automatic promotion has had no effect on the rate at which students are dropping out of primary education in Uganda" (H_O: $\beta_3 = 0$). The alternative hypothesis is; "automatic promotion has led to a decrease in the rate at which students are dropping out of primary education in Uganda" (H_A: $\beta_3 < 0$). The null hypothesis for the first sub-hypothesis is; "automatic promotion has had no effect on the rate at which students' are dropping out of rural primary schools relative to those in urban schools" (H_O: $\beta_3 = 0$). The alternative is; "automatic promotion has decreased the rate at which students' are dropping out of rural primary schools relative to those in urban schools" (H_A: $\beta_3 < 0$). Regarding the second sub-hypothesis, its null is; "the practice of automatically promoting students has had no effect on the rate at which male students are dropping out relative to their female counterparts" (H_O: $\beta_3 = 0$) and the alternative is "the practice of automatically promoting students has decreased the rate at which male students are dropping out relative to their female counterparts" (H_A: $\beta_3 < 0$).

This hypothesis and its subsequent sub-hypotheses were tested using Stata's *one sample z-test*. This technique was instrumental in testing the hypotheses that the mean of the population from which a sample is drawn is equal to a comparison standard. Table 5.12 illustrates a summary version of results from testing the first hypothesis and its sub-hypotheses.

Table 5.17: Hypotheses testing summary based on Difference in Differences (DID) Model

Hypothesis Number	Hypothesis Statement	Results/ Findings
1	*Automatic Promotion has led to a decrease in the rate at which students are dropping out of primary education in Uganda*.	Partially Supported
1.1	Automatic promotion has decreased the rate at which students' are dropping out of rural primary schools relative to those in urban schools.	Not Supported
1.2	The practice of automatically promoting students has decreased the rate at which male students are dropping out relative to their female counterparts.	Partially Supported
2	*Automatic Promotion has led to an increase in students' learning achievements at primary level of education in Uganda.*	Partially Supported
2.1	Automatically promoting students has increased the learning achievements of students studying in rural schools compared to those studying in urban schools.	Partially Supported
2.2	Automatic promotion has increased learning achievements of male students compared to female students.	Partially Supported

Source: Created by author (2016)

Hypothesis 2:

The second hypothesis is; "automatic promotion has led to an increase in students' learning achievements at Primary level of education in Uganda". The two corresponding sub-hypotheses are: 2.1) "automatically promoting students has increased learning achievements of students

studying in rural schools compared to those studying in urban schools"; and 2.2) "automatic promotion has increased learning achievements of male students compared to female students".

The null hypothesis for the second hypothesis is; "automatic promotion has had no effect on students' learning achievements at primary level of education in Uganda" (H_O: $\beta_3 = 0$). The alternative hypothesis is; "automatic promotion has led to an increase in students' learning achievements at Primary level of education in Uganda" (H_A: $\beta_3 > 0$). The null hypothesis for the first sub-hypothesis is; "automatically promoting students has had no effect on learning achievements of students studying in rural schools compared to those studying in urban schools." (H_O: $\beta_3 = 0$). The alternative is; "automatically promoting students has increased learning achievements of students studying in rural schools compared to those studying in urban schools." (H_A: $\beta_3 > 0$). Regarding the second sub-hypothesis, its null is; "automatic promotion has had no effect on learning achievements of male students compared to female students." (H_O: $\beta_3 = 0$) and the alternative is "automatic promotion has increased learning achievements of male students compared to female students." (H_A: $\beta_3 > 0$).

To test this hypothesis and its subsequent sub-hypotheses, the author employed Stata's *one sample t-test*. This technique was instrumental in testing the hypotheses that the mean of the population from which a sample is drawn is equal to a comparison standard. Table 5.12 illustrates a summary version of results from testing the second hypothesis and its sub-hypotheses. The linear regressions results as reflected in Tables 5.7 through to 5.11 correspond to the second hypothesis testing.

From Table 5.17, it can be noted that the two main hypotheses and their respective sub-hypotheses are partially supported by the data. Specifically, the hypothesis that automatic promotion has led to a decrease in the probability of students dropping out of primary schools in Uganda and its sub-hypotheses are significantly supported by the data only at P3, not at P6 as shown by the probit regression results for the marginal effect illustrated in Table 5.2, Table 5.4 and Table 5.6. In addition, the statement that automatic promotion has led to an increase in

students' learning achievements at primary level of education in Uganda and its sub-hypotheses are significantly supported by the data mainly at P3, as reflected by the linear regression results contained in Table 5.7, Table 5.9, Table 5.10, Table 5.13 and Table 5.14. At P6 the second hypothesis and its sub-hypotheses are supported by the data only for total literacy score (Table 5.8), rural literacy score (Table 5.11) and female literacy score (Table 5.16).

5.6 Summary of Chapter Five

The chapter is structured into five sections, starting with a brief overview/ introduction followed by a presentation of the differences and similarities between the authors study and a study conducted in the Brazilian state of Minas Gerais by Koppenstaeiner in 2014. The third section of the chapter contained the research findings of the effect of automatic promotion on the probability of students dropping out of primary schooling in Uganda. The results were categorized according to the two grades that the study focused (P3 and P6). The results in this segment are divided into two parts. The first part showed the effect of the policy on the probability of rural students dropping out primary schooling, relative to the urban students, and the second part presented the effect of automatic promotion on the probability of male students dropping out of primary schooling in Uganda, compared to female students.

The fourth section of the chapter portrayed research findings on the effect of the policy on students' learning achievements in Uganda's primary schools. The results in this segment are divided into two parts. The first part showed the effect of the policy on the learning achievements of students studying in rural primary schools, relative to those studying in urban schools. The second part presented the effect of automatic promotion on the learning achievements of male students, compared to female students. The fifth and final section of the chapter was where the author undertook to test the two main hypotheses constructed, as well as their corresponding sub-hypotheses.

CHAPTER SIX:

DISCUSSION AND CONCLUSION

6.1 Introduction

This chapter entails a detailed discussion of the regression results generated using the difference in differences estimation technique. The chapter is structured in to four segments, starting with the introduction, followed by the discussion, which is divided in to two sections namely; *1)* the effect of automatic promotion on the probability of students dropping out at P3 and P6, and *2)* the effect of automatic promotion on students' learning achievements at P3 and P6. Following the discussion section is the limitations of the study section. The last section of the chapter contains the conclusion and the overall policy implication of the study. The discussion is constructed bearing in mind the actual status of primary education in Uganda, and the implementation of the automatic promotion policy. In addition, previous scholarly works dedicated towards assessing the effect of either automatic promotion or grade retention on education quality and internal efficiency are referenced in the relation to the authors study findings.

The discussion segment is organized in such a way that it is consistent with the research questions, objectives of the study and the hypotheses constructed. The limitations encountered in the course of the study are succinctly spelt out, so as to guide the process of making informed conclusions and generalizations about the findings of the study. The conclusions are drawn from the findings, and policy implications regarding active collaborative initiatives between the government of Uganda and its education development are suggested. The author's view is that the suggested collaborative initiatives will be instrumental in making the policy on automatic promotion an efficient and effective measure for equitable enhancement of primary education efficiency and quality.

6.2 Discussion

6.2.1 Automatic promotion and rate at which students are dropping out of Uganda's primary education

The first research question and objective that this study sought to respond focused on the effect of automatic promotion on the rate at which students are dropping out of primary schooling in Uganda. Consistent with earlier studies that have estimated the effect of automatic promotion and/ or grade retention on students' dropout rate as one of the measures of education efficiency, this study found a negative effect on the probability of students dropping out of lower primary (represented by P3), but no effect on the probability of students dropping out of upper primary represented by P6 (see Table 5.2 and Appendix 11). Specifically, the implementation of automatic promotion policy has translated in to a decrease in the probability of students dropping out at P3 by approximately 7 percentage points. In the Ugandan context, the seeming effectiveness of the policy at P3 and its ineffectiveness at P6 can be explained by a multitude of reasons including but not limited to the fact that P6 students are older and as such are more susceptible to being held back to help out with household chores (cooking, attending to the sick and so forth), as well as helping generate income to supplement for the family. This leads to very irregular school attendance patterns for upper primary students compared to lower primary school students. The irregular attendance disrupts students' involvement and participation in school and classroom activities, which more often than not leads to dropping out since it gives the learners a sense of not belonging in the school environment.

Moreover, most students do not have meals at school, despite the provisions under the Universal Primary Education (UPE) implementation guidelines. In Uganda, lower primary students study only half day and as such go back home at mid-day (noon), and eat at home, while their P6 colleagues have to stay in school for afternoon lessons, sometimes without anything to eat. The situation is further hampered by the fact that parents have not stepped up to play one of their roles of providing food (mid-day meal) for children to eat during schools days. According

to the Ministry of Education, Sciences Technology and Sports (MoESTS, 2014), lack of school feeding continues to impede governments efforts towards reducing students dropout rate, especially at upper primary which includes P6.

On the basis of the estimation results, the findings at P3 are contrary to the popular belief in Uganda, which is that automatic promotion practice does not reduce students' dropout rates, rather it worsens it. On the contrary, findings at P3 are consistent with earlier scholars such Myung et al., (2013), Koppensteiner (2014), Froman and Brown (2008) and Jimmerson (2007), who all found that grade retention increased dropout rate, especially among retained students. In particular, Kopensteiner (2014) found that automatic promotion was instrumental in reducing dropout rates in 4^{th} Grade in the Brazilian state of Minas Gerais. Myung et al., (2013), Froman and Brown (2008), and Jimmerson (2007) all found that retaining students translated in to their eventual exiting the schooling cycle. What is more, Chohan and Qadir (2011) reported that a majority of the teachers supporting automatic promotion policy in Pakistan said that they consistently promoted students to save them from dropping out of education system. They believed that failure of students increases the chances of their dropout; whereas, if the students are continually promoted, their parents try to carry on their studies despite their economic hardships. Probit estimation results at P6 appear to be consistent with the general public opinion about automatic promotion policy, among a majority of education stakeholders in Uganda and contrary to several existing studies on the impact of automatic promotion and grade retention.

The interpretation of the results at P3 could be that more students are actually staying and have the opportunity of reaching upper level of primary education, and that automatic promotion policy appears to be an effective measure for promoting efficiency, at least at lower primary education in Uganda. However, given the estimation results at P6 (the ineffectiveness of the policy to decrease student dropout over the period under consideration (2005 to 2010)), it is worth re-stating the fact that automatic promotion does not operate in isolation. The general tendency is to take a simplistic approach of declaring the policy as being ineffective without any

consideration of the status quo of other factors that complement/ supplement it. Attention should therefore be given to other factors that potentially foster students' continued enrolment, especially at upper primary level. For instance there should be more community and household participation in school activities, parents pack mid-day meals for their children or schools organize school feeding programs, regular support supervision for school administrators, adequate supply of teaching and learning materials and so forth.

In terms of promoting equity while reducing the likelihood of students dropping out in the two grades, the results illustrated in Table 5.2 and Appendix 11 do not facilitate the process of making a claim as to whether the implementation of the policy has been successful or not. This is because the policy appears to have had an effect only at P3 and not at P6, thus disabling policy effect comparison attempts. As a recap, the effectiveness of automatic promotion policy in improving education efficiency (reducing student dropout rate) along school location and gender equitably was assessed. To facilitate this process, the first research question was broken down into two sub-research questions, each corresponding to the two components mentioned above. The respective attendant probit regression (marginal effect) results are presented under two sections, starting with the effect on students studying in rural and urban schools, and then followed by the effect on male and female students.

(i) Effect of automatic promotion on students' dropout rate in rural schools relative to urban schools

When the effect is decomposed along school location (rural-urban) dimension, probit regression results show that the policy has had a positive and statistically significant effect (7 percentage points) on the probability of students dropping out only among P3 students studying in urban primary schools (see Table 5.4 and appendix 13). During the period under consideration, it appears the practice of automatically promoting students has had no effect on students studying in P3 rural areas and those studying in P6 rural and urban schools.

Possible reasons for the estimation results reflected in Table 5.4 and Appendix 13 include; limited community and household participation in school activities, irregular support supervision of school administrators, negative attitudes towards education, especially among parents in rural areas, inadequate supply of teaching and learning materials, to mention but a few. At upper primary (P6), the students are relatively older than their P3 colleagues and as such represent additional labor for households, especially in rural areas. Consequently, P6 students more often than not get involved in domestic activities such as gardening, marketing, cooking and the like. It is worth re-emphasizing that automatic promotion works in complement with other factors that influence efficiency in education, so in situations where supplementary and/ or complementary factors are not conducive, the effectiveness of the policy is greatly diminished and in some cases completely negated.

Findings from this policy impact assessment resonate with views and opinions of the opponents of the policy both nationally within Uganda and substantiated by several international scholars (see Brophy. 2006 and Jimerson et al., 2007) who have reported increased student dropout as a result of implementing the policy, and as such are in support of grade retention. Conversely, these findings are contrary to earlier scholars who have attributed automatic promotion practice to improved internal efficiency of education system, especially after factoring rural – urban component.

For instance Sebates et al., (2010) found that dropout rate without completing primary education for 16 and 17 year olds living in rural areas is higher than for those living in urban areas. An occurrence possibly explained by seasonal labour requirements, lower expectations for school progression beyond primary education, distance to school and fewer opportunities for secondary schooling in rural areas. In the case of Uganda the dropout rate between rural and urban areas according to Sabates et al., (2010) was recorded at approximately 25% and 11 %, meaning that students in rural Uganda dropout more than twice the rate of those in urban areas. UNICEF (2014) identifies long distances to schools as one of the reasons that make children

drop out. This is especially true in rural areas where sparsely populated areas have schools that are 10 kms or more away from some clusters that people live which is a very long distance and this discourages children from going to school because in most cases they are caught for late coming which calls for punishment and also by the time they get to school they are extremely tired. Similarly, these results are consistent with Tamusuza (2011) who in her study in Uganda found the problem of students dropping out of primary schooling affecting rural and urban setting, albeit children in rural areas being more likely to drop out than children in urban children. According to her, the hazard of dropping out of primary school is 60% higher in rural areas compared to urban areas and calls for the implementation of policy reforms aimed redressing the imbalance.

Given the estimation results shown in Table 5.4 and Appendix 13, deliberating on whether the policy has been effective or not in fostering continued enrolment of primary school students across rural – urban divides in an equitable manner is unachievable. This is because it appears the implementation of automatic promotion policy has had no effect (except at P3 urban) on the probability of students dropping out of primary schooling in the context of rural – urban component.

(ii) Effect of automatic promotion on the rate at which male students are dropping out of school relative to female students

Regarding gender component, probit regression results reveal a negative effect on the likelihood of male and female students dropping out of school only at lower primary (P3). Specifically, male and female students' probability of dropping out at P3 each decreased by approximately 7 percentage points, attributable to the implementation of the policy. At upper primary (P6) it appears the policy has had no effect on the likelihood of male and female students dropping out of primary schooling (see Table 5.6 and Appendix 15). The equivalence in the effect among male and female learners at P3 can be construed as the policy being effective in terms of

promoting gender equity in access and efficiency to schooling and continued enrolment. The findings at P3 are particularly encouraging in the struggle and/or advocacy for girls staying in school until they complete the primary cycle of education.

However, the lack of policy effect along gender component at P6 raises serious concerns, especially regarding issues such as negative attitudes of the parents towards the education, lack of school requirements, early marriages, chronic illnesses, loss of a parent or guardian, lack of school feeding programs, long distances to and from schools, household/ domestic chores etc., all having the potential to undermine the effective implementation of the policy (MoESTS, 2014). The lack of school requirements such uniform, books, school meal (lunch pack) and pens/ pencils is a major cause of dropout for both girls and boys, it seems to be more pronounced in the case of boys. The other major causes of dropout for boys are inability of parents/guardians to provide their needs and heavy workload at home while for the girls it is loss of parents, early pregnancies and early marriages. There are other factors that affect both boys and girls differently, but it is clear that different factors are experienced by boys and girls differently. This can be explained from the way communities and households ascribe different roles, responsibilities and entitlements to women and men starting from their childhood.

The situation in Uganda's primary education is such that students in upper grades of primary schooling are highly susceptible to drop out. In particular, female students drop out of school at a rate much higher than that of male students. Females receive less education than males, and they tend to dropout, or are withdrawn earlier for both economic and social-cultural reasons. The opportunity cost of sending female children to school in rural areas, where girls are married quite early, is high because benefits of their schooling will not accrue to their parental households. Therefore the advent of automatic promotion provided an opportunity for all the students to be promoted to the next grade, except in special cases such as sickness and missing many classes.

Estimation results for P6 are contrary to findings by earlier scholars such as Ndaruhutse (2008) who have attributed automatic promotion practice to improved internal efficiency of education system, especially after factoring gender aspect into the analysis. In particular, Ndaruhutse (2008) conducted an extensive review of exiting literature on automatic promotion and grade retention in the context of Sub-Saharan Africa (SSA), and concluded that grade retention increased students' dropout, especially female students and those in rural areas. Furthermore, P6 results are consistent with previous studies that have reported increased internal inefficiency of an education system as results of grade retention. Regression results for P3 are consistent with previous studies (see Hirakawa & No, 2012; Chapman, 2011, and; Jimerson, 1997) that have been conducted in less developed countries (same bracket as Uganda). The general trend among less developed countries is that girls not only dropout the most, but have the highest likelihood of dropping out of school, precisely because of the reasons already highlighted above.

There are also global concerns about gender equality in school participation, performance as well as education outcomes. In Uganda, primary schools that are somewhat inclusive are more friendly and supportive to both male and female student in learning, teaching and school management. For instance, female students would be motivated by the presence of female teachers. Moreover, students would actively be involved in school activities if there is gender representation in student leadership. Noticeably, there is sense of competition, inclusiveness, thus making this type of schools more effective and efficient than others.

Regression results under this segment of the chapter demonstrate the effectiveness of the automatic promotion practice in reducing the likelihood of P3 male and female students dropping out equally. However, at P6 the question as to whether the policy has been effective or not in fostering continued enrolment of male and female students alike is unachievable at this point (see Table 5.6 and Appendix 15). This is because the implementation of automatic promotion policy

seems to have had no effect on the likelihood of male and female students dropping out of primary schooling.

6.2.2 Automatic promotion and students' learning achievements in Uganda's primary education

The second research question and objective of the study focused on ascertaining the effect of the policy on the quality of education, represented by students learning achievements in mathematics (numeracy) and English (literacy). Regression results show a positive and statistically significant effect of approximately 8 percentage points and 14 percentage points on literacy and numeracy ay P3. At P6, estimation results are mixed, with the policy seemingly having an effect of approximately 1 percentage point on literacy and no effect at all on numeracy (Table 5.7, Table 5.8 and Appendix 16).

Overall, the results under this section of the chapter are consistent with previous studies that have undertaken the same line of analysis including but not limited to Myung et al., (2013); Stapleton et al., (2009) and Manacorda (2006) who have all highlighted the effectiveness of automatic promotion in improving cognitive and non-cognitive learning outcomes. Ndaruhutse (2008) and Chimombo (2005) both analyzed the impact of grade retention and automatic promotion in the context of Sub-Saharan Africa (SSA). They asserted that countries implementing automatic promotion produced higher learning results compared with those that practice grade repetition.

By the same token, the results are contrary to scholarly works by Ahmeda & Mihiretieb (2015); Koppensteiner (2014) and Chohan & Qadir (2011) who assessed the impact of automatic promotion in Ethiopia, Brazil and Pakistan respectively, and all found that automatically promoting students does not lead to better learning outcomes. Specifically, Koppensteiner (2014) found a negative and significant effect of automatic grade promotion on grade three learning achievements of about 7% of standard deviation attributed to automatic grade promotion.

Chohan and Qadir (2011) explored the impact of automatic promotion on the quality of education by employing qualitative method of research. They found that a majority of the teachers do not consider automatic promotion policy as an effective educational practice. Moreover, they discovered that the government did not arrange orientation programs for teachers before initiating any new policy. The teachers were just compelled to implement official orders.

The lack of prior orientation and/or consultation with the stakeholders at the school level, who ultimately implement the policy, is a theme common to Uganda and Pakistan. In Uganda the government did not consult nor orient primary schools teaching body on why automatic promotion was necessary in the first place, what are its weaknesses and strengths, as well as how it can be implemented effectively and efficiently. The teachers were not briefed on the roles and responsibilities that the various stakeholders (central government, local government, community/ households, students and teachers) would play in the process of implementing the policy. Further to the above, Schwerdt & West (2013) and Brophy (2006) argued in favor of grade retention as being effective in improving learning outcomes. However, both studies acknowledged the fact that improvements in learning achievements due to grade retention are temporary, fading after a period of 3 – 5 years. In the local context of Uganda, the policy appears to be effective as a strategy to promote the quality of education (with the exception of P6 numeracy), especially when the supplementary factors that could potential impact the quality of primary education are made available or conducive.

Possible reasons for the difference in the effect at P3 and P6 include the difference in students' school/ classroom attendance patterns. Attendance patterns of P6 students tend to be very irregular since they have to attend to household chores (cooking, attending to the sick and so forth), as well as helping generate income to supplement that of the household head. This is not only the reality in Uganda, especially in rural locations, but a view held by earlier scholars such as Ndaruhutse (2008) and Chimombo (2005). When school attendance patterns are regular, this complements automatic promotion hence improving learning outcomes. The difference in

the effect at P3 and P6 could also be explained by the fact that Uganda implements the thematic curriculum at lower primary (grades 1 through to 3), which appears to be complimenting automatic promotion practice for better results. Under the thematic curriculum design, children are taught in the local language/ mother tongue. Early studies by Kavaliauskiene (2009) and Khejeri (2013) have reported better learning outcomes when children are taught in their respective mother tongues in early grades of schooling.

Another possible reason for the variance in policy effect between the grades is the unacceptably high absenteeism among headteachers, Teachers and students in Uganda's primary education, which greatly hinders the teaching and learning process, thus undermining the viability of automatic promotion as a quality enhancing measure. As an example, according to MoESTS (2014), absenteeism by headteachers was estimated at 20%. Furthermore, on average, a primary school teacher is estimated to be absent for at least 2 days a week. Attendance rates of Head teachers are lowest in hard-to-reach and hard-to-stay areas. Low quality of education manifests itself in a number of ways which include among others low survival rates, low learning outcomes (particularly numeracy and literacy), low efficiency, high absenteeism rates (i.e. for head teacher, teacher and learners); inadequate school management & supervision as well as inadequate teaching and learning materials (MoETSS, 2014).

One of the issues this study sought to highlight is whether automatic promotion promotes equity in students' cognitive learning achievements in the two grades under review. Regression results illustrated in Table 5.7, Table 5.8 and Appendix 16 partially enable this task, reason being that the policy has had an effect on P3 literacy and numeracy scores, but at P6 the policy has had an effect on only literacy score and none on numeracy score. Despite the difference in effect magnitude of about 6.422 between literacy at P3 and P6, the policy has been instrumental in advancing literacy learning outcomes for lower primary, represented by P3 and upper primary, represented by P6.

In order to be able to estimate the effectiveness of the policy in improving equity in the quality of primary education, the second research question was broken down into two sub-research questions. The two sub-research questions were constructed with the aim of highlighting effect incidence based on two dimensions - school location (rural & urban) and gender of the students. Regression results capturing the effect incidence along the two components are presented in two sections ((i) & (ii)). The reason for the two sections is because literacy and numeracy are captured in two grades (P3 and P6), and the two dimensions (rural-urban and male & female). Therefore the effect on literacy and numeracy is presented in part (i) based on rural-urban dimension for P3 and P6 and then in part (ii) along gender (male and female) for P3 and P6.

(i) Effect of automatic promotion on learning achievements in rural and urban schools.

Disaggregating effect incidence based on the area where students are attending school (rural or urban) indicates that at P3 the effect is positive and statistically significant at conventional levels. In particular, rural literacy increased by approximately 8.7 percentage points and that of urban increased by 12.2 percentage points, implying about 3.5 percentage points difference (=12.2 – 8.7). Rural and urban mathematics in the same grade increased by about 12.9 percentage points and 16.9 percentage points respectively, implying 4.0 percentage points difference. The overall impact of the policy on learning achievements is higher in urban areas (12.2 + 16.9 = 29.1) compared to rural areas (8.7 + 12.9 = 21.6). This translates into a difference in effect along school location of about 7.5 percentage points (=29.1 – 21.6), as can be seen in Table 5.9, Table 10 and Appendix 17.

One of the possible reasons for the rural – urban difference at P3 is that in Uganda, as in other countries (developed and developing) parents in urban communities generally tend to be more actively supportive towards the education of their children during early grades. The support from the parents tends to be in the form of paying additional fees, participating in school

activities or events such as school sports days, school drama days, meeting with teachers, dropping and picking students to and from schools, to mention a few. In rural Uganda, parents generally do not engage in the above school activities or events. Moreover, urban schools in Uganda on average are better facilitated and equipped in terms of instructional materials, support to teachers' welfare, and better utilities such as electricity, running (tap) water, better writing and sitting surfaces/ facilities, better pupil classroom ratios (PCR) and better pupil teacher ratios (PTR).

All the above mentioned factors have an influence on how the actual teaching and learning process plays out, thus influencing the final learning achievements. The difference in the quantity and quality of these factors across rural and urban settings therefore mirrors the differences in learning outcomes among students in rural schools and those in urban schools. On the basis of the above narrative and given the fact that automatic promotion works in complement with other factors, it is distinctly possible that the difference in the magnitude of the policy effect is explained by the state of these complementary factors.

The findings under part (i), section 6.2.2 of this chapter are consistent with Chen et al., (2010); Ndaruhutse (2008) and Marshall (2003) who report no improvements in learning outcomes in rural areas of China, SSA countries and Honduras respectively, as a result of grade retention and as such argue in favor of automatic promotion. In particular, Chen et al., (2010) in their study on the effect of grade retention in the context of rural china rejected the hypothesis that grade retention improves the scores of the students that were retained. Ndaruhutse (2008) observed that SSA countries with policies of automatic promotion produced higher results, including among vulnerable groups such students in rural areas compared to those that practice repetition. Marshall (2003) found that repeating does not solve the problem of teaching student in rural schools skills they did not learn the first time around. Students who repeat grades are more likely to repeat again than students who have not repeated grades.

In P6 the overall picture that emerges after scanning through Table 5.11, Table 5.12 and Appendix 18 is that the effect of automatic promotion practice exhibits mixed results. The policy seems to have impacted only rural literacy (Coef = 2.3 and t-statistic = 2.9) and not rural numeracy, urban literacy and urban numeracy. The illustration above could be explained by various reasons as already referenced above, some of which include; early marriages mostly in rural areas, taking part in household chores, lack of school feeding programs, negative attitudes of the parents or guardians towards education, long distances to and from home, lack of community participation in the form of functional school management committees (SMCs), lack of support supervision for school administrators and teachers by center coordinating tutors (CCTs). These factors are generally still operating at a lower levels both in rural and urban schools, despite government's efforts over the last 10 or so years.

On the point of SMCs, The Education Act of 2008 established them as legal entities and gives them the primary objective of managing and/or administering primary schools for and on behalf of the government (MoESTS, 2010). This move was in response to calls by national and international stakeholders for government to improve school based management, especially in rural areas, where a majority of the schools are situated, through the active participation of the local community in which the school is established. The SMCs have yet to become effective in ensuring that the headteachers, teachers, fellow parents and students are committed to their roles and responsibilities. Coupled with the above is the fact that center coordinating tutors (CCTs) haven't been able to increase the frequency and intensity of the support supervision provided to the school administrators and teachers. Under the school mapping exercise in Uganda, primary schools were clustered into catchments. Each catchment of primary schools is under the jurisdiction of a center coordinating tutor, whose responsibility is to conduct regular school monitoring and provide support supervision to the headteachers and teachers (MoESTS, 2008).

The findings for P6 rural literacy are consistent with findings by Hults (2013); Chen et al., (2010) and Liddell & Rae (2001) who all stated that grade retention is harmful to students

learning outcomes, especially in rural areas. The three studies were conducted in Brazil, China and South Africa respectively. Results for P6 urban numeracy, urban literacy and numeracy appear to lend support to the opponents of the policy within Uganda and beyond. As already stated in the earlier sections of this chapter, those against the practice of automatically promoting students argue that it eliminates competition, de-motivates students and teachers hence lowers teaching and learning outcomes. They therefore advocate for grade retention since it leads better learning outcomes (see also Taye, 2003; Chohan & Qadir, 2011; and Roderick et al., 2002).

On the basis of the results reflected in Table 5.9 and Appendix 18, it is worthwhile to note that the policy has not been effective in terms of advancing equity in learning achievements along rural – urban dichotomy at P6. This is because, with the exception of P6 rural literacy, there has been no effect on learning achievements in the case of P6 rural numeracy, urban literacy and numeracy.

(ii) Effect of automatic promotion on learning achievements of male & female students

This segment of the chapter details the incidence of policy effect along gender (male and female) component for P3 and P6. The effect on P3 male literacy was estimated to be around 7.1 percentage points and that of numeracy in the same grade, for the same gender is about 13.6 percentage points (Table 5.13, Table 14 and Appendix 19). This gives a difference in the incidence of policy effect of approximately 6.5 percentage points (=13.6 – 7.1). At the same grade (P3) the effect on female literacy was assessed to be around 8.6 percentage points and the effect on numeracy was found to about 15.1 percentage points, resulting in to a difference of approximately 6.4 percentage points (= 15.1 – 8.6). In aggregate terms, regression results indicate that the overall effect of the policy along gender for the case of P3 is slightly higher for female students (=23.7), compared to that for male students (=20.8). The difference is thus computed to be around 2.9 percentage points (=23.7 – 20.8).

These results are consistent with Varol & Yilmaz (2010); Motala et al., (2009); Nannyonjo (2007); Jimerson (1999) and Meisels & Liaw (1993) who associate automatic promotion to be associated with improvement in learning achievements for both male and female students, in contrast with grade retention. Grade retention does not equalize outcomes even when retained students have been in school a year longer. In the context of Uganda's primary education, Nannyonjo (2007) found no overall significant difference between boys and girls in their primary 6 English test scores to justify grade retention. In place of retaining students (male and female), alternative methods and/ or approaches should be adopted and implemented. For instance, enrolling children at the appropriate age and promoting them each year is a good policy measure for a country like Uganda. However, in tandem with enforcement of automatic promotion, it may be necessary to administer regular tests and homework that would identify pupil's weaknesses, and address them through remedial teaching to ensure acquisition of the desired levels of competency.

The effect of the policy at P6 along gender is such that; over the duration under review (2005 - 2010) there seems to have been no impact on male literacy and numeracy, as well as female numeracy. From Table 5.15, Table 16 and Appendix 20 it can be noted that the policy has had an effect only on female literacy, estimated to be approximately 3.5 percentage points. The findings for P6 female literacy are consistent with previous scholars who have investigated the impact of either grade repetition or automatic promotion on students' learning outcomes along gender dimension. Similar to the discussion provided for the effect on P6 rural – urban in part (i), section 6.22, regression results for P6 male literacy, male numeracy, female numeracy appear to lend support to stakeholders in Uganda and beyond (Taye, 2003 and Chohan & Qadir, 2011), who have argued against the practice of automatically promoting learners. The arguments in favor of students repeating grades portray automatic promotion as detrimental to students' academic and professional development since it eliminates competition, de-motivates students and teachers thus leading to a decline in teaching and learning outcomes. Reasons for the

ineffectiveness of the policy at P6 are several and some (in the context of primary schooling Uganda) include; participating in household chores, the inadequacy of instructional and pedagogical materials, early marriages, inadequacy of basic facilities and/ or infrastructure relevant to teaching and learning, such as classrooms, latrines, desks and benches, and so forth. Moreover, the low level of household involvement in school activities potentially explains this situation.

The positive and significant effect along gender dimension at P3 is a strong indicator of the effectiveness of the automatic promotion policy in terms of enhancing equity in learning outcomes (Table 5.10 and Appendix 19). However, P6 results illustrated in Table 5.11 and Appendix 20 demonstrate the ineffectiveness of the policy, and as such do not enable discussion of equity in learning achievements between boys and girls.

6.3 Limitations of the Study

This sub-section of the study illustrates some of the limitations that potentially hinder the validity of findings, as well as possible ways through which they can be overcome in the future. Firstly, assignment to treatment and control groups was not randomly carried out, since the government simply announced the introduction of automatic promotion in public schools and not private schools. In addition, control and treated groups have differences (e.g., students' background characteristics, class sizes) and similarities (e.g., same curriculum, teachers trained in same teachers' colleges, same grading and assessment system), which it must be noted, are relatively stable over time, thus allowing for plausible causal inference (Antonakis et al., 2010). Stability of the trend between government and private schools is supplemented by the fact that selection of schools and students' to participate in the annual national assessment is randomly carried out (NAPE, 2010).

Differences are in the form of better management, location, number of students, primary education quality indicators (test scores, pupil classroom ratio, pupil teacher ratio and pupil textbook ratio) and internal efficiency indicators (repetition rate, dropout rate, survival rate and

completion rate). A majority of students in private schools (control group) are in urban areas, characterized by better management, better education quality and internal efficiency indicators, better structures/ facilities, higher enrolment figures and relatively better working conditions for teachers. The reverse is true for students in government schools (treated group) who study mostly in rural areas.

The similarities between the two groups exist in the area of curriculum and syllabus, teacher recruitment, training and deployment, language of instruction and assessment, pre-service and in-service training programs. Moreover, there are students studying in private school in rural areas, operating under similar conditions as those in government schools in the same setting. By the same token, there are students studying in government schools located in urban centers being managed under conditions akin to those in urban private schools

Secondly, the issue of whether there is strict adherence to the implementation of automatic promotion policy in all the government/ public primary schools in the country was not addressed by this policy impact assessment. There is a very distinct possibility that some government or public primary schools are not implementing the policy, which greatly affects the composition and structure of the treatment group. Closely related is the fact that this study did not address the fact there is movement of students from government schools to private schools and vice versa. This cross movement of learners between primary schools (treated and control) greatly influences the composition of the two groups. With enough time and resources, a well-designed study aimed at collecting data from the field (control schools and treated schools) would be instrumental in tackling issues related to the implementation of the policy and the cross movement of students.

Finally, the data sets used were not collected for the purpose of assessing the impact of automatic promotion policy. Thus there are inadequacies within the data in terms of other key variables that impact learning outcomes. In the context of this study some variables such as students' and teachers' attendance and actual teaching time are missing, meaning that the

estimated effect of the policy justifiably attracts some critical reviews. Given enough time and resources, data specifically geared towards evaluating the policy and its impact on Uganda's primary education quality and efficiency would be more insightful.

6.4 Conclusion

The overall goal of this study was to estimate the effect of automatic promotion on primary education efficiency and quality in Uganda. However, given the broad nature of the two concepts (education efficiency and education quality) two key indicators, one representing education and efficiency and the other representing education quality were selected. Subsequently, student dropout rate was selected to represent primary education efficiency and students' learning achievements (test scores) was chosen as a measure of education quality. The broad objective was then broken down into two specific objectives, namely: (i) to examine the effect of automatic promotion on the rate at which students' dropout in Uganda's primary education; and (ii) to examine the effect of automatic promotion on students' learning achievements in Uganda's primary education.

One of the key requirements in the field of policy impact evaluation is to demonstrate whether or not the policy is effective in promoting equity based on effect incidence along selected parameters. With that in mind, the author sought to ascertain the effectiveness of automatic promotion policy in promoting equity in internal efficiency and quality of primary education in Uganda. To illustrate equity, the author considered two popular components – school location (rural or urban) and gender (male or female). Consequently, the two specific objectives reference above were each further divided into two sub-objectives, consistent with the school location and gender components.

The objective aimed at examining the effect of automatic promotion on the rate at which students' dropout of Uganda's Primary Education was dissected into two and these are: (i) to investigate the effect of automatic promotion practice on students' dropout rate in rural schools

relative to those in urban schools; and (ii) to evaluate the effect of automatic promotion practice on the rate at which male students are dropping out of primary schooling relative to their female counter parts. Likewise, the objective designed to examine the effect of automatic promotion on students' learning achievements in Uganda's primary education was also broken down into two sub-objectives, namely: (i) to assess the effect of automatic promotion practice on learning achievements of students in rural areas compared to students in urban areas; and (ii) to estimate the effect of automatic promotion on learning achievements of male students compared to female students.

The effect of the policy, including its incidence was estimated using the Difference in Differences (DID) estimation technique. The decision to employ method was taken after considering the type of data at the authors disposal and the methods ability to minimize if not eliminate any biases that might arise from permanent latent differences between treatment and control groups as well as biases resulting from common trends overtime. DID model/ equation was constructed both in non-linear (probit model) and linear frameworks. The non-linear construct of the model was used to estimate the effect of the policy on the rate at which students' dropout of primary education. Conversely, the linear ordinary least squares (OLS) regression was used to estimate the effect of the policy on students' cognitive learning achievements in English and mathematics. The conclusions arrived at under the two sections below are constructed after fully considering and acknowledging limitations highlighted under the limitations of the study section (section 6.3).

6.4.1 Automatic promotion and students' dropout of rate in Uganda's primary education

On the basis of the above recap of the overall and specific objectives of the study, the author arrives to the following conclusion as regards the effect of automatic promotion practice on the rate at which students drop out of primary education. Estimation results from probit model reveal a negative and significant effect of the policy on automatic promotion on the probability of

students dropping out only at lower primary, represented by P3, but not at upper primary, represented by P6. After decomposing the policy effect along school location, the policy was found to have had an effect only on P3 students studying in urban schools. Analysis results based on gender show that automatic promotion has had an effect on both male and female students, but only at P3 and not P6. These findings demonstrate the effectiveness of the policy as an internal efficiency enhancing measure for lower level of primary schooling. The regression results further illustrate the effectiveness of the automatic promotion policy in enhancing internal efficiency in an equitable manner, among lower primary (P3) male and female students. This is critical given the pro and anti-automatic promotion debate currently going on in Uganda. The results from this analysis are instrumental in filling the information gap regarding the effect of the policy on internal efficiency of primary education in the context of Uganda. This empirical evidence facilitates the debate by informing both the pro automatic promotion side and those opposed to it.

According to the 2013 and 2014 annual reports from the Ministry of Education, Science, Technology and Sports (MoESTS), one of the interventions/ strategies that the government undertook to enhance internal efficiency was the continued enforcement of the implementation of automatic promotion practice. This implies that the MoESTS and its education development partners (Donors) strongly believe (based on primary education statistics from EMIS database) in the effectiveness of the policy to reduce, if not completely eliminate grade retention, thus reducing student dropout. These results largely shade light on the need to acknowledge and recognize the fact that automatic promotion does not operate in isolation; rather it complements other factors that influence the internal efficiency of primary schooling in Uganda. However, the challenge is translating the message and packaging it for the benefit of other education stakeholders, especially parents and administrators of primary schools in Uganda. The narrative among the opponents is that the policy is the sole contributor towards the worsening of internal

efficiency of Uganda's primary education, which represents an over-generalization without evidence.

6.4.2 Automatic promotion and students' learning achievements in Uganda's primary education

Regarding the effect of automatic promotion policy on students' learning achievements in Uganda's primary education, the conclusion is that the policy appears to have been effective in improving cognitive learning achievements of primary school students, at lower primary (P3) and partially at upper primary (P6). Regression results indicate a positive and statistically significant effect of the policy on literacy (English) and numeracy (mathematics) for students in P3 and only literacy at P6. When the impact of the policy disaggregated along school location and gender components, the author concludes that the practice of automatically promoting learners in the context of Uganda appears to have been effective in promoting equity in P3 learning outcomes along the two components. Equity in P6 learning achievements along the two dimensions being considered is inconclusive since the policy is effective only on rural and female literacy. Results from this study point towards the effectiveness of the policy as one of the measures to improve the quality of education (measured in students' learning achievements), at least at lower primary.

One of the outstanding accusations labeled at the policy by those opposed to it (parents and primary schools teaching force) is that it de-motivates teachers and learner alike, which in turn decreases the overall quality of primary education. The belief among the opponents of the practice of automatically promoting students is that automatic promotion has contributed to the worsening of the quality of not only primary education, but education as a whole in the country. This narrative exists despite the existence of very rich and diverse research evidence (mostly internationally) about the ineffectiveness of the grade retention (repetition) as a strategy to improve learning outcomes. Moreover, there is equally strong research evidence showing that

promoting students with their peers (age mates) to the next grades at the same time is good for their social and psychological well-being, which is ultimately reflected by better learning outcomes. The findings from this study therefore represent an addition to the already existing evidence (internationally) in support of automatically promoting students, in the context of primary schooling in Uganda. The challenge for the government, spearheaded by the Ministry of Education, Science, Technology and Sports (MoESTS), is how to organize all the available evidence in support of the policy in such a way that all the stakeholders, especially the opponents can gain a better understanding and appreciation of the impact of automatic promotion on primary education provision and development.

6.4.3 Policy Implications

On the basis of the findings of the study, two policy implications emerge. Firstly, there is a need for the government spearheaded by the MoESTS and education development partners in the country to conduct awareness campaigns nation-wide aimed at sensitizing the public about automatic promotion, why it was and is still necessary and relevant to the long term provision and development of education in Uganda. One of the key issues emerging (based on print and electronic media in Uganda) is the absence of prior consultations and sensitization campaigns on the relevance, strengths and weaknesses of automatic promotion policy, targeted at the various stakeholders. The need for extensive consultations and awareness creation programs cannot be emphasized enough, especially given the fact that since the start of formal education in the country in the 1890s, a "merit based" system of promotion was being implemented up until 2005 when automatic promotion was adopted. Therefore, parents, teachers and administrators (national, local government/ district and school level) are all products of performance based promotion system. In the absence of comprehensive policy consultations and adequate public awareness campaigns, it's plausible that the opponents to the policy in Uganda are simply

rallying against something new in the education system, whose mechanism they have not fully understood.

Secondly, the government and education development partners (donors) should assess the existence and adequacy of other factors or variables that influence the internal efficiency and quality of primary education in the context of Uganda. This is because automatic promotion does not operate in isolation, but rather in complement with other equally vital components in provision and development of education. A number of these factors overlap between the two components selected for analysis purposes (school location and gender), some are gender specific and others are rural – urban specific. Examples of other equally important factors complementary with automatic promotion include the following teachers' salaries, teachers' accommodation, instructional materials, parents/ community participation and absenteeism by both teachers and students, number of primary schools and their distribution between rural and urban settings, number of teachers, and their proportion by gender (male and female teachers) and rural-urban school location, to mention but a few. Making sure that necessary and sufficient conditions for productive teaching and learning processes are established, will in turn enhance automatic promotion practice as a viable option. The two policy implications discussed above are not only true and relevant in the case of implementing automatic promotion policy in Uganda's primary education, but internationally recognized and prescribed to countries grappling with the challenges of making the policy achieve the desired outcomes.

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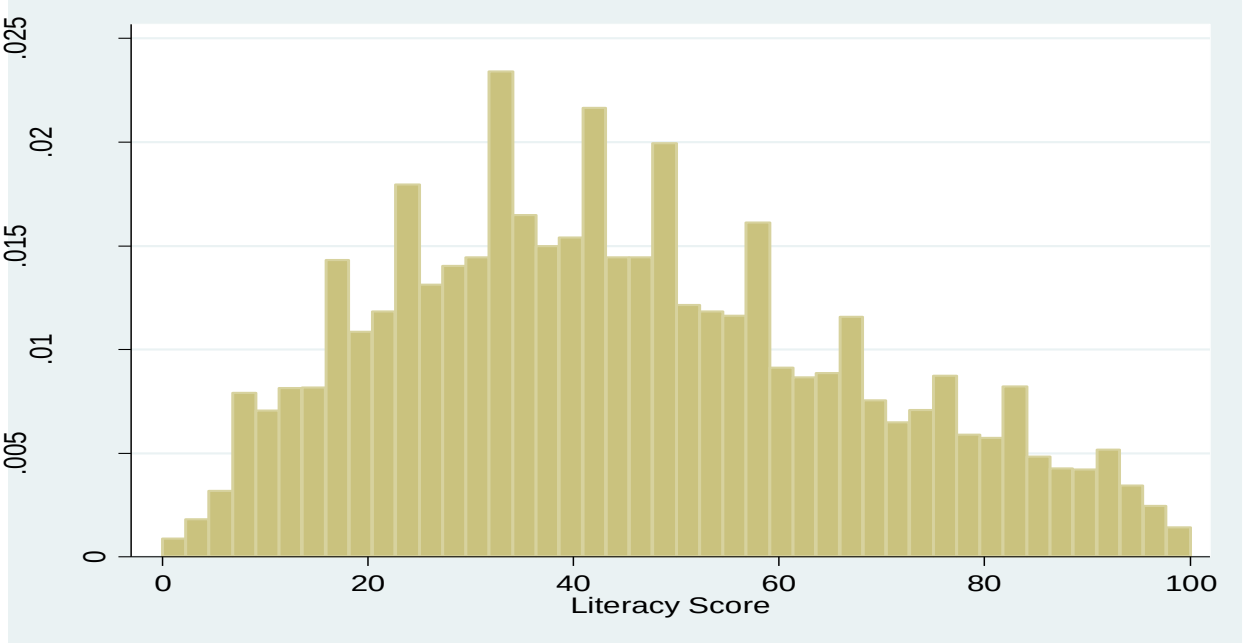
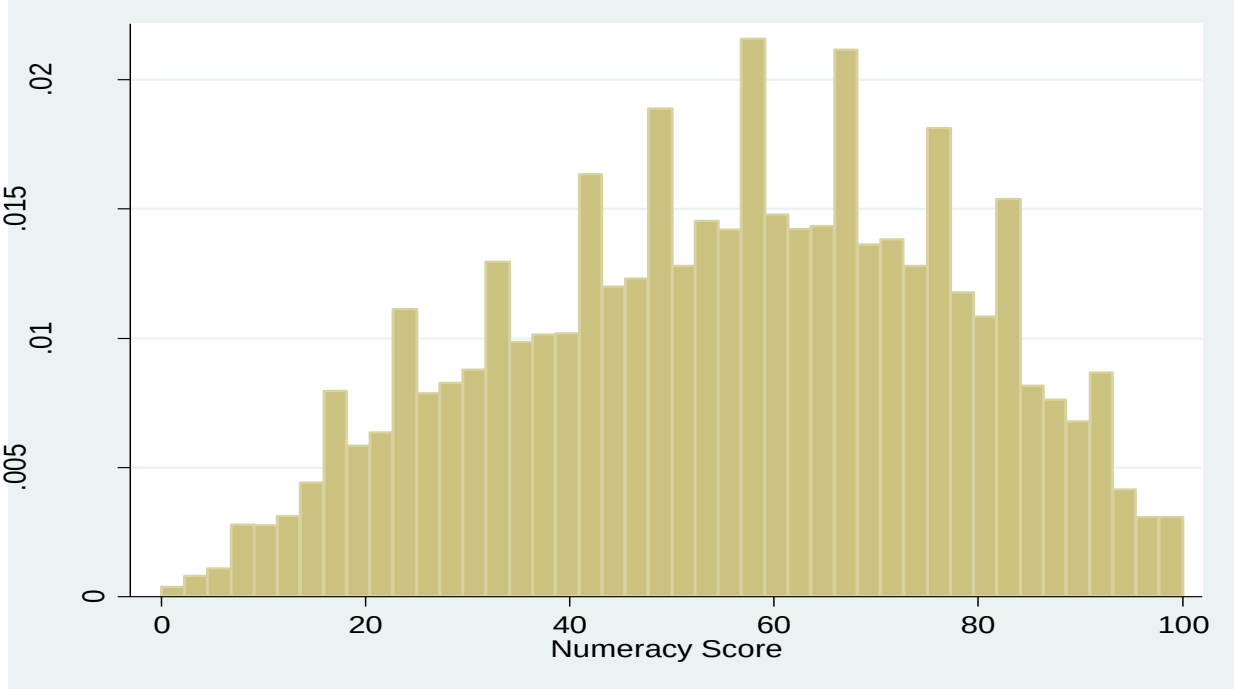
APPENDICES

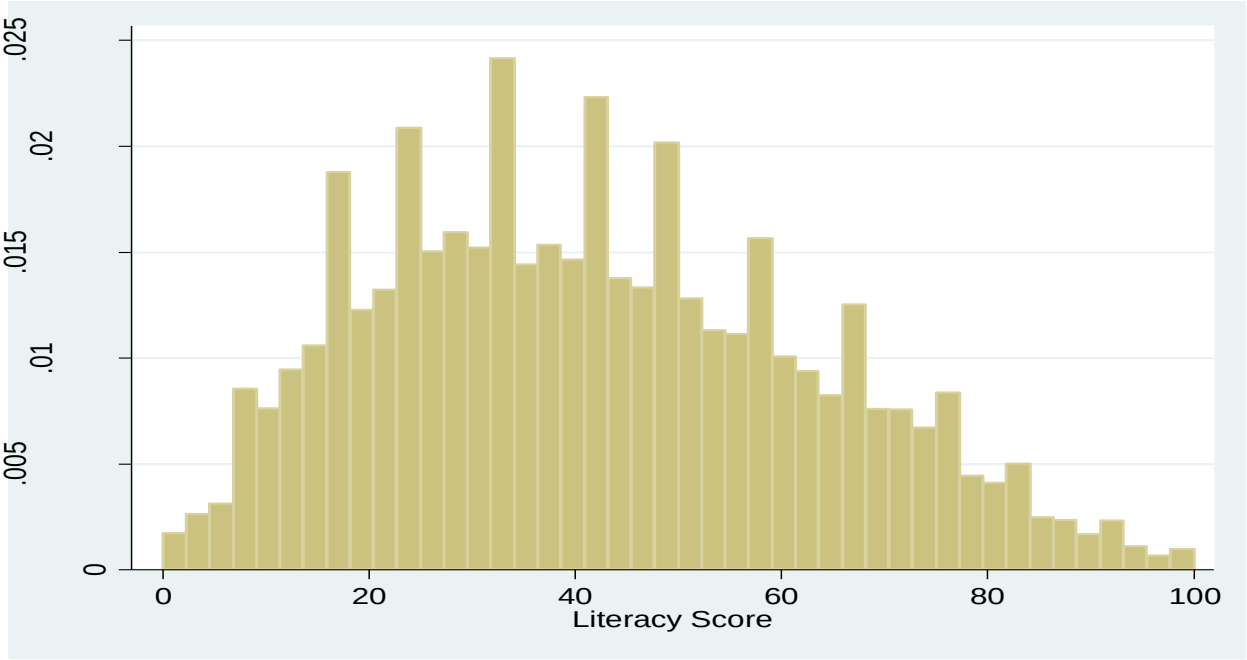
Appendix 1: P3 Literacy Scores Histogram



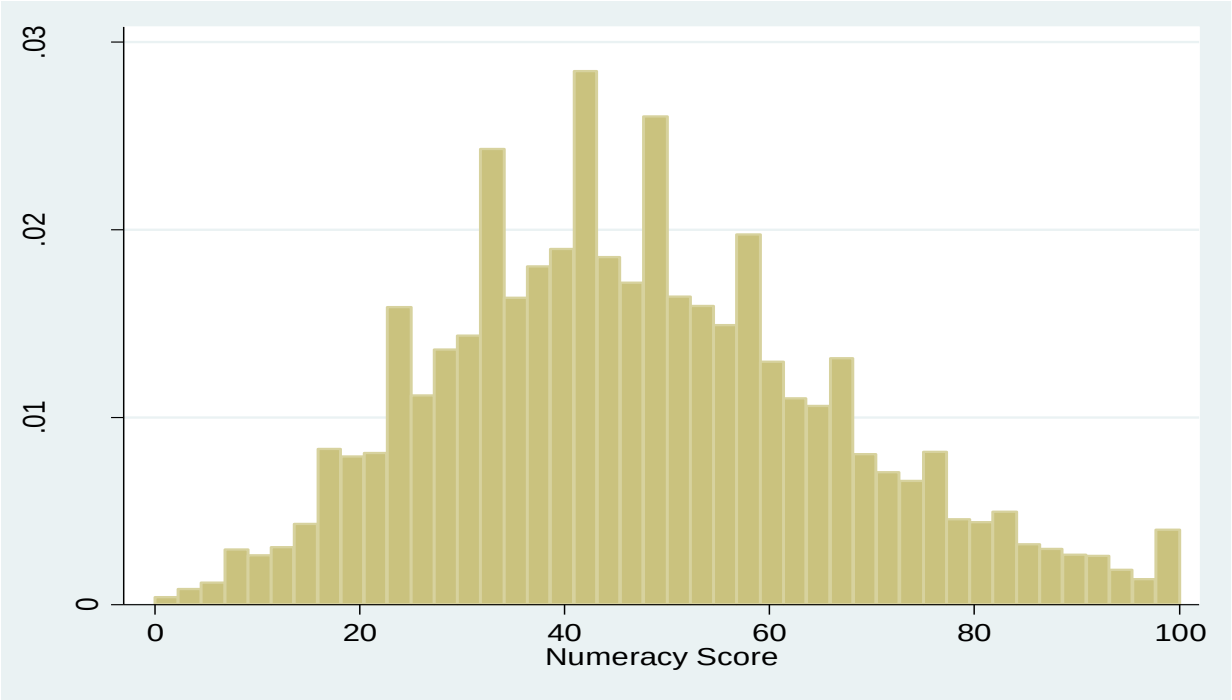
Appendix 2: P3 Numeracy Scores Histogram



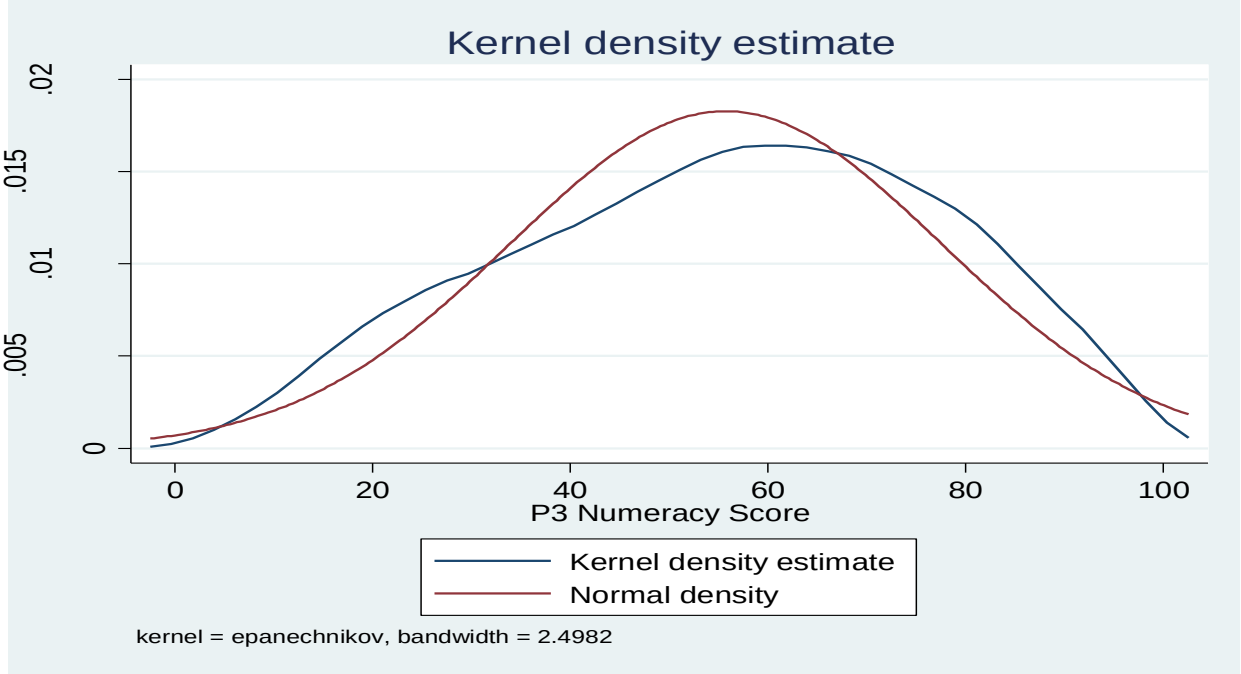
Appendix 3: P6 Literacy Scores Histogram



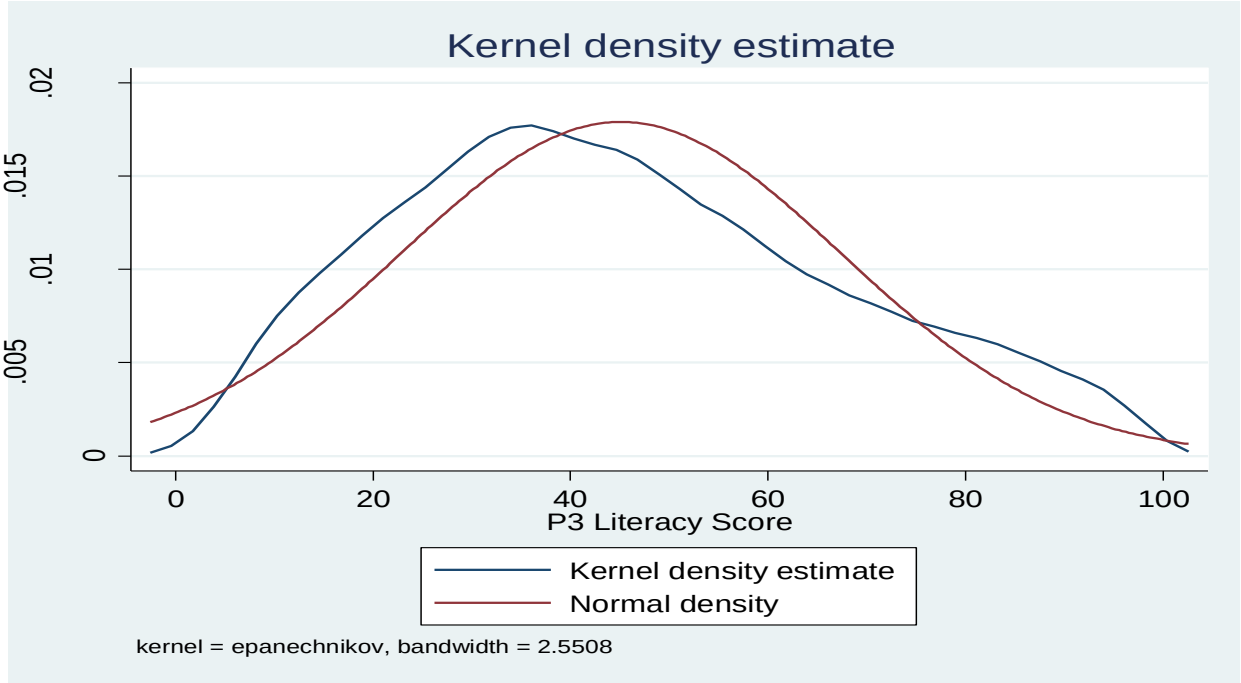
Appendix 4: P6 Numeracy Scores Histogram



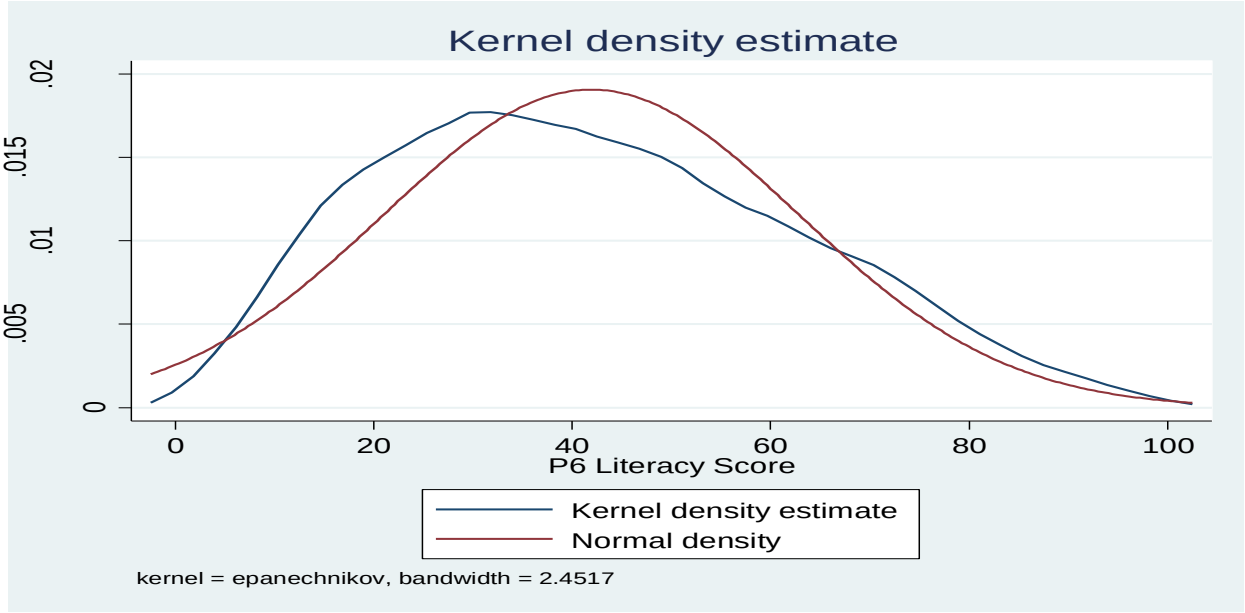
Appendix 5: Kernel Density Estimate for P3 Literacy Score



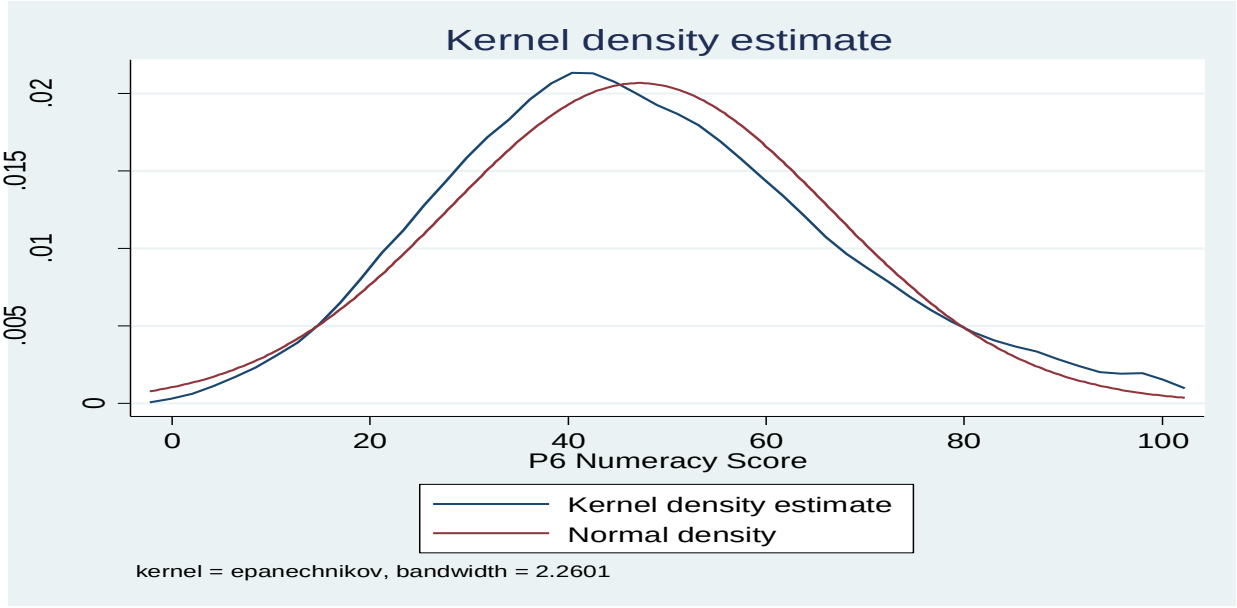
Appendix 6: Kernel Density Estimate for P3 Numeracy Score



Appendix 7: Kernel Density Estimate for P6 Literacy Score



Appendix 8: Kernel Density Estimate for P6 Numeracy Score



Appendix 9: Detailed description of dependent and independent variables used during the policy impact assessment

Variable Name	Description		Information Source
Literacy Score	At Primary Three (P3) it is a measure of students' competencies in reading comprehension and writing. At Primary Six (P6) it is a measure of students' competencies in reading comprehension, writing and grammar.	The test is called National Assessment of Progress in Education (NAPE) and it is administered annually to P3 and P6 students. The objective of NAPE is to determine and monitor the level of achievement of pupils over time, generate information on what pupils know and can do in different areas of the curriculum, evaluate the effectiveness of reforms in the education system, provide information on variables which affect	National Assessment of Progress in Education (NAPE) under the Ministry of Education, Science, Technology and Sports (MoESTS)
Numeracy Score	At Primary Three (P3) it is a measure of students' competencies in counting objects, adding numbers, subtracting numbers, multiplying numbers, dividing numbers, sorting shapes, telling time, solving sums involving money and buying and selling, solving sums involving capacity in daily life, writing and drawing fractions, associating a number to a number, writing number symbols from words and vice versa.		

Variable Name	Description	Information Source
	At Primary Six (P6) it is a measure of students' learning achievements and competencies in performing operations on numbers (adding, subtracting, multiplying and dividing), number system and place value, number patterns and sequence, measures, graphs and interpretations, fractions and geometry. suggesting measures for the improvement of teaching and learning in schools. NAPE has been administered since 1996.	
Students Dropping out of school	A measure of whether students are dropping out of primary schooling. The question sought to ascertain whether there are any pupils who left school (by grade). The response options were Yes=1 & No=0	Education Management Information System (EMIS) Database of the MoESTS
Post 2005	Captures the period before and after the automatic promotion policy was adopted.	Generated by author based on the principles and guidelines of the Difference in Differences (DID) estimation technique and NAPE Date 2004 & 2010
Treatment Status	Captures whether a school implements automatic promotion or not. Implying that it is comprised of the treated (government schools) and control groups (private schools).	
Interaction Term	The product of the post 2005 and treatment status variables and it's the variable of interest in the estimation of causality.	

Variable Name	Description	Information Source
Location (1=Rural)	Location of the primary school – rural or urban	EMIS/NAPE under the Ministry of Education, Science, Technology and Sports (MoESTS)
Guidance and Counseling (Room/ Space)	Inquired whether a school has a guidance and counseling room/ space Yes = 1 & No = 0	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports (MoESTS)
Distance to a Secondary School (Km)	Distance from the primary school where the data was being collected to the nearest Secondary School in Kilometers	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports (MoESTS)
Distance to nearest Market (Km)	Distance from the primary school where the data was being collected to the nearest Market in Kilometers	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports (MoESTS)
School Feeding	Whether the primary school where the data was being collected provides school	EMIS/ NAPE under the Ministry

Variable Name	Description	Information Source
Program (Mid-day)	meals for the students during school days *(No=1, once a day=2, twice or more a day=3)*. The variable was re-coded into a binary one such that No=0 & 1 otherwise.	of Education, Science, Technology and Sports (MoESTS)
Reading Textbooks	Whether a school provides reading textbooks for each students during class time *(No=1, One student per book=2, Share with 2 students=3, share 2 or more students=4).* The variable was re-coded into a binary one such that No=0 & 1 otherwise.	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports (MoESTS)
Mathematics Textbooks	Whether a school provides mathematics textbooks for the students during class time *(No=1, One student per book=2, Share with 2 students=3, share 2 or more students=4).* The variable was re-coded into a binary one such that No=0 & 1 otherwise.	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports (MoESTS)
Writing Surface (Table/Desk)	The question inquired about the existence of writing surfaces for student for example desks or chairs *(None=1, desk or table=2).* The variable was re-coded into a binary one such that None = 0 and 1 otherwise.	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports (MoESTS)
Sitting Surface (Chair/Bench)	The question inquired about the existence of sitting surfaces for student for example chairs or benches *(None=1, Chair or bench=2).* The variable was re-	EMIS/ NAPE under the Ministry of Education, Science,

Variable Name	Description	Information Source
	coded into a binary one such that None=0 and 1 otherwise.	Technology and Sports (MoESTS)
Schools Conduct Extra Lessons	Whether a school conducts/ carries out extra lessons for the students to help especially the academically weak students *(No=1, Once a month=2, 2 or 3 times a month=3, once or twice a week=4, 3 or more times per week).* The variable was re-coded into a binary one such that No=0 and 1 otherwise.	EMIS/ NAPE
Teachers Meet Parents	Whether a school organizes meetings between teachers and parents to discuss several issues including academic performance *(never=1, once a year=2, once a term=3, once or more a month=4).* The variable was re-coded into a binary one such that never = 0 and 1 otherwise.	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports (MoESTS)
Central Region	A region of the country where the school from which the data was collected is located. The variable is a dummy with 0=No and 1 = Yes.	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports
Eastern Region	A region of the country where the school from which the data was collected is located. The variable is a dummy with 0=No and 1 = Yes	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports (MoESTS)

Variable Name	Description	Information Source
Northern Region	A region of the country where the school from which the data was collected is located. The variable is a dummy with 0=No and 1 = Yes	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports
Western Region	A region of the country where the school from which the data was collected is located. The variable is a dummy with 0=No and 1 = Yes	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports
Teacher's Education (Level)	What is the level of academic qualification of teachers in the school, measured by different levels of qualification in the country *(Primary=1, Junior Secondary=2, Senior Secondary=3, Diploma=4, Tertiary=5)*	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports (MoESTS)
Teacher's Experience (Years)	What is the experience (in the teaching profession) of each of the teachers in the school, measured in years	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports
Teacher Absenteeism	How often a teacher has been absent from school *(Never=1, Once=2, Twice=3, Three or more times=4).* The variable was re-coded into a binary one such that Never = 0 and 1 otherwise.	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports
Teacher Arrives Late to	How many times a teacher comes to school late, after the slated time of arrival	EMIS/ NAPE under the Ministry

Variable Name	Description	Information Source
School	*(Never=1, Once=2, Twice=3, Three or more times=4).* The variable was re-coded into a binary one such that Never = 0 and 1 otherwise.	of Education, Science, Technology and Sports (MoESTS)
Teacher Skips Classes	Whether teachers skip classes, despite being in the school compound in the last one month *(Never=1, Once=2, Twice=3, Three or more times=4).* The variable was re-coded into a binary one such that never = 0 and 1 otherwise.	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports (MoESTS)
Gender	Gender of the student – Male = 1 & Female = 0	EMIS/ NAPE
Age	Age of the student in years	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports (MoESTS)
Student Repeated a Class/ Classes	How many times a student has repeated a class/ classes since starting primary schooling *(Never=1, Once=2, Twice=3, Three or More Times=4).* The variable was re-coded into a binary one such that Never = 0 and 1 otherwise.	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports (MoESTS)
Student receives	How often a student is given homework *(Never=1, Once or Twice a Month=2,*	EMIS/ NAPE under the Ministry

Variable Name	Description	Information Source
homework	*Once or Twice a week=3, most days of the week=4).* The variable was re-coded into a binary one such that Never = 0 and 1 otherwise.	of Education, Science, Technology and Sports (MoESTS)
Student receives homework corrections	How often does your teacher correct your homework *(Never=1, Sometimes=2, Most of the time=3, Always=4).* The variable was re-coded into a binary one such that Never = 0 and 1 otherwise.	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports (MoESTS)
Student Arrives Late to School	How many times a student comes to school late, after the slated time of arrival in the last one month *(Never=1, Once=2, Twice=3, Three or more times=4).* The variable was re-coded into a binary one such that Never = 0 and 1 otherwise.	EMIS/ NAPE
Student Absenteeism	How many times a student has been absent in the last month *(Never=1, Once=2, Twice=3, Three or more times=4).* The variable was re-coded into a binary one such that Never = 0 and 1 otherwise.	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports (MoESTS)
Student Skips Classes	How many times a student skip classes in a month, despite being in the school compound *(Never=1, Once=2, Twice=3, Three or more times=4).* The variable was re-coded into a binary one such that Never = 0 and 1 otherwise.	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports

Variable Name	Description	Information Source
		(MoESTS)
Student attended Nursery/ Kindergarten	Whether a student has ever attended pre-school (Nursery/ Kindergarten) – *Never=1, One year=2, Two Years=3, Three or More Years =4.* The variable was re-coded into a binary one such that Never = 0 and 1 otherwise.	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports (MoESTS)
Student Speaks English outside School	Whether a student speaks English outside school *(Never=1, Sometimes=2, Most of the time=3 All the time= 4).* The variable was re-coded into a binary one such that Never = 0 and 1 otherwise.	EMIS/ NAPE under the Ministry of Education, Science, Technology and Sports (MoESTS)
Mother's Education (Level)	What is the highest level of a mother in a household *(No Education=1, Primary=2, Secondary=3, Tertiary=4, Other Post Secondary Training = 5).* The variable was re-coded in to a binary once such that No Education = 0 and 1 otherwise.	Uganda National Household Survey (UNHS) under Uganda Bureau of Statistics (UBOS)
Father's Education (Level)	What is the highest level of a father in a household *(No Education=1, Primary=2, Secondary=3, Tertiary=4, Other Post Secondary Training = 5).* The variable was re-coded in to a binary once such that No Education = 0 and 1 otherwise.	Uganda National Household Survey (UNHS) under Uganda Bureau of Statistics (UBOS)

Variable Name	Description	Information Source
Children in a household (Number)	How many children of school going age are in a household	Uganda National Household Survey (UNHS) under Uganda Bureau of Statistics (UBOS)
Household Source of Light at Night	What is the source of light at night in a household *(None=1, Candle=2, Paraffin or oil Lamp=3, Gas Lamp=4, Electricity=5).* The variable was re-coded into a binary one such that none and candle = 0 and 1 otherwise.	Uganda National Household Survey (UNHS) under Uganda Bureau of Statistics (UBOS)
Household owns a Radio	Whether a household owns a radio, as one of the measures of household social economic status, *Yes = 1 and No = 0*	(UNHS) under Uganda Bureau of Statistics (UBOS)
Household owns a Television	Whether a household owns a television set, as one of the measures of household social economic status. *Yes = 1 and No = 0*	(UNHS) under Uganda Bureau of Statistics (UBOS)
Distance from Home to School	How far is the household from the nearest primary school in Kilometers	(UNHS) under Uganda Bureau of Statistics (UBOS)
Household Total Expend on Education (US$)	What is the total annual household expenditure on education in US$	(UNHS) under Uganda Bureau of Statistics (UBOS)

Note. Created by author using NAPE 2004 & 2010 data

Appendix 10: Probit regression results of the effect of automatic promotion on students' dropout rate at P3 and P6.

Variables	P3			P6		
	Coef.	Robust Std. Err.	z	Coef.	Robust Std. Err.	z
	(1)	(2)	(3)	(4)	(5)	(6)
Post2005	1.100	0.142	7.72	–0.138	0.055	–2.49
Treatmentstatus	0.488	0.107	4.56	–0.032	0.061	–0.53
Interactionterm	–0.598	0.128	–4.67	0.039	0.067	0.59
School Variables						
Location (1=Rural)	–0.539	0.045	–11.89	0.019	0.040	0.48
Guidance & Counseling Room	0.593	0.031	19.10	0.595	0.033	17.87
Distance to a Secondary School	0.002	0.002	0.89	0.011	0.004	2.88
Distance to a Market	0.123	0.012	10.04	–0.001	0.004	–0.16
School Feeding Program	–0.016	0.030	–0.55	0.042	0.033	1.25
Sitting Surface	–0.264	0.109	–2.42	–0.509	0.120	–4.22
Writing Surface	0.186	0.088	2.12	0.351	0.098	3.56
Teachers Meet Parents	–0.015	0.041	–0.38	0.026	0.043	0.61
Regional Dummies						
Central Region	–0.577	0.078	–7.36	0.028	0.067	0.42
Eastern Region	–0.630	0.077	–8.11	0.031	0.060	0.52
Northern Region	–0.521	0.077	–6.69	0.013	0.057	0.23
Western Region	–0.560	0.080	–6.97	–0.008	0.058	–0.15
Teacher Variables						
Teacher's Education (Level)	–0.175	0.010	–17.17	–0.179	0.010	–16.43
Teacher's Experience (Years)	0.023	0.001	14.15	0.021	0.001	11.88

Variables	P3			P6		
	Coef.	Robust Std. Err.	z	Coef.	Robust Std. Err.	z
	(1)	(2)	(3)	(4)	(5)	(6)
Teacher Arrives Late to School	–0.277	0.088	–3.14	–0.514	0.120	–4.27
Teacher Absenteeism	–0.251	0.057	–4.36	–0.267	0.064	–4.14
Teacher Skips Classes	0.035	0.031	1.12	–0.009	0.033	–0.29
Student Variables						
Gender	0.034	0.023	1.47	-0.012	0.024	-0.49
Age (Years)	0.001	0.007	0.14	0.029	0.008	3.47
Student Repeated a Class/ Classes	0.106	0.023	4.59	0.100	0.024	4.14
Student Arrives Late to School	–0.562	0.137	–4.10	–0.874	0.207	–4.21
Student Skips Classes	–0.197	0.035	–5.49	–0.207	0.038	–5.34
Student Speaks English outside School	–0.084	0.032	–2.57	0.028	0.033	0.84
Household Variables						
Mother’s Education	–0.035	0.032	–1.08	–0.006	0.034	–0.18
Father’s Education	0.056	0.038	1.48	0.042	0.040	1.03
Children in a household	0.014	0.010	1.42	–0.014	0.010	–1.32
Distance from home to School	–0.0004	0.0039	–0.10	–0.001	0.004	–0.24
Constant	2.840	0.237	11.96	3.259	0.335	9.73
Observations		30053			26720	
Pseudo R2		0.085			0.067	

Source: Created by Author (2016)

Appendix 11: Marginal effect of automatic promotion on the probability of students dropping out at P3 and P6.

Variables	P3			P6		
	dy/dx	Delta-method Std. Err.	z	dy/dx	Delta-method Std. Err.	z
	(1)	(2)`	(3)	(4)	(5)	(6)
Post2005	0.136	0.017	7.69	–0.017	0.006	–2.49
Treatmentstatus	0.060	0.013	4.55	–0.004	0.007	–0.53
Interactionterm	–0.074	0.015	–4.67	0.004	0.008	0.59
School Variables						
Location (1=Rural)	–0.067	0.005	–11.74	0.002	0.004	0.48
Guidance & Counseling	0.073	0.003	18.73	0.073	0.004	17.63
Distance to a Secondary School	0.0002	0.0003	0.89	0.0014	0.0005	2.88
Distance to a Market	0.015	0.001	9.98	–0.0001	0.005	–0.16
School Feeding Program	–0.002	0.003	–0.55	0.005	0.004	1.25
Sitting Surface	–0.032	0.013	–2.42	–0.063	0.014	–4.22
Writing Surface	0.023	0.010	2.12	0.043	0.012	3.55
Teachers Meet Parents	–0.001	0.005	–0.38	0.003	0.005	0.61
Regional Dummies						
Central Region	–0.071	0.009	–7.33	0.003	0.008	0.42
Eastern Region	–0.078	0.009	–8.07	0.003	0.007	0.52
Northern Region	–0.064	0.009	–6.65	0.001	0.007	0.23
Western Region	–0.069	0.010	–6.94	–0.001	0.007	–0.15

Variables	P3			P6		
	dy/dx	Delta-method Std. Err.	z	dy/dx	Delta-method Std. Err.	z
	(1)	(2)`	(3)	(4)	(5)	(6)
Teacher Variables						
Teacher's Education	–0.021	0.001	–16.53	–0.022	0.001	–15.80
Teacher's Experience	0.0029	0.0002	13.71	0.0026	0.0002	11.59
Teacher Arrives Late to School	–0.034	0.010	–3.15	–0.063	0.014	–4.27
Teacher Absenteeism	–0.031	0.007	–4.36	–0.033	0.007	–4.14
Teacher Skips Classes	0.004	0.003	1.12	–0.001	0.004	–0.29
Student Variables						
Gender	0.004	0.002	1.47	–0.001	0.003	–0.49
Age (Years)	0.0001	0.0009	0.14	0.003	0.001	3.47
Student Repeated a Class/ Classes	0.013	0.002	4.59	0.012	0.003	4.13
Student Arrives Late to School	–0.070	0.017	–4.10	–0.108	0.025	–4.22
Student skips Classes	–0.024	0.004	–5.50	–0.025	0.004	–5.35
Student speaks English	–0.010	0.004	–2.57	0.003	0.004	0.84
Household Variables						
Mother's Education	–0.004	0.004	–1.08	–0.001	0.004	–0.18
Father's Education	0.007	0.004	1.48	0.005	0.005	1.03
Children in a household	0.001	0.001	1.42	–0.001	0.001	–1.32

Variables	P3			P6		
	dy/dx	Delta-method Std. Err.	z	dy/dx	Delta-method Std. Err.	z
	(1)	(2)`	(3)	(4)	(5)	(6)
Distance from home to School	–0.00004	0.0004	–0.10	–0.0001	0.0005	–0.24
Observations		30053			26720	

Source: Created by Author (2016)

Appendix 12: Probit regression results of the effect of automatic promotion on rural and urban students' dropout rate – P3 & P6

Variables	P3						P6					
	Rural			Urban			Rural			Urban		
	Coef	Robust Std. Err.	z	Coef	Robust Std. Err.	z	Coef	Robust Std. Err.	z	Coef	Robust Std. Err.	z
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Post2005	0.374	0.244	1.53	0.354	0.019	2.96	–0.147	0.067	–2.20	–0.112	0.098	–1.14
Treatmentstatus	–0.147	0.231	–0.64	0.124	0.097	1.28	–0.044	0.075	–0.59	0.017	0.109	0.16
Interactionterm	–0.426	0.253	–1.68	0.675	0.167	4.03	0.010	0.082	0.13	0.097	0.122	0.80
School Variables												
Guidance & Counseling	0.585	0.036	16.21	0.637	0.061	10.38	0.606	0.039	15.46	0.570	0.061	9.35
Distance to a Sec. School	0.002	0.003	0.66	0.002	0.005	0.50	0.017	0.003	5.30	0.005	0.003	1.54
Distance to a Market	0.119	0.013	8.59	0.146	0.027	5.35	-0.000	0.005	-0.08	0.001	0.007	0.10
School Meals	0.031	0.037	0.84	–0.144	0.055	–2.62	0.064	0.039	1.65	–0.044	0.063	–0.70
Sitting Surface	–0.443	0.137	–3.23	0.051	0.179	0.29	–0.424	0.131	–3.23	-0.693	0.282	–2.45
Writing Surface	0.326	0.111	2.92	0.040	0.144	0.28	0.328	0.109	3.00	0.345	0.212	1.62
Teachers Meet Parents	0.035	0.048	0.73	–0.146	0.082	–1.77	0.031	0.050	0.61	0.040	0.082	0.49
Teacher Variables												

Variables	P3						P6					
	Rural			Urban			Rural			Urban		
	Coef	Robust Std. Err.	z	Coef	Robust Std. Err.	z	Coef	Robust Std. Err.	z	Coef	Robust Std. Err.	z
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Teachers' Education	–0.162	0.011	–13.75	–0.211	0.020	–10.42	–0.201	0.012	–15.60	–0.114	0.020	–5.69
Teachers' Experience	0.026	0.002	13.18	0.016	0.003	5.28	0.021	0.002	10.05	0.020	0.003	6.07
Teacher Arrives Late	–0.441	0.123	–3.57	–0.121	0.134	–0.90	–0.447	0.138	–3.22	–0.809	0.231	–3.50
Teacher Absenteeism	–0.427	0.075	–5.65	–0.015	0.094	–0.17	–0.465	0.086	–5.41	0.008	0.100	0.09
Teacher Skips Classes	–0.007	0.037	–0.19	0.131	0.059	2.21	0.005	0.039	0.15	–0.011	0.063	–0.18
Student Variables												
Gender	0.050	0.027	1.81	0.008	0.044	0.19	0.004	0.029	0.17	–0.050	0.048	–1.05
Age	–0.001	0.008	–0.13	0.019	0.014	1.33	0.033	0.010	3.31	0.019	0.015	1.26
Student Repeated Class	0.137	0.027	5.01	0.024	0.043	0.56	0.081	0.028	2.84	0.137	0.046	2.98
Student Skips Classes	–0.239	0.044	–5.42	–0.093	0.063	–1.47	–0.212	0.046	–4.62	–0.208	0.071	–2.90
Student Speaks English	–0.082	0.038	–2.12	–0.107	0.063	–1.69	0.033	0.039	0.84	0.026	0.064	0.40
Household Variables												
Mother's Education	–0.010	0.038	–0.27	–0.113	0.062	–1.82	0.043	0.040	1.09	–0.132	0.065	–2.03

Variables	P3						P6					
	Rural			Urban			Rural			Urban		
	Coef	Robust Std. Err.	z	Coef	Robust Std. Err.	z	Coef	Robust Std. Err.	z	Coef	Robust Std. Err.	z
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Father's Education	0.041	0.045	0.92	0.094	0.071	1.33	–0.016	0.049	–0.34	0.199	0.074	2.70
Children in a Household	0.012	0.011	1.10	0.014	0.019	0.73	–0.018	0.012	–1.51	0.001	0.021	0.09
Distance Home to Sch	–0.001	0.004	–0.40	0.001	0.007	0.21	–0.006	0.004	–1.35	0.013	0.008	1.62
Constant	2.668	0.299	8.90	1.587	0.313	5.07	2.531	0.252	10.04	2.410	0.407	5.92
Observations		20194			9859			19388			7332	
Pseudo R2		0.083			0.110			0.072			0.059	

Source: Created by Author (2016)

Appendix 13: Marginal effect of automatic promotion on the probability of students' dropping out of schools located in rural and urban areas – P3 & P6

Variables	P3						P6					
	Rural			Urban			Rural			Urban		
	dy/dx	Delta-method Std. Err.	z	dy/dx	Delta-method Std. Err	z	dy/dx	Delta-method Std. Err	z	dy/dx	Delta-method Std. Err	z
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Post2005	0.049	0.032	1.53	0.037	0.012	2.95	–0.018	0.008	–2.20	–0.014	0.012	–1.14
Treatmentstatus	–0.019	0.030	–0.64	0.013	0.010	1.28	–0.005	0.009	–0.59	0.002	0.013	0.16
Interactionterm	–0.056	0.033	–1.68	0.071	0.017	4.04	0.001	0.010	0.13	0.012	0.015	0.80
School Variables												
Guidance & Counseling	0.077	0.004	15.94	0.067	0.006	10.13	0.074	0.004	15.22	0.071	0.007	9.17
Distance to a Sec Sch	0.0002	0.0004	0.66	0.0002	0.0005	0.50	0.0022	0.0004	5.29	0.0007	0.0004	1.54
Distance to a Market	0.015	0.001	8.54	0.015	0.002	5.32	-0.000	0.001	-0.08	0.000	0.001	0.10
School Meals	0.004	0.004	0.84	–0.015	0.005	–2.62	0.007	0.004	1.65	–0.005	0.008	–0.70
Sitting Surface	–0.058	0.018	–3.22	0.005	0.018	0.29	–0.051	0.016	–3.22	-0.087	0.035	–2.45
Writing Surface	0.043	0.014	2.92	0.004	0.015	0.28	0.040	0.013	3.00	0.043	0.026	1.62

Variables	P3						P6					
	Rural			Urban			Rural			Urban		
	dy/dx	Delta-method Std. Err.	z	dy/dx	Delta-method Std. Err	z	dy/dx	Delta-method Std. Err	z	dy/dx	Delta-method Std. Err	z
Teachers Meet Parents	0.004	0.006	0.73	–0.015	0.008	–1.77	0.003	0.006	0.61	0.005	0.010	0.49
Teacher Variables												
Teacher's Qualification	–0.021	0.001	–13.34	–0.022	0.002	–9.96	–0.024	0.001	–14.95	–0.014	0.002	–5.57
Teacher's Experience	0.0035	0.0002	12.65	0.0017	0.0003	5.19	0.0026	0.0002	9.78	0.0028	0.0004	5.93
Teacher Arrives Late	–0.058	0.016	–3.57	–0.012	0.014	–0.90	–0.054	0.017	–3.22	–0.102	0.029	–3.48
Teacher Absenteeism	–0.056	0.010	–5.64	–0.001	0.009	–0.17	–0.056	0.010	–5.41	0.001	0.012	0.09
Teacher Skips Classes	–0.001	0.005	–0.19	0.013	0.006	2.21	0.001	0.004	0.15	–0.001	0.007	–0.18
Student Variables												
Student Gender	0.006	0.003	1.81	0.001	0.005	0.19	0.001	0.003	0.17	–0.006	0.006	–1.05
Student Age (Years)	–0.0001	0.0011	–0.13	0.002	0.001	1.33	0.004	0.001	3.31	0.002	0.001	1.26
Student Repeated Class	0.018	0.003	5.00	0.002	0.004	0.56	0.010	0.003	2.84	0.017	0.005	2.97
Student Skips Classes	–0.031	0.005	–5.41	–0.009	0.006	–1.47	–0.026	0.005	–4.62	–0.026	0.009	–2.91
Student Speaks English	–0.010	0.005	–2.12	–0.011	0.006	–1.69	0.004	0.004	0.84	0.003	0.008	0.40

Variables	P3						P6					
	Rural			Urban			Rural			Urban		
	dy/dx	Delta-method Std. Err.	z	dy/dx	Delta-method Std. Err	z	dy/dx	Delta-method Std. Err	z	dy/dx	Delta-method Std. Err	z
Household Variables												
Mother's Education	–0.001	0.005	–0.27	–0.011	0.006	–1.81	0.005	0.004	1.09	–0.016	0.008	–2.03
Father's Education	0.005	0.006	0.92	0.009	0.007	1.33	–0.002	0.006	–0.34	0.025	0.009	2.69
Children (Household)	0.001	0.001	1.10	0.001	0.002	0.73	–0.002	0.001	–1.51	0.0002	0.0026	0.09
Distance Home to Sch	–0.0002	0.0006	–0.40	0.0001	0.0007	0.21	–0.001	0.001	–1.35	0.001	0.001	1.62
Observations		20194			9859			19388			7332	

Source: Created by Author (2016)

Appendix 14: Probit regression results of the effect of automatic promotion on male and female students' dropout rate – P3 & P6

Variables	P3						P6					
	Male			Female			Male			Female		
	Coef	Robust Std. Err.	z	Coef	Robust Std. Err.	z	Coef	Robust Std. Err.	z	Coef	Robust Std. Err.	z
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Post2005	1.132	0.206	5.47	1.052	0.197	5.32	–0.052	0.061	–0.85	–0.716	0.173	–4.12
Treatmentstatus	0.473	0.154	3.06	0.475	0.147	3.21	-0.032	0.065	–0.50	–0.172	0.199	–0.87
Interactionterm	–0.585	0.183	–3.20	–0.585	0.178	–3.27	0.083	0.076	1.09	0.132	0.203	0.65
School Variables												
Location	–0.558	0.066	–8.36	–0.529	0.062	–8.51	0.071	0.053	1.34	–0.047	0.062	–0.75
Guidance & Counseling	0.574	0.043	13.25	0.604	0.044	13.62	0.517	0.043	11.79	0.682	0.050	13.57
Distance to a Sec School	0.001	0.003	0.34	0.004	0.004	1.00	0.011	0.005	1.94	0.011	0.003	3.31
Distance to a Market	0.124	0.017	7.14	0.123	0.017	6.97	–0.0004	0.005	–0.07	–0.001	0.006	–0.19
School Meals	–0.010	0.043	–0.24	–0.025	0.043	–0.58	0.043	0.044	0.99	0.035	0.051	0.69
Sitting Surface	–0.239	0.154	–1.55	–0.275	0.153	–1.79	–0.437	0.152	–2.86	–0.520	0.190	–2.73
Writing Surface	0.192	0.124	1.54	0.174	0.125	1.39	0.337	0.128	2.62	0.324	0.151	2.15
Teachers Meet Parents	–0.071	0.061	–1.18	0.037	0.056	0.66	0.004	0.057	0.09	0.055	0.066	0.83

Variables	P3						P6					
	Male			Female			Male			Female		
	Coef	Robust Std. Err.	z	Coef	Robust Std. Err.	z	Coef	Robust Std. Err.	z	Coef	Robust Std. Err.	z
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Regional Dummies												
Central Region	–0.631	0.114	–5.53	–0.519	0.108	–4.78	0.043	0.094	0.46	0.009	0.097	0.10
Eastern Region	–0.693	0.113	–6.14	–0.553	0.107	–5.15	0.055	0.085	0.65	0.006	0.087	0.07
Northern Region	–0.621	0.113	–5.48	–0.404	0.107	–3.75	0.014	0.081	0.18	0.012	0.083	0.15
Western Region	–0.618	0.117	–5.27	–0.492	0.110	–4.45	–0.028	0.083	–0.35	0.020	0.082	0.25
Teacher Variables												
Teacher's Education	–0.172	0.014	–11.96	–0.173	0.014	–12.02	–0.174	0.014	–11.81	–0.187	0.016	–11.66
Teacher's Experience	0.024	0.002	10.13	0.022	0.002	9.65	0.022	0.002	8.92	0.020	0.002	7.56
Teacher Arrives Late	–0.291	0.135	–2.15	–0.308	0.117	–2.63	–0.487	0.139	–3.49	–0.748	0.224	–3.34
Teacher Absenteeism	–0.340	0.086	–3.93	–0.228	0.077	–2.93	–0.182	0.078	–2.32	–0.510	0.119	–4.27
Teacher Skips Classes	0.062	0.044	1.42	0.026	0.045	0.58	0.001	0.045	0.04	–0.005	0.049	–0.11
Student Variables												
Student Age (Years)	0.002	0.010	0.27	–0.001	0.011	–0.06	0.015	0.010	1.45	0.053	0.013	3.85

Variables	P3						P6					
	Male			Female			Male			Female		
	Coef	Robust Std. Err.	z	Coef	Robust Std. Err.	z	Coef	Robust Std. Err.	z	Coef	Robust Std. Err.	z
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Student Repeated Class	0.080	0.032	2.47	0.127	0.032	3.90	0.088	0.032	2.74	0.111	0.037	2.99
Student Skips Classes	–0.223	0.051	–4.39	–0.185	0.050	–3.63	–0.183	0.051	–3.60	–0.253	0.060	–4.18
Student Speaks English	–0.054	0.046	–1.17	–0.106	0.044	–2.30	0.042	0.044	0.97	0.005	0.052	0.10
Household Variables												
Mother's Education	–0.101	0.046	–2.20	0.034	0.045	0.76	–0.010	0.045	–0.22	–0.005	0.051	–0.10
Father's Education	0.075	0.053	1.42	0.038	0.055	0.69	–0.008	0.057	–0.14	0.112	0.060	1.86
Children in a Household	0.015	0.014	1.11	0.012	0.014	0.90	–0.006	0.014	–0.48	–0.025	0.016	–1.57
Distance Home to Sch.	–0.002	0.005	–0.45	0.001	0.005	0.35	–0.009	0.005	–1.78	0.009	0.006	1.52
Constant	2.504	0.271	9.22	2.189	0.261	8.37	2.336	0.292	8.00	3.163	0.367	8.60
Observations		15407			14646			15066			11654	
Pseudo R2		0.083			0.084			0.056			0.089	

Source: Created by Author (2016)

Appendix 15: Marginal effect of automatic promotion on the probability of male and female students dropping out – P3 & P6

Variable	P3						P6					
	Male			Female			Male			Female		
	dy/dx	Delta-method Std. Err.	z	dy/dx	Delta-method Std. Err.	z	dy/dx	Delta-method Std. Err.	z	dy/dx	Delta-method Std. Err.	z
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Post2005	0.138	0.025	5.44	0.133	0.025	5.30	–0.006	0.007	–0.85	–0.087	0.021	–4.11
Treatmentstatus	0.057	0.018	3.05	0.060	0.018	3.21	–0.004	0.008	–0.50	–0.021	0.024	–0.87
Interactionterm	–0.071	0.022	–3.19	–0.074	0.022	–3.27	0.010	0.009	1.09	0.016	0.024	0.65
School Variables												
Location	–0.068	0.008	–8.25	–0.067	0.007	–8.41	0.008	0.006	1.34	–0.005	0.007	–0.75
Guidance & Counseling	0.070	0.005	12.99	0.076	0.005	13.36	0.064	0.005	11.67	0.083	0.006	13.20
Distance to a Sec School	0.0001	0.0003	0.34	0.001	0.001	1.00	0.0014	0.0007	1.95	0.0013	0.0004	3.31
Distance to a Market	0.015	0.002	7.11	0.015	0.002	6.93	–.0000	0.0006	–0.07	–.0001	0.0007	–0.19
School Meals	–0.001	0.005	–0.24	–0.003	0.005	–0.58	0.005	0.005	0.99	0.004	0.006	0.69
Sitting Surface	–0.029	0.019	–1.55	–0.034	0.019	–1.79	–0.054	0.018	–2.86	–0.063	0.023	–2.72
Writing Surface	0.023	0.015	1.55	0.022	0.015	1.39	0.041	0.015	2.62	0.039	0.018	2.15

Variable	P3						P6					
	Male			Female			Male			Female		
	dy/dx	Delta-method Std. Err.	z	dy/dx	Delta-method Std. Err.	z	dy/dx	Delta-method Std. Err.	z	dy/dx	Delta-method Std. Err.	z
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Teachers Meet Parents	–0.008	0.007	–1.18	0.004	0.007	0.66	0.0006	0.0071	0.09	0.006	0.008	0.83
Regional Dummies												
Central Region	–0.077	0.014	–5.50	–0.065	0.013	–4.77	0.005	0.011	0.46	0.001	0.011	0.10
Eastern Region	–0.084	0.013	–6.11	–0.070	0.013	–5.14	0.006	0.010	0.65	0.001	0.010	0.07
Northern Region	–0.075	0.013	–5.45	–0.051	0.013	–3.74	0.001	0.010	0.18	0.001	0.010	0.15
Western Region	–0.075	0.014	–5.25	–0.062	0.014	–0.44	–0.003	0.010	–0.35	0.002	0.010	0.25
Teacher Variables												
Teacher's Education	–0.021	0.001	–11.52	–0.022	0.001	–11.57	–0.021	0.001	–11.38	–0.022	0.002	–11.14
Teacher's Experience	0.0029	0.0003	9.81	0.0029	0.0003	9.36	0.0027	0.0003	8.70	0.0026	0.0003	7.41
Teacher Arrives Late	–0.035	0.016	–2.15	–0.039	0.014	–2.63	–0.060	0.017	–3.48	–0.091	0.027	–3.32
Teacher Absenteeism	–0.041	0.010	–3.93	–0.028	0.009	–2.93	–0.022	0.009	–2.32	–0.062	0.014	–4.26
Teacher Skips Classes	0.007	0.005	1.42	0.003	0.005	0.58	0.0002	0.0056	0.04	–0.001	0.006	–0.11

Variable	P3						P6					
	Male			Female			Male			Female		
	dy/dx	Delta-method Std. Err.	z	dy/dx	Delta-method Std. Err.	z	dy/dx	Delta-method Std. Err.	z	dy/dx	Delta-method Std. Err.	z
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Student Variables												
Student Age (Years)	0.0003	0.0012	0.27	–0.0001	0.0014	–0.06	0.001	0.001	1.45	0.006	0.001	3.84
Student Repeated Class	0.009	0.003	2.47	0.016	0.004	3.89	0.010	0.004	2.73	0.013	0.004	2.99
Student Skips Classes	–0.027	0.006	–4.39	–0.023	0.006	–3.63	–0.022	0.006	–3.61	–0.030	0.007	–4.18
Student Speaks English	–0.006	0.005	–1.17	–0.013	0.005	–2.30	0.005	0.005	0.97	0.001	0.006	0.10
Household Variables												
Mother's Education	–0.012	0.005	–2.20	0.004	0.005	0.76	–0.001	0.005	–0.22	–0.001	0.006	–0.10
Father's Education	0.009	0.006	1.42	0.004	0.007	0.69	–0.001	0.006	–0.14	0.013	0.007	1.86
Children in a Household	0.001	0.001	1.11	0.001	0.001	0.90	–0.001	0.001	–0.48	–0.003	0.001	–1.57
Distance Home to Sch	–0.0002	0.0006	–0.45	0.0002	0.0007	0.35	–0.001	0.001	–1.78	0.001	0.001	1.52
Observations		15407			14646			15066			11654	

Source: Created by Author (2016)

Appendix 16: Effect of automatic promotion on literacy and numeracy scores at P3 and P6

Variables	P3				P6			
	Literacy		Numeracy		Literacy		Numeracy	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post2005	9.280***	8.10	3.604***	3.31	8.650***	14.72	8.113***	15.66
	(1.145)		(1.088)		(0.587)		(0.518)	
Treatmentst7atus	–29.021***	–26.35	–28.726***	–27.99	–5.325***	–8.36	–3.888***	–7.06
	(1.101)		(1.026)		(0.636)		(0.550)	
Interactionterm	7.905***	6.88	14.387***	13.42	1.483*	2.14	0.571	0.93
	(1.148)		(1.072)		(0.694)		(0.613)	
School Variables								
Location	–8.899***	–21.77	–4.480***	–11.36	–4.279***	–10.29	–2.617***	–6.67
	(0.408)		(0.394)		(0.415)		(0.392)	
Distance to Sec School	–0.010	–0.93	0.011	1.05	–0.036**	–3.23	–0.034***	–3.33
	(0.011)		(0.010)		(0.011)		(0.010)	
Distance to a Market	0.075*	2.22	0.038	1.10	–0.038	–1.05	–0.010	–0.32
	(0.034)		(0.034)		(0.036)		(0.034)	
Reading Textbooks	–0.403	–0.81	–0.596	–1.18	–0.971	–1.88	–0.280	–0.57
	(0.501)		(0.505)		(0.517)		(0.491)	
Math Textbooks	–0.367	–0.79	–0.580	–1.24	–0.354	–0.73	–0.919*	–1.97
	(0.467)		(0.468)		(0.485)		(0.466)	
Sitting Surface	–0.305	–0.27	0.910	0.83	–0.780	–0.64	–0.296	–0.27
	(1.122)		(1.095)		(1.196)		(1.117)	
Writing Surface	0.342	0.34	0.671	0.67	0.699	0.63	0.797	0.78
	(1.018)		(0.996)		(1.106)		(1.020)	

Variables	P3				P6			
	Literacy		Numeracy		Literacy		Numeracy	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
School Meals	–0.204***	–3.95	–0.796**	–2.58	–1.103***	–3.57	–0.809**	–2.69
	(0.304)		(0.308)		(0.308)		(0.300)	
Extra Lessons	–0.040	–0.18	–0.009	–0.04	0.439	1.85	0.273	1.20
	(0.229)		(0.230)		(0.237)		(0.227)	
Teachers Meet Parents	–0.651	–1.54	–0.299	–0.70	0.289	0.68	0.305	0.75
	(0.423)		(0.425)		(0.424)		(0.407)	
Regional Dummies								
Central Region	–2.147**	–3.15	0.433	0.65	6.711***	10.25	3.352***	5.23
	(0.681)		(0.665)		(0.655)		(0.641)	
Eastern Region	–13.029***	–19.08	–8.066***	–11.99	–2.143***	–3.70	–2.230***	–3.88
	(0.683)		(0.673)		(0.578)		(0.574)	
Northern Region	–12.577***	–18.30	–5.062***	–7.49	–0.536	–0.97	–1.333*	–2.42
	(0.687)		(0.675)		(0.551)		(0.550)	
Western Region	–4.338***	–6.34	0.315	0.47	–0.031	–0.06	–0.939	–1.70
	(0.683)		(0.671)		(0.555)		(0.552)	
Teacher Variables								
Teacher’s Education	–0.158	–1.40	0.019	0.17	0.119	1.00	0.214	1.88
	(0.113)		(0.113)		(0.119)		(0.113)	
Teacher’s Experience	–0.021	–1.20	–0.034	–1.85	–0.129***	–6.98	–0.110***	–6.27
	(0.018)		(0.018)		(0.018)		(0.017)	
Teacher Arrives Late	–0.966	–1.39	–1.158	–1.69	–0.896	–1.30	0.429	0.66
	(0.694)		(0.686)		(0.688)		(0.650)	

Variables	P3				P6			
	Literacy		Numeracy		Literacy		Numeracy	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Teacher Absenteeism	0.489	0.88	0.227	0.42	2.038***	3.77	0.583	1.12
	(0.557)		(0.545)		(0.541)		(0.520)	
Teacher Skips Class	–0.718*	–2.17	–0.777*	–2.37	0.169	0.51	0.534	1.65
	(0.331)		(0.327)		(0.334)		(0.324)	
Student Variables								
Gender	0.028	0.12	2.124***	9.19	1.302***	5.30	5.338***	22.71
	(0.229)		(0.231)		(0.245)		(0.235)	
Age	–0.077	–1.01	0.820***	10.55	–3.168***	–35.79	–1.611***	–19.04
	(0.077)		(0.077)		(0.088)		(0.084)	
Student Repeated a	0.236	1.03	0.462*	2.01	0.032	0.14	–0.061	–0.27
Class/ Classes	(0.228)		(0.229)		(0.237)		(0.226)	
Student receives	–7.050	–1.52	–6.817	–1.54	–4.269	–0.87	–1.506	–0.30
Homework	(4.646)		(4.428)		(4.913)		(4.994)	
Student Homework	7.345	1.58	7.258	1.64	3.729	0.76	1.123	0.22
Corrected	(4.649)		(4.422)		(4.920)		(5.001)	
Student Arrives Late	–1.504	–1.60	–1.274	–1.32	1.292	1.33	0.241	0.27
	(0.942)		(0.967)		(0.970)		(0.896)	
Student Absenteeism	2.452	1.33	0.346	0.21	–1.393	–0.83	–3.038	–1.77
	(1.849)		(1.690)		(1.686)		(1.715)	
Student Skips Classes	0.780*	2.30	1.288***	3.82	–0.036	–0.11	0.022	0.07
	(0.339)		(0.337)		(0.340)		(0.331)	
Student attended Nursery	0.084	0.37	0.0401	0.17	–0.065	–0.28	–0.126	–0.56

Variables	P3				P6			
	Literacy		Numeracy		Literacy		Numeracy	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(0.229)		(0.230)		(0.237)		(0.226)	
Student speaks English	–0.790*	–2.49	–0.327	–1.03	–0.259	–0.78	–0.035	–0.11
	(0.317)		(0.318)		(0.332)		(0.315)	
Household Variables								
Mother's Education	0.306	0.95	0.219	0.67	0.192	0.58	0.277	0.87
	(0.322)		(0.325)		(0.333)		(0.317)	
Father's Education	0.060	0.15	–0.253	–0.64	–0.219	–0.54	–0.176	–0.45
	(0.390)		(0.396)		(0.409)		(0.390)	
Children in a Household	0.095	0.95	0.089	0.89	–0.008	–0.08	–0.058	–0.59
	(0.100)		(0.100)		(0.103)		(0.099)	
Household Source of	1.276*	2.46	0.854	1.66	0.486	0.98	0.311	0.65
Light at Night	(0.517)		(0.515)		(0.495)		(0.477)	
Household owns a Radio	–0.008	–0.04	0.225	0.94	–0.345	–1.35	–0.381	–1.55
	(0.238)		(0.240)		(0.256)		(0.245)	
Household owns a	–1.079*	–2.10	–0.581	–1.13	–0.044	–0.09	–0.016	–0.04
Television	(0.513)		(0.515)		(0.486)		(0.468)	
Household Education	–0.001	–1.91	–0.0013*	–2.36	0.0001	–0.08	0.0002	0.36
Expenditure	(0.0005)		(0.0005)		(0.001)		(0.0006)	
Distance Home to Sch	–0.091*	–2.39	–0.041	–1.08	0.007	0.19	0.045	1.19
	(0.038)		(0.038)		(0.040)		(0.038)	
Constant	76.589***	28.36	67.653***	26.08	85.145***	30.50	67.349***	24.81
	(2.700)		(2.594)		(2.791)		(2.714)	

Variables	P3				P6			
	Literacy		Numeracy		Literacy		Numeracy	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Observations	30053		30053		26720		26720	
R-squared	0.217		0.177		0.148		0.086	

Note: Robust standard errors in parentheses, * p<0.05, ** p<0.01, *** p<0.001

Source: Created by Author (2016)

Appendix 17: Effect of automatic promotion on rural & urban learning achievements at P3

Variables	Rural – P3				Urban – P3			
	Literacy		Numeracy		Literacy		Numeracy	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post2005	0.301	0.14	1.610	0.80	5.524***	4.64	1.692	1.54
	(2.175)		(2.022)		(1.191)		(1.097)	
Treatmentstatus	–36.596***	–17.00	–32.296***	–15.72	–34.363***	–32.01	–30.247***	–30.81
	(2.152)		(2.054)		(1.073)		(0.981)	
Interactionterm	8.706***	3.78	12.940***	6.01	12.229***	9.20	16.951***	13.78
	(2.302)		(2.152)		(1.329)		(1.229)	
School Variables								
Distance to a Sec School	0.010	0.75	0.026*	2.02	–0.084***	–4.21	–0.040*	–2.06
	(0.014)		(0.013)		(0.020)		(0.019)	
Distance to a Market	0.022	0.52	0.020	0.48	0.300***	4.59	0.165**	2.71
	(0.042)		(0.042)		(0.065)		(0.060)	
Reading Textbooks	0.301	0.53	–0.099	–0.17	–1.138	–1.09	–1.051	–1.04
	(0.571)		(0.581)		(1.040)		(1.011)	
Math Textbooks	–0.404	–0.74	–0.651	–1.19	0.354	0.38	0.054	0.06
	(0.548)		(0.547)		(0.943)		(0.925)	
Sitting Surface	–0.954	–0.70	0.186	0.14	1.445	0.73	2.295	1.20
	(1.364)		(1.316)		(1.979)		(1.911)	
Writing Surface	0.413	0.33	1.877	1.55	–1.840	–1.09	–2.465	–1.48
	(1.261)		(1.212)		(1.691)		(1.671)	
School Meals	–0.533	–1.55	–0.134	–0.38	–1.508*	–2.33	–1.379*	–2.21
	(0.344)		(0.355)		(0.647)		(0.624)	

Variables	Rural – P3				Urban – P3			
	Literacy		Numeracy		Literacy		Numeracy	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Extra Lessons	–0.057	–0.22	–0.202	–0.75	–0.343	–0.74	0.126	0.28
	(0.267)		(0.271)		(0.466)		(0.448)	
Teachers Meet Parents	–1.814***	–3.68	–1.387**	–2.73	1.270	1.50	1.530	1.90
	(0.492)		(0.507)		(0.847)		(0.806)	
Teacher Variables								
Teacher's Education	–0.039	–0.30	0.108	0.81	–0.105	–0.45	0.048	0.22
	(0.132)		(0.133)		(0.233)		(0.223)	
Teacher's Experience	–0.037	–1.76	–0.040	–1.83	0.018	0.53	–0.024	–0.70
	(0.021)		(0.022)		(0.035)		(0.034)	
Teacher Arrives Late to	–0.537	–0.70	–0.721	–0.93	–1.871	–1.15	–1.372	–0.87
School	(0.773)		(0.776)		(1.629)		(1.579)	
Teacher Absenteeism	1.026	1.55	0.706	1.10	0.734	0.64	–0.329	–0.30
	(0.661)		(0.644)		(1.150)		(1.102)	
Teacher Skips Classes	–0.870*	–2.21	–1.058**	–2.74	–1.240	–1.88	–0.961	–1.52
	(0.393)		(0.386)		(0.659)		(0.633)	
Student Variables								
Gender	0.408	1.53	2.770***	10.17	–0.882	–1.90	0.727	1.63
	(0.266)		(0.272)		(0.465)		(0.446)	
Age	0.474***	5.30	1.435***	15.68	–0.863***	–5.68	0.016	0.11
	(0.089)		(0.091)		(0.151)		(0.147)	
Student Repeated a	–0.108	–0.41	0.212	0.79	1.127*	2.44	1.156**	2.61
Class/ Classes	(0.265)		(0.270)		(0.462)		(0.443)	

Variables	Rural – P3				Urban – P3			
	Literacy		Numeracy		Literacy		Numeracy	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Student Receives	–9.955*	–2.02	–10.693*	–2.22	4.292	0.45	6.023	0.78
Homework	(4.921)		(4.812)		(9.572)		(7.689)	
Student Homework	10.637*	2.16	11.385*	2.37	–3.522	–0.37	–5.207	–0.68
Corrected	(4.921)		(4.802)		(9.582)		(7.675)	
Student Arrives Late to	0.986	0.91	0.580	0.55	–4.550*	–2.21	–3.453	–1.66
School	(1.082)		(1.064)		(2.056)		(2.082)	
Student Absenteeism	–0.323	–0.15	–0.530	–0.30	0.155	0.04	–2.708	–0.67
	(2.108)		(1.780)		(4.090)		(4.025)	
Student Skips Classes	0.435	1.10	1.163**	2.92	1.322	1.92	1.356*	2.07
	(0.395)		(0.398)		(0.690)		(0.654)	
Student Attended	–0.339	–1.27	–0.282	–1.04	1.005*	2.15	0.738	1.65
Nursery	(0.266)		(0.270)		(0.468)		(0.448)	
Student Speaks English	–0.356	–0.96	0.069	0.19	–1.558*	–2.40	–1.112	–1.77
	(0.371)		(0.372)		(0.648)		(0.629)	
Household Variables								
Mothers Education	0.108	0.29	–0.104	–0.27	0.916	1.40	1.021	1.63
	(0.375)		(0.383)		(0.655)		(0.627)	
Fathers Education	0.538	1.18	0.053	0.11	–0.742	–0.95	–0.749	–0.99
	(0.456)		(0.469)		(0.783)		(0.757)	
Children in a Household	0.147	1.28	0.151	1.31	0.116	0.54	0.064	0.31
	(0.114)		(0.115)		(0.214)		(0.205)	
Household Source of	0.479	0.65	–0.608	–0.78	1.366	1.84	1.412*	2.01

Variables	Rural – P3				Urban – P3			
	Literacy		Numeracy		Literacy		Numeracy	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Light at Night	(0.735)		(0.777)		(0.741)		(0.703)	
Household owns a Radio	0.137	0.51	0.357	1.30	–0.507	–0.94	–0.233	–0.45
	(0.271)		(0.275)		(0.539)		(0.519)	
Household owns a	–1.315	–1.84	–0.037	–0.05	–0.619	–0.83	–0.687	–0.97
Television	(0.714)		(0.769)		(0.744)		(0.707)	
Household Education	–0.001	–1.63	–0.001*	–1.98	–0.001	–1.02	–0.001	–1.25
Expenditure	(0.001)		(0.001)		(0.001)		(0.001)	
Distance Home to Sch	–0.124**	–2.78	–0.065	–1.43	–0.027	–0.35	–0.014	–0.19
	(0.044)		(0.045)		(0.078)		(0.075)	
Constant	68.273***	19.01	57.542***	16.99	86.099***	15.50	80.366***	14.78
	(3.592)		(3.386)		(5.553)		5.438	
Observations	20194		20194		9859		9859	
R-squared	0.089		0.081		0.279		0.229	

Note: Robust standard errors in parentheses, * p<0.05, ** p<0.01, *** p<0.001

Source: Created by Author (2015)

Appendix 18: Effect of automatic promotion on rural & urban learning achievements at P6

Variables	Rural – P6				Urban – P6			
	Literacy		Numeracy		Literacy		Numeracy	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post2005	5.464***	7.98	6.363***	10.55	16.086***	14.31	11.969***	11.83
	(0.684)		(0.603)		(1.123)		(1.011)	
Treatmentstatus	–4.416***	–5.97	–2.846***	–4.45	–7.466***	–6.23	–6.389***	–6.00
	(0.739)		(0.639)		(1.198)		(1.065)	
Interactionterm	2.354**	2.92	0.941	1.32	–1.719	–1.30	–0.946	–0.80
	(0.806)		(0.713)		(1.321)		(1.189)	
School Variables								
Distance to a Sec School	–0.028*	–2.11	–0.025**	–2.07	–0.053**	–2.75	–0.050**	–2.87
	(0.013)		(0.012)		(0.019)		(0.017)	
Distance to a Market	–0.041	–0.99	–0.001	–0.03	–0.015	–0.23	–0.023	–0.36
	(0.042)		(0.040)		(0.068)		(0.064)	
Reading Textbooks	–0.132	–0.22	0.006	0.01	–3.734	–3.64	–1.495	–1.55
	(0.590)		(0.566)		(1.026)		(0.967)	
Math Textbooks	–0.477	–0.86	–0.925	–1.73	0.626	0.64	–0.355	–0.38
	(0.555)		(0.536)		(0.976)		(0.936)	
Sitting Surface	–1.609	–1.16	–0.683	–0.53	2.615	1.08	1.662	0.74
	(1.384)		(1.289)		(2.417)		(2.247)	
Writing Surface	1.601	1.27	1.479	1.27	–0.585	–0.25	–0.351	–0.17
	(1.260)		(1.164)		(2.307)		(2.118)	
School Feeding Program	–0.698*	–2.00	–0.430	–1.26	–3.126***	–4.75	–2.342***	–3.72
	(0.349)		(0.341)		(0.658)		(0.629)	

Variables	Rural – P6				Urban – P6			
	Literacy		Numeracy		Literacy		Numeracy	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Extra Lesson	0.445	1.63	0.166	0.63	0.363	0.76	0.481	1.08
	(0.272)		(0.263)		(0.480)		(0.448)	
Teachers Meet Parents	0.456	0.93	0.519	1.10	–0.041	–0.05	–0.242	–0.31
	(0.489)		(0.474)		(0.840)		(0.779)	
Teacher Variables								
Teacher's Education	-0.080	-0.59	0.059	0.45	0.748**	3.06	0.657**	2.86
	(0.137)		(0.131)		(0.244)		(0.230)	
Teacher's Experience	–0.138***	–6.56	–0.118***	–5.79	–0.139***	–3.58	–0.109**	–3.13
	(0.021)		(0.020)		(0.039)		(0.034)	
Teacher Arrives Late to	–0.220	–0.28	0.987	1.30	–3.135*	–2.21	–1.294	–1.00
School	(0.793)		(0.756)		(1.416)		(1.292)	
Teacher Absenteeism	1.576*	2.55	0.377	0.62	2.473*	2.24	0.708	0.70
	(0.617)		(0.604)		(1.106)		(1.018)	
Teacher Skips Classes	–0.035	–0.09	0.086	0.23	0.657	0.98	1.605*	2.55
	(0.385)		(0.378)		(0.670)		(0.629)	
Student Variables								
Gender	1.105***	3.94	5.327***	19.69	0.743	1.49	4.669***	9.99
	(0.280)		(0.270)		(0.498)		(0.467)	
Age	–2.540***	–24.74	–1.125***	–11.27	–4.628***	–25.88	–2.713***	–17.05
	(0.102)		(0.099)		(0.178)		(0.159)	
Student Repeated a	0.082	0.30	0.042	0.16	0.023	0.05	–0.248	–0.56
Class/ Classes	(0.272)		(0.262)		(0.479)		(0.447)	

Variables	Rural – P6				Urban – P6			
	Literacy		Numeracy		Literacy		Numeracy	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Student Receives	3.869	0.69	0.461	0.09	–21.234***	–4.48	–4.469	–0.38
Homework	(5.596)		(5.117)		(4.743)		(11.645)	
Student Homework	–4.000	–0.71	–0.601	–0.12	19.337***	4.04	3.367	0.29
Corrected	(5.595)		(5.120)		(4.788)		(11.699)	
Student Arrives Late	1.171	1.11	–0.004	–0.00	2.366	1.04	1.622	0.76
School	(1.059)		(0.988)		(2.276)		(2.135)	
Student Absenteeism	–1.477	–0.80	–3.170	–1.69	0.532	0.13	–1.324	–0.31
	(1.847)		(1.870)		(4.080)		(4.240)	
Student Skips Classes	0.444	1.12	0.654	1.68	–0.576	–0.87	–1.018	–1.60
	(0.397)		(0.390)		(0.662)		(0.634)	
Student Attended	0.267	0.98	–0.036	–0.14	–0.885	–1.84	–0.345	–0.77
Nursery	(0.272)		(0.262)		(0.480)		(0.448)	
Student Speaks English	–0.532	–1.40	–0.200	–0.55	1.159	1.71	0.824	1.28
	(0.381)		(0.361)		(0.677)		(0.643)	
Household Variables								
Mother's Education	0.046	0.12	0.350	0.95	0.208	0.31	–0.165	–0.27
	(0.383)		(0.369)		(0.669)		(0.619)	
Father's Education	–0.572	–1.21	–0.220	–0.49	0.270	0.33	–0.323	–0.42
	(0.474)		(0.453)		(0.810)		(0.762)	
Children in a Household	–0.026	–0.22	–0.050	–0.45	0.099	0.44	–0.062	–0.30
	(0.116)		(0.111)		(0.228)		(0.211)	
Household Source of	0.253	0.37	–0.244	–0.37	0.429	0.58	0.561	0.81

Variables	Rural – P6				Urban – P6			
	Literacy		Numeracy		Literacy		Numeracy	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Light at Night	(0.683)		(0.667)		(0.734)		(0.697)	
Household owns a Radio	–0.334	–1.16	–0.343	–1.23	–0.191	–0.35	–0.360	–0.69
	(0.289)		(0.278)		(0.554)		(0.523)	
Household owns a	0.341	0.52	0.047	0.07	–0.135	–0.19	0.071	0.10
Television	(0.657)		(0.638)		(0.730)		(0.696)	
Household Education	0.001	0.84	0.001	1.17	–0.001	–0.82	–0.001	–0.70
Expend	(0.001)		(0.001)		(0.001)		(0.001)	
Distance Home to Sch	0.050	1.09	0.040	0.91	–0.065	–0.81	0.086	1.13
	(0.046)		(0.044)		(0.080)		(0.076)	
Constant	72.907***	23.90	56.910***	19.15	102.578***	16.80	80.876***	13.61
	(3.050)		(2.971)		(6.106)		(5.942)	
Observations	19388		19388		7332		7332	
R-squared	0.059		0.043		0.235		0.143	

Note: Robust standard errors in parentheses, * p<0.05, ** p<0.01, *** p<0.001

Source: Created by Author (2016)

Appendix 19: Effect of automatic promotion on male & female learning achievements at P3

Variables	Male – P3				Female – P3			
	Literacy		Numeracy		Literacy		Numeracy	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post2005	10.212***	6.23	4.997**	3.23	8.316***	5.24	2.140	1.41
	(1.640)		(1.545)		(1.588)		(1.523)	
Treatmentstatus	–27.328***	–17.48	–27.471***	–19.07	–30.945***	–20.04	–30.170***	–
	(1.563)		(1.440)		(1.544)		(1.455)	20.73
Interactionterm	7.163***	4.38	13.695***	9.05	8.659***	5.40	15.105***	10.01
	(1.634)		(1.513)		(1.603)		(1.509)	
School Variables								
Location	–8.281***	–14.10	–3.814***	– 6.78	–9.657***	–16.95	–5.275***	–9.53
	(0.587)		(0.562)		(0.569)		(0.553)	
Distance to a Sec School	–0.021	–1.45	0.009	0.60	0.001	0.07	0.012	0.83
	(0.014)		(0.015)		(0.016)		(0.015)	
Distance to a Market	0.099*	2.20	0.036	0.78	0.046	0.90	0.037	0.74
	(0.045)		(0.047)		(0.051)		(0.051)	
Reading Textbooks	–0.193	–0.28	–0.550	–0.77	–0.520	–0.73	–0.552	–0.78
	(0.702)		(0.715)		(0.709)		(0.710)	
Math Textbooks	–0.227	–0.34	–0.342	–0.51	–0.609	–0.93	–0.908	–1.38
	(0.660)		(0.666)		(0.657)		(0.655)	
Sitting Surface	–1.297	–0.85	0.438	0.29	0.718	0.44	1.304	0.84
	(1.529)		(1.534)		(1.636)		(1.556)	
Writing Surface	0.944	0.67	1.012	0.72	–0.375	–0.26	0.308	0.22
	(1.406)		(1.400)		(1.471)		(1.410)	

Variables	Male – P3				Female – P3			
	Literacy		Numeracy		Literacy		Numeracy	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
School Meals	–1.122**	–2.64	–0.604	–1.42	–1.245**	–2.85	–0.983*	–2.20
	(0.424)		(0.427)		(0.437)		(0.446)	
Extra Lessons	0.178	0.56	0.264	0.82	–0.287	–0.87	–0.332	–1.00
	(0.318)		(0.321)		(0.330)		(0.330)	
Teachers Meet Parents	0.133	0.22	0.830	1.40	–1.401*	–2.34	–1.431*	–2.36
	(0.595)		(0.593)		(0.597)		(0.607)	
Regional Dummies								
Central Region	–4.053***	–4.18	–0.768	–0.82	–0.140	–0.15	1.640	1.74
	(0.969)		(0.939)		(0.954)		(0.943)	
Eastern Region	–13.864***	–14.28	–8.263***	–8.72	–12.125***	–12.65	–7.883***	–8.25
	(0.970)		(0.947)		(0.958)		(0.955)	
Northern Region	–12.171***	–12.46	–4.665***	–4.90	–13.033***	–13.51	–5.585***	–5.82
	(0.976)		(0.951)		(0.964)		(0.959)	
Western Region	–5.488***	–5.63	–0.536	–0.57	–3.108**	–3.25	1.171	1.23
	(0.974)		(0.947)		(0.957)		(0.953)	
Teacher Variables								
Teacher's Education	–0.200	–1.27	0.014	0.09	–0.127	–0.78	0.022	0.13
	(0.157)		(0.158)		(0.164)		(0.164)	
Teacher's Experience	–0.022	–0.88	–0.017	–0.67	–0.021	–0.80	–0.051	–1.91
	(0.025)		(0.025)		(0.026)		(0.026)	
Teacher Arrives Late	0.336	0.33	0.019	0.02	–2.133*	–2.21	–2.308*	–2.46
	(1.00)		(1.010)		(0.966)		(0.939)	

Variables	Male – P3				Female – P3			
	Literacy		Numeracy		Literacy		Numeracy	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Teacher Absenteeism	–0.012	–0.02	–0.204	–0.26	0.924	1.17	0.572	0.75
	(0.786)		(0.777)		(0.786)		(0.764)	
Teacher Skips Classes	–0.929*	–2.01	–1.235**	–2.70	–0.486	–1.03	–0.296	–0.63
	(0.463)		(0.458)		(0.474)		(0.469)	
Student Variables								
Age	0.192	1.84	0.998***	9.38	–0.362**	–3.18	0.639***	5.59
	(0.104)		(0.106)		(0.114)		(0.114)	
Repeated	0.025	0.08	0.277	0.86	0.445	1.36	0.630	1.92
	(0.318)		(0.320)		(0.328)		(0.329)	
Student Receives	–9.075	–1.48	–10.556	–1.66	–4.071	–0.58	–2.130	–0.37
Homework	(6.122)		(6.377)		(7.034)		(5.834)	
Student Homework	8.736	1.42	10.627	1.66	5.052	0.72	3.017	0.52
Corrected	(6.141)		(6.388)		(7.027)		(5.813)	
Student Arrives Late to	–1.925	–1.45	–1.895	–1.40	–0.900	–0.68	–0.399	–0.29
School	(1.331)		(1.353)		(1.323)		(1.372)	
Student Absenteeism	0.062	0.03	–0.822	–0.39	5.824*	2.08	2.298	0.86
	(2.386)		(2.125)		(2.794)		(2.660)	
Student Skips Classes	0.530	1.13	0.902	1.93	1.026*	2.10	1.679***	3.45
	(0.469)		(0.467)		(0.489)		(0.487)	
Student Attended	–0.234	–0.73	–0.216	–0.67	0.451	1.37	0.340	1.03
Nursery	(0.319)		(0.321)		(0.330)		(0.330)	
Student Speaks English	–0.987*	–2.18	–0.825	–1.83	–0.614	–1.38	0.147	0.33

Variables	Male – P3				Female – P3			
	Literacy		Numeracy		Literacy		Numeracy	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(0.452)		(0.450)		(0.444)		(0.447)	
Household Variables								
Mother's Education	0.833	1.87	1.003*	2.24	–0.335	–0.72	–0.707	–1.50
	(0.446)		(0.447)		(0.465)		(0.472)	
Father's Education	–0.039	–0.07	–0.343	–0.64	0.266	0.47	–0.034	–0.06
	(0.533)		(0.541)		(0.571)		(0.580)	
Children in a Household	0.010	0.07	0.073	0.52	0.179	1.25	0.117	0.83
	(0.139)		(0.141)		(0.143)		(0.141)	
Household Source of	1.600*	2.23	0.999	1.41	0.836	1.11	0.585	0.78
Light at Night	(0.716)		(0.709)		(0.750)		(0.751)	
Household owns a Radio	0.277	0.84	0.428	1.27	–0.348	–1.02	–0.051	–0.15
	(0.332)		(0.336)		(0.340)		(0.343)	
Household owns a	–1.767*	–2.47	–1.002	–1.41	–0.343	–0.46	–0.121	–0.16
Television	(0.714)		(0.709)		(0.738)		(0.748)	
Household Education	–0.001	–0.69	–0.001	–0.73	–0.0013*	–2.04	–0.002*	–2.49
Expenditure	(0.001)		(0.001)		(0.0006)		(0.001)	
Distance Home to Sch	–0.080	–1.50	–0.030	–0.56	–0.101	–1.84	–0.052	–0.95
	(0.053)		(0.054)		(0.055)		(0.055)	
Constant	74.618***	20.41	66.599***	19.23	77.709***	19.65	70.207***	18.05
	(3.655)		(3.462)		(3.954)		(3.889)	
Observations	15407		15407		14646		14646	
R-squared	0.206		0.178		0.236		0.176	

Appendix 20: Effect of automatic promotion on male & female learning achievements at P6

Variables	Male – P6				Female – P6			
	Literacy		Numeracy		Literacy		Numeracy	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post2005	9.592***	14.14	8.771***	14.34	6.449***	5.08	6.712***	6.39
	(0.678)		(0.611)		(1.270)		(1.050)	
Treatmentstatus	–5.083***	–7.15	–3.924***	–6.30	–6.483***	–4.54	–4.032***	–3.42
	(0.711)		(0.623)		(1.427)		(1.177)	
Interactionterm	0.380	0.47	–0.116	–0.16	3.560*	2.41	1.505	1.22
	(0.814)		(0.733)		(1.479)		(1.237)	
School Variables								
Location	–3.446***	–6.29	–2.063***	–3.95	–5.491***	–8.63	–3.390***	–5.70
	(0.548)		(0.522)		(0.636)		(0.594)	
Distance to a Sec	–0.037*	–2.38	–0.046***	–3.33	–0.035*	–2.23	–0.018	–1.27
School	(0.039)		(0.013)		(0.015)		(0.014)	
Distance to a Market	–0.035	–0.73	0.015	0.33	–0.043	–0.80	–0.047	–0.93
	(0.049)		(0.045)		(0.053)		(0.051)	
Reading Textbooks	–0.994	–1.43	–0.133	–0.20	–1.006	–1.30	–0.522	–0.70
	(0.695)		(0.653)		(0.772)		(0.747)	
Math Textbooks	0.141	0.22	–0.483	–0.77	–1.019	–1.39	–1.514*	–2.16
	(0.650)		(0.625)		(0.730)		(0.700)	
Sitting Surface	0.369	0.23	0.418	0.27	–2.485	–1.40	–1.394	–0.88
	(1.612)		(1.547)		(1.769)		(1.580)	
Writing Surface	–0.463	–0.31	0.176	0.12	2.503	1.51	1.856	1.28
	(1.479)		(1.416)		(1.660)		(1.449)	

Variables	Male – P6				Female – P6			
	Literacy		Numeracy		Literacy		Numeracy	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
School Meals	–0.630	–1.50	–0.503	–1.24	–1.743***	–3.83	–1.230**	–2.73
	(0.419)		(0.405)		(0.455)		(0.450)	
Extra Lessons	0.549	1.70	0.352	1.15	0.269	0.77	0.136	0.41
	(0.322)		(0.307)		(0.349)		(0.335)	
Teachers Meet Parents	0.560	0.99	0.191	0.35	-0.055	-0.09	0.455	0.74
	(0.563)		(0.547)		(0.642)		(0.611)	
Regional Dummies								
Central Region	6.925***	7.33	2.859**	3.09	6.440***	7.04	3.752***	4.21
	(0.945)		(0.926)		(0.915)		(0.890)	
Eastern Region	–1.408	–1.66	–2.361**	–2.83	–3.002***	–3.78	–2.178**	–2.74
	(0.849)		(0.834)		(0.793)		(0.794)	
Northern Region	–0.112	–0.14	–1.547	–1.93	–0.956	–1.28	–1.195	–1.58
	(0.814)		(0.802)		(0.748)		(0.758)	
Western Region	1.026	1.23	–0.625	–0.76	–1.068	–1.45	–1.288	–1.73
	(0.835)		(0.817)		(0.735)		(0.746)	
Teacher Variables								
Teacher’s Education	0.205	1.26	0.271	1.77	0.020	0.12	0.148	0.88
	(0.162)		(0.153)		(0.175)		(0.169)	
Teacher’s Experience	–0.132***	–5.30	–0.119***	–5.03	–0.128***	–4.67	–0.098***	–3.76
	(0.025)		(0.023)		(0.027)		(0.026)	
Teacher Arrives Late	–1.390	–1.48	0.086	0.10	–0.118	–0.12	0.931	0.97
	(0.940)		(0.881)		(0.994)		(0.959)	

Variables	Male – P6				Female – P6			
	Literacy		Numeracy		Literacy		Numeracy	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Teacher Absenteeism	1.254	1.68	–0.045	–0.06	2.982***	3.86	1.365	1.80
	(0.746)		(0.712)		(0.772)		(0.756)	
Teacher Skips Classes	0.490	1.08	0.730	1.66	–0.308	–0.63	0.220	0.46
	(0.452)		(0.440)		(0.492)		(0.477)	
Student Variables								
Age	–2.864***	–25.19	–1.260***	–11.63	–3.666***	–26.73	–2.190***	–16.46
	(0.113)		(0.108)		(0.137)		(0.133)	
Student Repeated a	–0.271	–0.84	–0.317	–1.04	0.403	1.15	0.257	0.77
Class/ Classes	(0.322)		(0.306)		(0.349)		(0.335)	
Student Receives	6.423	1.06	3.461	0.65	–15.304*	–2.55	–6.397	–0.80
Homework	(6.073)		(5.300)		(6.001)		(7.976)	
Student Homework	–6.811	–1.12	–3.930	–0.74	14.660*	2.44	6.190	0.77
Corrected	(6.073)		(5.301)		(6.002)		(7.998)	
Student Arrives Late to	0.427	0.31	0.416	0.34	2.336	1.71	0.010	0.01
School	(1.361)		(1.223)		(1.365)		(1.328)	
Student Absenteeism	–1.110	–0.51	–3.189	–1.37	–1.319	–0.51	–2.451	–0.99
	(2.193)		(2.328)		(2.566)		(2.480)	
Student Skips Classes	–0.795	–1.71	–0.355	–0.78	0.945	1.89	0.528	1.09
	(0.464)		(0.453)		(0.499)		(0.485)	
Student Attended	0.103	0.32	–0.306	–1.00	–0.314	–0.90	–0.097	–0.29
Nursery	(0.321)		(0.305)		(0.350)		(0.335)	
Student Speaks English	0.032	0.07	0.398	0.94	–0.602	–1.22	–0.570	–1.21

Variables	Male – P6				Female – P6			
	Literacy		Numeracy		Literacy		Numeracy	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(0.448)		(0.423)		(0.495)		(0.473)	
Household Variables								
Mother's Education	0.058	0.13	0.113	0.27	0.396	0.81	0.507	1.07
	(0.452)		(0.427)		(0.489)		(0.475)	
Father's Education	–0.728	–1.30	–0.424	–0.81	0.411	0.69	0.115	0.20
	(0.560)		(0.524)		(0.596)		(0.583)	
Children in a	0.092	0.67	–0.045	–0.34	–0.143	–0.92	–0.077	–0.52
Household	(0.139)		(0.132)		(0.155)		(0.148)	
Household Source of	0.789	1.21	0.589	0.95	0.011	0.02	–0.085	–0.11
Light at Night	(0.651)		(0.618)		(0.756)		(0.749)	
Household owns a	0.133	0.38	–0.162	–0.49	–0.960*	–2.54	–0.672	–1.85
Radio	(0.347)		(0.332)		(0.377)		(0.362)	
Household owns a	–0.068	–0.11	–0.125	–0.21	–0.042	–0.06	0.109	0.15
Television	(0.641)		(0.602)		(0.743)		(0.743)	
Household Education	–0.0002	–0.28	0.001	0.64	0.0001	0.18	–0.0001	–0.15
Expenditure	(0.0009)		(0.001)		(0.0008)		(0.0008)	
Distance Home to Sch	0.017	0.31	0.015	0.30	0.001	0.01	0.089	1.57
	(0.054)		(0.052)		(0.058)		(0.057)	
Constant	81.476***	21.87	67.923***	18.50	93.507***	21.99	75.436***	18.60
	(3.725)		(3.671)		(4.252)		(4.056)	
Observations	15066		15066		11654		11654	
R-squared	0.141		0.080		0.164		0.085	

Appendix 21: Sample Results to illustrate "Testing of the balancing property for variables used during the analysis

School Variables

```
Testing the balancing property for variable Schmeal in block 4

Two-sample t test with equal variances
```

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	155	.2322581	.0340277	.4236415	.1650367	.2994794
1	66	.1969697	.0493298	.4007569	.0984514	.295488
combined	221	.2217195	.0280065	.4163464	.1665241	.2769148
diff		.0352884	.0612878		-.085501	.1560777

```
    diff = mean(0) - mean(1)                                      t =   0.5758
Ho: diff = 0                                     degrees of freedom =      219

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.7173         Pr(|T| > |t|) = 0.5654          Pr(T > t) = 0.2827

Variable Schmeal is  balanced  in block 4
```

Note: Schmeal = School Feeding Program

```
Testing the balancing property for variable DistFrmMrkt in block 4

Two-sample t test with equal variances
```

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	155	3.322581	.7006452	8.722962	1.938464	4.706697
1	66	4.712121	1.44741	11.75881	1.821444	7.602798
combined	221	3.737557	.6539878	9.722228	2.448674	5.026439
diff		-1.389541	1.429151		-4.20619	1.427109

```
    diff = mean(0) - mean(1)                                      t =  -0.9723
Ho: diff = 0                                     degrees of freedom =      219

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.1660         Pr(|T| > |t|) = 0.3320          Pr(T > t) = 0.8340

Variable DistFrmMrkt is  balanced  in block 4
```

Note: DistFrmMrkt = Distance from School to nearest Market

Teacher Variables

```
Testing the balancing property for variable TAcademQ in block 3

Two-sample t test with equal variances
```

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	40	3.775	.1265291	.8002403	3.519071	4.030929
1	17	3.941176	.1813063	.747545	3.556824	4.325529
combined	57	3.824561	.1035788	.7820031	3.617068	4.032055
diff		-.1661765	.2273553		-.6218067	.2894537

```
    diff = mean(0) - mean(1)                                      t =  -0.7309
Ho: diff = 0                                     degrees of freedom =       55

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2340         Pr(|T| > |t|) = 0.4679          Pr(T > t) = 0.7660

Variable TAcademQ is  balanced  in block 3
```

Note: TAcademQ = Teacher's Academic Qualification

```
Testing the balancing property for variable TAbsent in block 3

Two-sample t test with equal variances
```

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	40	1	0	0	1	1
1	17	.9411765	.0588235	.2425356	.8164762	1.065877
combined	57	.9824561	.0175439	.1324532	.9473116	1.017601
diff		.0588235	.0378736		-.017077	.134724

```
    diff = mean(0) - mean(1)                                      t =   1.5532
Ho: diff = 0                                     degrees of freedom =       55

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.9369         Pr(|T| > |t|) = 0.1261          Pr(T > t) = 0.0631

Variable TAbsent is  balanced  in block 3
```

Note: TAbsent = Teacher Absenteeism

Student Variables

```
Testing the balancing property for variable gender in block 3

Two-sample t test with equal variances
```

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	40	.75	.0693375	.438529	.6097516	.8902484
1	17	.6470588	.1194712	.4925922	.3937913	.9003264
combined	57	.7192982	.0600459	.4533363	.5990119	.8395846
diff		.1029412	.1317097		-.1610109	.3668932

```
    diff = mean(0) - mean(1)                                      t =   0.7816
Ho: diff = 0                                     degrees of freedom =       55

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.7811         Pr(|T| > |t|) = 0.4378          Pr(T > t) = 0.2189

Variable gender is  balanced  in block 3


Testing the balancing property for variable Repeated in block 3

Two-sample t test with equal variances
```

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	40	.45	.0796628	.5038315	.2888669	.6111331
1	17	.4705882	.1247835	.5144958	.2060589	.7351175
combined	57	.4561404	.0665578	.5025	.3228091	.5894716
diff		-.0205882	.1467757		-.3147332	.2735568

```
    diff = mean(0) - mean(1)                                      t =  -0.1403
Ho: diff = 0                                     degrees of freedom =       55

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.4445         Pr(|T| > |t|) = 0.8890          Pr(T > t) = 0.5555

Variable Repeated is  balanced  in block 3
```

Note: Repeated = Student Repeated

Household Variables

```
Testing the balancing property for variable MEduc in block 3

Two-sample t test with equal variances
```

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	40	.875	.0529574	.3349321	.7678835	.9821165
1	17	.8823529	.0805474	.3321056	.7116	1.053106
combined	57	.877193	.0438596	.3311331	.7893315	.9650544
diff		-.0073529	.0967332		-.2012105	.1865047

```
    diff = mean(0) - mean(1)                                      t =  -0.0760
Ho: diff = 0                                     degrees of freedom =       55

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.4698         Pr(|T| > |t|) = 0.9397          Pr(T > t) = 0.5302

Variable MEduc is  balanced  in block 3
```

Note: MEduc = Mother's Education

```
Testing the balancing property for variable FEduc in block 3

Two-sample t test with equal variances
```

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	40	.875	.0529574	.3349321	.7678835	.9821165
1	17	.7647059	.1060456	.4372373	.5398992	.9895126
combined	57	.8421053	.0487274	.3678836	.7444926	.9397179
diff		.1102941	.1064407		-.1030178	.3236061

```
    diff = mean(0) - mean(1)                                      t =   1.0362
Ho: diff = 0                                     degrees of freedom =       55

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.8477         Pr(|T| > |t|) = 0.3046          Pr(T > t) = 0.1523

Variable FEduc is  balanced  in block 3
```

Note: FEduc = Father's Education