



Understanding Dropout and Repetition in Rwanda

Full Report

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From data to policy

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Laterite is a data, research and advisory firm based in Rwanda and Ethiopia (www.laterite.com). Laterite specializes in innovative data collection and analysis techniques that help answer critical development questions.

Table of Contents

EXECUTIVE SUMMARY	i
1. INTRODUCTION	1
2. METHODOLOGY	3
2.1. Overview	3
2.2. Sampling Strategy	4
2.2.1. Sampling Strategy for Quantitative Surveys.....	4
2.2.2. Sampling Strategy for Qualitative Interviews.....	6
2.3. Overview of Main Research Instruments	7
2.3.1. Quantitative Survey Instruments	7
2.3.2. Qualitative Survey Instruments	8
2.4. Conceptual Framework	8
3. DROPOUT AND REPETITION: STYLIZED FACTS, UNDERLYING DETERMINANTS, TRENDS, AND THEIR IMPLICATIONS ON THE STRUCTURE OF THE BASIC EDUCATION SYSTEM IN RWANDA	13
3.1. Stylized Facts	13
3.2. Underlying Determinants and Trends	18
3.2.1. Late Entry to the Primary Education System.....	18
3.2.2. High Dropout Rates and Low Re-entry Survival Rates	19
3.2.3. Repetition: “Today’s Repeaters are Tomorrow’s Dropouts”	21
3.3 Implications on the Structure of the Basic Education System: Over-aging, Low Completion Rates, and Inequalities within the Education System	25
4. PROFILES OF CHILDREN WHO DROP OUT, REPEAT, OR START LATE	33
4.1 Profiles of Children Who Drop Out of School.....	33
4.1.1 Child Characteristics	33
4.1.2 Household Characteristics	52
4.1.3 School Characteristics.....	62
4.1.4 Community Characteristics.....	70
4.2 Profiles of Children Who Repeat	77
4.2.1 Child Characteristics	77
4.2.2 Household Characteristics	88

4.2.3	School Characteristics.....	91
4.2.4	Community Characteristics.....	92
4.3.1	Child Characteristics	95
4.3.2	Household Characteristics	101
4.3.3	School Characteristics.....	104
4.3.4	Community Characteristics.....	104
5.	DRIVERS OF DROPOUT AND REPETITION	107
5.1	Why do children repeat in their first year of education?.....	108
5.1.1	Child Factors: “Children that repeat in their first year of education are not school-ready”	109
5.1.2	Household Factors: “the education of parents”	115
5.1.3	School Factors: “the importance of pre-primary school”	117
5.1.4	School Factors: “resource constraints in Primary 1”	119
5.2	Why do children repeat in Primary 5?.....	123
5.2.1	School Factors: “The pressure of the Primary 6 national examinations”	123
5.2.2	Child Factors: “The cost of the P6 exam: repetition in P5”	127
5.3	Why do children dropout during the transition from Primary 6 to Secondary 1?... 129	
5.3.1	Child Factors: “Learning barriers to transition”	129
5.3.2	Household Factors: “The cost of transition to secondary school”	135
5.3.3	School Factors: “Supply and access of secondary schools”	141
5.4	Why do older girls drop out of school? Gender Barriers	145
5.4.1	Child-level Factors	145
5.4.2	Household and Community-related Factors	149
6.	SYSTEM-LEVEL BARRIERS AT THE NATIONAL AND SCHOOL LEVEL	154
6.1.	School- and National-Level Targets and Objectives	154
6.1.1	Review of repetition and dropout targets under the current ESSP	154
6.1.2	Impact of the drop in repetition rates in 2016.....	157
6.1.3	Targets at The School Level	159
6.2	Defining, Monitoring and Reporting	161
6.2.1	Identifying Dropout and Repetition at the National Level.....	161
6.2.2	Identifying Dropout and Repetition at the School Level.....	162
6.2.3	School-Based Mechanisms to Monitor Dropout.....	164
7.	POLICY RECOMMENDATIONS	169
7.1	Strengthening of policies at the national level.....	170

7.2 Development of consistent national-level definitions on dropout and repetition, and provide systematic guidance on when and how to apply repetition for individual children	172
7.3 Improvement of systems for collecting, managing, analysing, and monitoring education data, including data on repetition and dropout	172
7.4 Improvement of systems for identifying and monitoring children at-risk of repetition and/or dropout.....	174
7.5 Launch of a national programme with targeted interventions to reduce dropout and repetition	175
7.6 Introduction of interventions to target remaining gender barriers in education for boys and girls, particularly among the poorest families	176
7.7 Increase of access to pre-primary education for improved school readiness for all children in Rwanda to mitigate repetition	177
7.8 Increase of household support for and parental engagement in education	178
7.9 Re-evaluation of the policy on Primary 6 examination and its implications for students who do not perform well.....	179
7.10 Increase of the capacity of primary school teachers for improved quality of education	180
REFERENCES	181
A.1. ANNEX 1: ADMINISTRATIVE STRUCTURE OF RWANDA’S EDUCATION SYSTEM.....	182
A.1.1 Targets and Objectives: National-level targets on repetition and dropout in basic education in Rwanda	182
A.1.2 Mechanisms for communicating targets from the central to the local level	184
A.1.2.1 Ministerial Orders	184
A.1.2.2 Decentralised Education Services	186
A.1.2.3 Imihigo Contracts	187
A.1.2.4 School Inspections.....	189
A.2. ANNEX 2: OVERVIEW OF SAMPLING STRATEGIES AND RESEARCH INSTRUMENTS.....	190
A.2.1. Sampling Strategy for Quantitative Surveys	190
A.2.1.1. Target Population.....	190
A.2.1.2. Reference Period.....	191
A.2.1.3. Geographic Coverage	191
A.2.1.3. Sample Size and Calculations	191
A.2.1.4. Sampling Methods	192
A.2.2. Sampling Strategy for Qualitative Interviews	193
A.2.2.1. Semi-Structured Interviews	193

A.2.2.1. Focus Group Discussions	194
A.2.3. Overview of Qualitative Interviews Guidelines.....	195
A.2.3.1. Child Semi-Structured Interviews	196
A.2.3.2. Parent Semi-Structured Interviews.....	197
A.2.3.3. Teacher Focus Group Discussions	198
A.2.4. Overview of Quantitative Survey Instruments	199
A.2.4.1 Overview of child survey questionnaire.....	199
A.2.4.1 Overview of the household survey questionnaire.....	201
A.2.4.1 Overview of the head teacher (school) survey questionnaire.....	203
A.2.4.1 Overview of the community survey questionnaire	205

List of Figures

FIGURE 2.1 RESEARCH QUESTION AND HYPOTHESIS	3
FIGURE 2.2 ANALYTICAL FRAMEWORK	9
FIGURE 3.1 PERCENT OF OUT-OF-SCHOOL CHILDREN BY AGE (2016/2017).....	14
FIGURE 3.2 DROPOUT AND REPETITION RATES FOR CHILDREN ENROLLED IN 2016.....	15
FIGURE 3.3 SHARE OF OUT-OF-SCHOOL CHILDREN IN 2016, WHO RE-ENTERED IN 2017	15
FIGURE 3.4 ENROLLMENT RATES, BY YEARS SINCE START OF EDUCATION, COMPARING LATE STARTERS AND CHILDREN WHO STARTED PRIMARY SCHOOL ON TIME AT AGE 7	19
FIGURE 3.5 SHARE OF CHILDREN WHO DROPPED-OUT OF SCHOOL BETWEEN 2013 AND 2015 (AGED 7-16 IN YEAR OF DROPOUT) WHO HAD RE-ENTERED THE SYSTEM BY 2017, BY GRADE IN WHICH THEY FIRST DROPPED-OUT	20
FIGURE 3.6 PERCENTAGE OF CHILDREN WHO HAD REPEATED, BY GRADE, FOR ALL CHILDREN AGED 6 TO 18 (2017)	21
FIGURE 3.7 ENROLLMENT RATES, BY YEARS SINCE THE START OF EDUCATION. CHILDREN WHO REPEATED IN THEIR FIRST 3 YEARS OF EDUCATION TO THOSE WHO DID NOT (2017).....	22
FIGURE 3.8 GRADE-DISTRIBUTION OF CHILDREN AGED 6 TO 17, COMPARING 2016 TO 2017	24
FIGURE 3.9 PERCENT OF CHILDREN ON-TRACK WITH THEIR EDUCATION, BY GENDER, OUT OF ALL CHILDREN AGE 6 TO 18 (2017)	26
FIGURE 3.10 ENROLMENT OF CHILDREN THAT WERE OVER-AGED BY MORE THAN A YEAR AT AGE 12 VERSUS CHILDREN THAT WERE NOT, 2017.....	27
FIGURE 3.11 PRIMARY 6 COMPLETION RATES, BY AGE (2017)	29
FIGURE 3.12 PRIMARY 6 COMPLETION RATES, BY GENDER (2017)	29
FIGURE 3.13 PERCENT OF ON-TRACK CHILDREN FROM HOUSEHOLDS THAT COME FROM WEALTH QUINTILE 1 AND THAT COME FROM WEALTH QUINTILE 5, BY GRADE, IN 2016	30
FIGURE 3.14 PERCENT OF CHILDREN THAT ARE OVERAGED OR OUT OF SCHOOL, BY WEALTH QUINTILE AND LOCATION, FOR CHILDREN AGED 13 OR ABOVE (2017)	31
FIGURE 4.1 ESTIMATED DROPOUT RATE BY AGE, FOR CHILDREN ENROLLED IN 2016.....	34
FIGURE 4.2 ESTIMATED DROPOUT RATE BY YEARS SINCE START OF EDUCATION, 2016.....	36
FIGURE 4.3 REDUCTION IN OVERALL DROPOUT RATES SINCE 2011.....	36
FIGURE 4.4 AVERAGE DROPOUT RATES BY GRADE IN 2015 AND 2016, COMPARING CHILDREN OF PRIMARY AND SECONDARY-SCHOOL-AGE.....	39
FIGURE 4.5 GRADES AT WHICH CHILDREN AGED 13 TO 18 DROPPED-OUT, 2016	41
FIGURE 4.6 DROPOUT RATES FOR BOYS AND GIRLS, BY AGE, FOR PRIMARY-SCHOOL-AGED CHILDREN (AVERAGE COMBINED DROPOUT RATE 2011-2016).....	43
FIGURE 4.7 SHARE OF OUT-OF-SCHOOL CHILDREN AGED 13 TO 17 IN 2016, WHO RE-ENTERED IN 2017, BY GENDER	44
FIGURE 4.8 PERCENT OF CHILDREN THAT ARE OUT-OF-SCHOOL, BY GENDER AND AGE (AT THE START OF 2017)	45
FIGURE 4.9 DROPOUT RATE, BY GENDER AND GRADE, IN 2016	46
FIGURE 4.10 LEARNING ASSESSMENT SCORES (% CORRECT ANSWERS) COMPARING CHILDREN THAT DROPPED-OUT IN THEIR FIRST YEAR OF EDUCATION VERSUS CHILDREN THAT REPEATED, 2016-2017	47
FIGURE 4.11 PERCENT OF CHILDREN IN 2016 THAT HAVE DROPPED OUT OF SCHOOL AT LEAST ONCE, BY AGE AND BY DISABILITY.....	51
FIGURE 4.12 SCHOOL SURVIVAL RATES FOR CHILDREN AGED 6 TO 18, BY WEALTH QUINTILE AND YEARS SINCE START OF EDUCATION (2017)	53

FIGURE 4.13 PERCENTAGE OF CHILDREN AGED 7 TO 12 WHO HAVE DROPPED OUT AT LEAST ONCE, (2016/2017)	53
FIGURE 4.14 KEY IDENTIFIED DROPOUT FACTORS FOR CHILDREN AGED 7 TO 12 THAT DROPPED-OUT BETWEEN 2014 AND 2016	54
FIGURE 4.15 CHILDREN AGED 6 - 18 THAT HAVE DROPPED OUT AT LEAST ONCE DURING THEIR EDUCATION, BY WEALTH QUINTILE AND GENDER.....	55
FIGURE 4.16 PERCENTAGE OF CHILDREN AGED 7 TO 12 WHO HAVE DROPPED-OUT BETWEEN 2014 AND 2016	55
FIGURE 4.17 AVERAGE DROPOUT RATE, BY EDUCATION LEVEL OF THE HOUSEHOLD HEAD (2016)	57
FIGURE 4.18 PROPORTION OF CHILDREN AGED 6 TO 18 THAT HAVE DROPPED OUT AT LEAST ONCE, BY WEALTH QUINTILE AND WHETHER THEY HAVE LOST A PARENT (2017)	59
FIGURE 4.19 DISTANCE FROM HOME TO NEAREST PRIMARY SCHOOL (2017).....	63
FIGURE 4.20 GEOGRAPHIC COVERAGE OF PRIMARY AND SECONDARY SCHOOLS IN RWANDA, 2017.....	64
FIGURE 4.21 DISTANCE FROM HOME TO NEAREST SECONDARY SCHOOL, 2017	64
FIGURE 4.22 COSTS ASSOCIATED WITH PRIMARY SCHOOL EDUCATION, BY WEALTH QUINTILE (2016)	66
FIGURE 4.23 COSTS ASSOCIATED WITH LOWER-SECONDARY SCHOOL EDUCATION, BY WEALTH QUINTILE (2016) ...	67
FIGURE 4.24 PRE-PRIMARY ENROLLMENT RATES, BASED ON PARENTAL DATA, BY AGE IN 2017	68
FIGURE 4.25 PRE-PRIMARY ENROLLMENT RATES, BASED ON PARENTAL DATA, BY AGE AND LOCATION IN 2017	69
FIGURE 4.26 ENROLLMENT RATES, BY YEARS SINCE START OF EDUCATION, COMPARING CHILDREN THAT ATTENDED PRE-PRIMARY SCHOOL TO CHILDREN THAT DID NOT, 2017 DATA	70
FIGURE 4.27 PERCENT OF CHILDREN THAT ARE OUT-OF-SCHOOL, BY LOCATION AND AGE (AT THE START OF 2017)	71
FIGURE 4.28 DROPOUT RATES FOR CHILDREN AGED 16-17, BY LOCATION AND GENDER, IN 2016.....	72
FIGURE 4.29 AVERAGE DROPOUT RATES BETWEEN 2011 AND 2016 FOR CHILDREN OF PRIMARY-SCHOOL-AGE, BY DISTRICT*	74
FIGURE 4.30 HISTOGRAM OF AVERAGE DROPOUT RATES BY CELL, FOR CHILDREN OF PRIMARY-SCHOOL-AGE, BETWEEN 2011 AND 2016	75
FIGURE 4.31 AVERAGE DROPOUT RATES BETWEEN IN 2016 FOR CHILDREN OF LOWER SECONDARY-SCHOOL-AGE, BY PROVINCE*	75
FIGURE 4.32 REPETITION RATES FOR CHILDREN AGED 6 TO 17 THAT ARE ENROLLED, BY AGE AND GENDER (2016)	77
FIGURE 4.33 AVERAGE PROMOTION RATE BY GRADE IN 2015 AND 2016, COMPARING PRIMARY-SCHOOL-AGED CHILDREN TO SECONDARY-SCHOOL-AGED CHILDREN	79
FIGURE 4.34 REPETITION RATE BY GRADE (2016)	80
FIGURE 4.35 AVERAGE REPETITION RATE BY GRADE IN 2015 AND 2016, COMPARING PRIMARY-SCHOOL-AGED CHILDREN TO SECONDARY-SCHOOL-AGED CHILDREN (EXCLUDING DROPOUTS).....	81
FIGURE 4.36 REPETITION RATES BY YEARS SINCE START OF EDUCATION AND GENDER IN 2016.....	82
FIGURE 4.37 AVERAGE READING COMPREHENSION TEST SCORE BY GRADE, COMPARING CHILDREN WHO WERE PROMOTED AND CHILDREN WHO REPEATED, FOR CHILDREN AGED 6 TO 18 (2016)	83
FIGURE 4.38 PERCENT OF STUDENTS THAT FIND CLASSES EASY, BY GRADE AND WHETHER CHILDREN REPEATED OR GOT PROMOTED TO THE NEXT GRADE (2016)	85
FIGURE 4.39 PRIMARY 1 READING COMPREHENSION AND NUMERACY TEST SCORES, BY GENDER, FOR CHILDREN IN PRIMARY 1 IN 2016	86
FIGURE 4.40 PERCENT CHILDREN WHO STRONGLY AGREE THAT DOING WELL AT SCHOOL IS VERY IMPORTANT TO THEM, BY NUMBER OF TIMES REPEATED, FOR CHILDREN IN PRIMARY 6 IN 2016	87
FIGURE 4.41 REPETITION RATES IN PRIMARY 1, BY AGE AND WEALTH QUINTILE, FOR CHILDREN AGED 7 TO 8 BETWEEN 2014 AND 2016	89
FIGURE 4.42 REPETITION RATES BY LOCATION (RURAL/URBAN) AND YEAR, FOR CHILDREN AGED 7 TO 12, (2011-2016).....	93
FIGURE 4.43 AGE COMPOSITION OF NEW ENTRANTS INTO PRIMARY 1, IN 2017	95
FIGURE 4.44 AGE BREAKDOWN AND NUMBER OF YEARS OUT OF SCHOOL FOR PRIMARY AGE CHILDREN WHO HAVE NEVER ENROLLED IN SCHOOL, 2011-2017	96

FIGURE 4.45 ENROLLMENT RATES, BY YEARS SINCE START OF EDUCATION, COMPARING EARLY STARTERS AGED 6 TO ON-TIME STARTERS AGED 7, 2017 DATA.....	97
FIGURE 4.46 ESTIMATED DROPOUT RATE FOR CHILDREN AGED 6 OR 7, ENROLLED BETWEEN 2010 AND 2016.....	98
FIGURE 4.47 PERCENT OF GIRLS OF OUT OF SCHOOL CHILDREN OF PRIMARY SCHOOL AGE WHO HAVE NEVER BEEN ENROLLED IN SCHOOL, 2011-2017.....	99
FIGURE 4.48 ESTIMATED ENROLLMENT RATES FOR 7-YEAR OLDS, BY GENDER, 2010-2017	100
FIGURE 4.49 DISTRIBUTION OF PRIMARY-SCHOOL-AGE CHILDREN WHO HAVE NEVER ENROLLED IN SCHOOL BY WEALTH LEVEL, 2016-2017	101
FIGURE 4.50 % OF CHILDREN OF PRIMARY SCHOOL AGE WHO HAVE NEVER ENROLLED IN SCHOOL BY SEX AND WEALTH LEVEL, 2016-2017	102
FIGURE 4.51 % OF PRIMARY SCHOOL AGE CHILDREN WHO HAVE NEVER ENROLLED BY THE EDUCATION LEVEL OF THE HOUSEHOLD HEAD, 2016	103
FIGURE 4.52 PROPORTION OF LATE STARTERS, BY URBAN/RURAL, BETWEEN 2011 AND 2017 (FOR CHILDREN OF PRIMARY-SCHOOL-AGE AND BELOW ENTERING SCHOOL FOR THE FIRST TIME).....	105
FIGURE 4.53 PERCENTAGE OF PRIMARY SCHOOL AGE CHILDREN IN RURAL AND URBAN AREAS WHO HAVE NEVER ENROLLED FOR RURAL AND URBAN AREAS, 2011-2017.....	106
FIGURE 5.1 KEY RESEARCH QUESTIONS AND ANALYTICAL DIMENSIONS	108
FIGURE 5.2 REPETITION RATES IN PRIMARY 1 BY YEARS IN SCHOOL (2016)	108
FIGURE 5.3 SHARE OF CORRECT ANSWERS TO IDELA QUESTIONS BY P1 REPETITION (2016).....	114
FIGURE 5.4 SHARE OF CORRECT ANSWERS TO IDELA QUESTIONS BY P1 ASSESSMENTS COMBINED SCORED (LITERACY AND NUMERACY) (2016)	114
FIGURE 5.5 AGE AT WHICH CHILDREN JOINED PRE-PRIMARY SCHOOL, NUMBER	118
FIGURE 5.6 DISTRIBUTION OF NUMBER OF PUPILS-PER-TEACHER IN PRIMARY 1, BY SCHOOL.....	119
FIGURE 5.7 PROMOTION RATE (%) IN PRIMARY 1, BY TEACHER-TO-PUPIL RATIO, IN PRIMARY SCHOOLS IN RWANDA IN 2014-2015	121
FIGURE 5.8 PROMOTION RATES VERSUS SCHOOL-LEVEL EXAMS, BY GRADE, FOR CHILDREN AGED 6 TO 17 THAT DID NOT DROP-OUT OF SCHOOL, 2016-2017.....	125
FIGURE 5.9 EXAM SUCCESS RATE IN 2014-2015 BY PRIMARY 5 PROMOTION RATE IN PREVIOUS YEAR.....	127
FIGURE 5.10 PASS RATES ON THE PRIMARY SCHOOL LEAVING EXAMINATION, 2005-2017.....	134
FIGURE 5.11 PERCENT OF CHILDREN THAT WORK (EITHER PAID OR UNPAID), ACCORDING TO THE HOUSEHOLD SURVEY, BY AGE AND EDUCATION STATUS, 2017	140
FIGURE 5.12 AVERAGE DROPOUT-RATE FOR CHILDREN AGED 13-17, BY DISTANCE BRACKET, 2016-2017	142
FIGURE 5.13 ENROLMENT RATES FOR GIRLS AND BOYS AGED 16 TO 18, BY HIGHEST GRADE ACHIEVED IN PREVIOUS YEAR, 2017	146
FIGURE 5.14 PERCENTAGE OF GIRLS THAT HAVE HAD A CHILD, BY AGE, 2012 (ACCORDING TO RWANDA'S 2012 POPULATION CENSUS)	148
Figure 6.1 Promotion rate among 6-13 year olds who fail end of year school exams 2012-2016	158
FIGURE 6.2 DROPOUT RATES AMONG SCHOOLS WITH & WITHOUT RULES REGARDING ABSENCE AND DROPOUT* .	160
FIGURE 6.3 SHARE OF SCHOOLS WITH AUTOMATIC RE-ENROLMENT BY HOW THEY DETERMINE THAT A CHILD HAS DROPPED OUT OF SCHOOL.	164
FIGURE 6.4 EXAMPLES OF SCHOOLS USING THE OFFICIAL TEMPLATE ATTENDANCE REGISTER (ABOVE) AND OWN METHODS (BELOW)	166
FIGURE 6.5 DROPOUT RATES (LEFT) AND REPETITION RATES (RIGHT)*	167
FIGURE A.1.1 SHARE OF IMIHIGO CONTRACTS INCLUDING EACH TARGET TYPE.....	188

List of Tables

TABLE 2.1 SAMPLING PARAMETERS	4
TABLE 2.2 ANALYTICAL DIMENSION IN THE 5DE APPROACH	9
TABLE 3.1 NET AND GROSS ENROLLMENT RATES IN PRIMARY EDUCATION IN RWANDA	14
TABLE 3.2 BREAKDOWN OF DROPOUT RATES FOR CHILDREN AGED OF PRIMARY-SCHOOL-AGE IN 2016	16
TABLE 3.3 BREAKDOWN OF DROPOUT RATES FOR CHILDREN OF SECONDARY-SCHOOL-AGE IN 2016	16
TABLE 3.4 NUMBER OF TIMES REPEATED GRADE, BY AGE 18 (2017)	21
TABLE 3.5 AVERAGE DROPOUT RATE BY NUMBER OF TIMES A SECONDARY-SCHOOL-AGE CHILD HAS REPEATED (2016)	23
TABLE 3.6 PROPORTION OF CHILDREN OF EACH AGE BY GRADE (2017)	28
TABLE 4.1 DROPOUT RATES FOR BOYS AND GIRLS, BY AGE GROUP, IN 2016.....	44
TABLE 4.2 PERCENTAGE OF CHILDREN AGED 7 TO 12 WITH A FORM OF DISABILITY, 2017	50
TABLE 4.3 PROPORTION OF CHILDREN AGED 6 TO 17 WHO HAVE DROPPED OUT AT LEAST ONCE, BY EDUCATION LEVEL OF THE HOUSEHOLD-HEAD AND THE WEALTH QUINTILE OF THE HOUSEHOLD (2016)	58
TABLE 4.4 PROPORTION OF CHILDREN AGED 6 TO 17 THAT HAVE DROPPED OUT AT LEAST ONCE, BY EDUCATION LEVEL OF THE HOUSEHOLD-HEAD AND THE SPOUSE, 2016	58
TABLE 4.5 AVERAGE READING COMPREHENSION AND NUMERACY TEST SCORE FOR CHILDREN IN PRIMARY 1 IN 2016, BY NUMBER OF TIMES REPEATED (2016).....	84
TABLE 4.6 AVERAGE READING COMPREHENSION AND NUMERACY TEST SCORE FOR CHILDREN IN PRIMARY 4 IN 2016, BY NUMBER OF TIMES REPEATED (2016).....	85
TABLE 5.1 SURVEY QUESTIONS.....	112
TABLE 5.2 PERCEPTION ON TEACHER ABSENTEEISM, AS REPORTED BY PUPILS, BY GRADE (2016).....	121
TABLE 5.3 PERCENT OF CHILDREN REPORTING BEING PUNISHED BY TEACHERS, AS REPORTED BY PUPILS, BY GRADE (2016)	122
TABLE 5.4 EGMA RESULTS ON MULTIPLICATION ASSESSMENT, FOR CHILDREN IN PRIMARY 6, 2017	130
TABLE 5.5 EGMA RESULTS ON DIVISION ASSESSMENT, FOR CHILDREN IN PRIMARY 6, 2017	131
TABLE 5.6 ENGLISH ASSESSMENT RESULTS, FOR CHILDREN IN PRIMARY 6, 2017	132
TABLE 5.7 CLASSIFICATION OF CANDIDATES BY AGGREGATE SCORE ON PRIMARY SCHOOL LEAVING EXAMINATION	133
TABLE 5.8 COMPARISON OF AVERAGE PER CHILD AND PER YEAR NON-TUITION RELATED EXPENDITURE IN PRIMARY AND LOWER SECONDARY SCHOOL, FOR HOUSEHOLDS IN WEALTH QUINTILES 1 TO 5, EXCLUDING OUTLIERS.	136
TABLE 5.9 ENROLMENT IN SECONDARY SCHOOL, BY TYPE OF SCHOOL AND YEAR	143
TABLE 5.10 ENROLMENT OF GIRLS / BOYS AGED 16 TO 18 IN 2017, IN RURAL AREAS, BY NUMBER OF YOUNGER SIBLINGS OF SCHOOLING AGE*	151
TABLE 5.11 ENROLMENT OF GIRLS AND BOYS AGED 16 TO 18 IN RURAL AREAS IN 2017, BASED ON WHETHER PARENTS ALIVE OR PASSED-AWAY.....	152
TABLE 6.1 ESSP TARGETS ON REPETITION, DROPOUT AND TRANSITION RATES (FOR THE 2013-2017 PERIOD)	155
TABLE 6.2 PROJECTIONS OF ENROLMENT LEVELS BY GRADE, BASED ON ESSP TARGETS, TAKING 2013 AS STARTING POINT.....	155
TABLE 6.3 BASIC PRIMARY SCHOOL SIZE METRICS FOR EACH COUNTRY	163
TABLE A.1.1 OVERVIEW OF THE ESSP 2017/18 TARGETS SPECIFIC TO PRIMARY EDUCATION	183
TABLE A.1.2 RECENT MINISTERIAL ORDERS AND LAWS PERTAINING TO OUT-OF-SCHOOL CHILDREN	184
TABLE A.2.1 SAMPLE SIZE BY SURVEY TYPE.....	192
TABLE A.2.2 SSI SAMPLE COMPOSITION	193
TABLE A.2.3 COMPOSITION OF FGDs FOR PRIMARY SCHOOL TEACHERS PER LOCATION	194
TABLE A.2.4 COMPOSITION OF FGDs FOR SECONDARY SCHOOL TEACHERS PER LOCATION	195

TABLE A.2.5 OVERVIEW OF THE SEMI-STRUCTURED INTERVIEW GUIDELINES WITH CHILD	196
TABLE A.2.6 OVERVIEW OF THE SEMI-STRUCTURED INTERVIEW GUIDELINES WITH PARENT.....	197
TABLE A.2.7 OVERVIEW OF THE FOCUS GROUP DISCUSSION GUIDELINES WITH TEACHERS	198
TABLE A.2.8 OVERVIEW OF THE CHILD SURVEY INSTRUMENT	199
TABLE A.2.9 OVERVIEW OF THE HOUSEHOLD SURVEY INSTRUMENT.....	202
TABLE A.2.10 OVERVIEW OF THE HEAD TEACHER (SCHOOL) SURVEY INSTRUMENT	203
TABLE A.2.11 OVERVIEW OF THE COMMUNITY SURVEY INSTRUMENT	205

Executive Summary

Introduction

Over the past decade, the Government of Rwanda has undertaken major policy reforms aimed at increasing access to and improving the quality of basic education. The first objective, to increase access to education, was achieved through the adoption of free and compulsory 9- and later, 12-year basic education (9YBE and 12YBE). The current focus on the second objective, improved quality, has been driven by the introduction of English as the primary language of instruction from upper primary school onwards, the implementation of a new competence-based curriculum and the integration of ICT into the classroom. To date, these ongoing policy reforms have recorded great successes. Notably, enrolment, timely entry and survival rates in basic education have all significantly improved since the reforms were launched.

While these important policy initiatives have set a new and ambitious course for the education system, ensuring their successful on-the-ground implementation remains a key challenge facing Rwandan educators. At present, we see a system in flux. The successes recorded in improving access, demonstrated by net enrolment rates of close to 100 per cent in the primary grades, have changed the structure and dynamics of the education system. While we see very high levels of enrolment in early years, challenges emerge as these pupils progress through their educational trajectory. Repetition is frequent in the first years of Primary, and in the years preceding the transition to Secondary School, and we see that students increasingly start dropping out of school after the age of 13. How, having largely achieved the goal of improved access, can policy makers ensure equity such that the students are both learning, and moving through the system until graduation?

It is against this backdrop that MINEDUC, with the support of UNICEF, commissioned Laterite to perform an assessment of dropout and repetition in Rwandan schools. The main objective of this project is to support MINEDUC and stakeholders in the education sector to generate new insights on the causes of grade repetition and dropout to help inform the development of evidence-based policy options to increase retention, completion and the overall efficiency of the education system.

Methodology

This study takes an innovative approach to understanding the current state of Rwanda’s education system. We have compiled the educational histories of over 8,000 Rwandan children from across the country allowing, for the first time, analysis on how individuals move through the education system. This uniquely constructed time-series data allows us to develop a rich understanding not only of the drivers of dropout and repetition at different stages in children’s’ educational trajectories, but also, the dynamics of the education system.



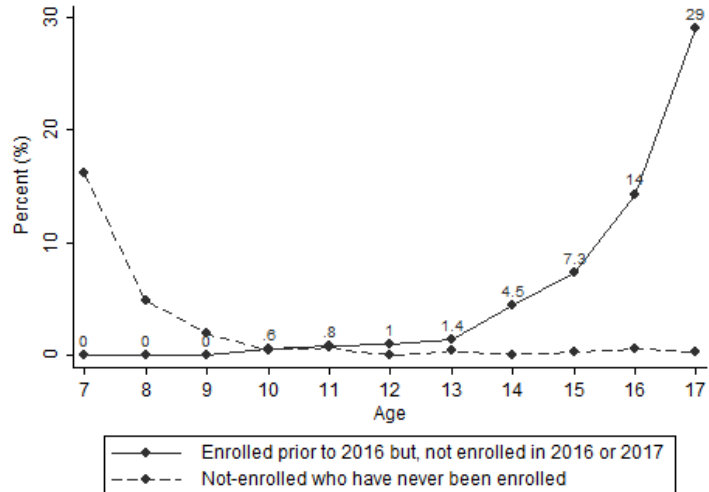
This nationally representative study presents findings from four surveys that captured contextual information from children, their schools, their communities and their families. In this way, we are able triangulate our findings on the drivers of dropout and repetition from four sources capturing the complex interactions between the child, home, school and community that shape educational outcomes. In addition to these four surveys, we carried out semi-structured interviews with children and their parents, as well as focus group discussions with teachers. The qualitative research aimed to understand the reasons behind some of these key trends and correlates– the “why” and “how” behind the statistics presented in the quantitative analysis. This qualitative research provided textured, contextual information that helped situate the quantitative findings and ground the trends we found with specific examples, and stories – where relevant – from children, their families and teachers.

The analytic framework for this study is inspired by the UNESCO/UNICEF ‘Five Dimensions of Exclusion’ (5DE) approach. The modified 5DE framework looks at two age groups within the full sample, children of primary age (7-12) and children of secondary age (13-18), considers three risk factors, late entry, repetition and dropout, and carries out analysis at four levels, the child, the household, the school and the community.

Dropout and Repetition: Stylized Facts, Underlying Determinants, Trends, and their Implications on the Structure of the Basic Education System in Rwanda

There are four main stylized facts that describe schooling status of children in Rwanda: (i) enrolment rates are high; (ii) the largest shares of out-of-school children in Rwanda come from the tails of the age distribution, a result of children starting school late and dropping out of school permanently; (iii) for primary age children, dropout rates are relatively low, re-entry rates are high and children repeat frequently; and (iv) for secondary age children, dropout rates increase considerably, and re-entry and repetition rates go down. Two additional points distinguish dropout rates of children of primary- and secondary-school-age: (i) most children of secondary-school-age drop-out between school years, not during the school year as is the case for primary-school-aged children; and (ii) dropout becomes more permanent for secondary-school-age children, with fewer children re-enrolling after dropping out.

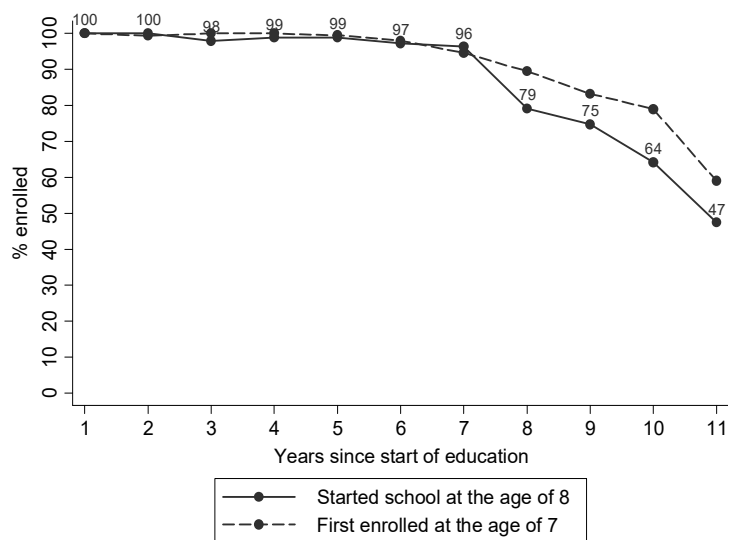
Percent of Out-of-School Children by Age (2016/2017)



Key Determinants of Dropout

LATE START - Despite significant improvements in encouraging on-time entry over time, delayed start remains an important challenge in the Rwandan education system. In 2017, 20 per cent of new entrants into Primary 1 were over the prescribed age of 7. We find clear evidence that late starters begin their formal education at a significant disadvantage. Further, late start is a key predictor of future dropout. Those who start late, are more likely to drop-out of school during the transition from primary to secondary. Using this dataset, it is not possible to accurately disentangle whether late start directly leads to future dropout, or

Enrollment Rates, by Years Since Start of Education, Comparing Late Starters and Children Who Started Primary School On Time at Age 7

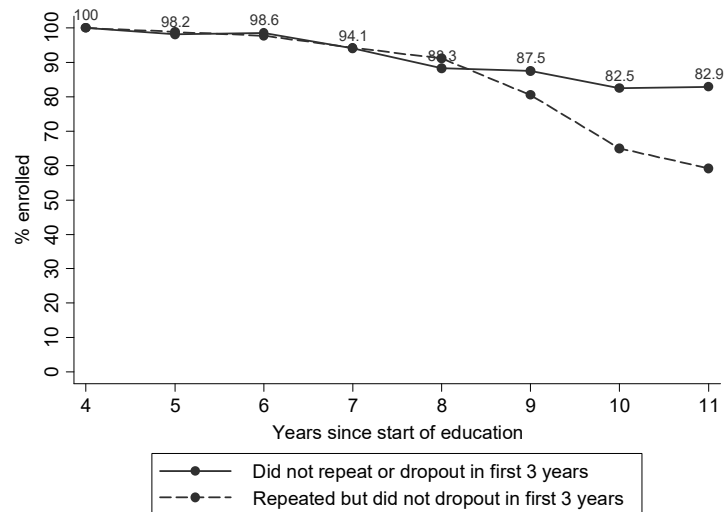


whether late start and dropout share the same underlying causes (for example, household-level poverty or the low educational level of parents).

LOW SURVIVAL RATES UPON RE-ENTRY - Re-entry is a positive outcome for children who have experienced dropout but we find that children who re-enter the system after having dropped out are at a high risk of dropping out again. Re-entry rates fall as children get older. Dropout becomes more permanent with age and with each passing grade. Most children who drop-out in Primary 1 or Primary 2 re-enrol in school, but the probability of re-enrolment decreases rapidly as children progress through the education system. An estimated 71% of children of primary-school-age (7 to 12) who dropped-out of school between 2013 and 2015, were re-enrolled by 2017 compared to only 23% of children of lower secondary-school-age (13 to 15) who dropped-out during the same period.

REPETITION - Despite a very sharp decline observed in 2016 2017, repetition is a major issue in Rwanda’s education system. We find that by Primary 6, 85% of children in the education system have repeated at least once. Repetition and dropout are inter-linked in a dynamic way from the very start of a child’s education – children who repeated at least once in the first 3 years of their educational trajectory are much more likely to drop out after their 8th year of education.

Enrollment Rates, by Years Since the Start of Education. Children Who Repeated in Their First 3 Years of Education to Those Who Did Not (2017)



Implications on the Structure of the Basic Education System

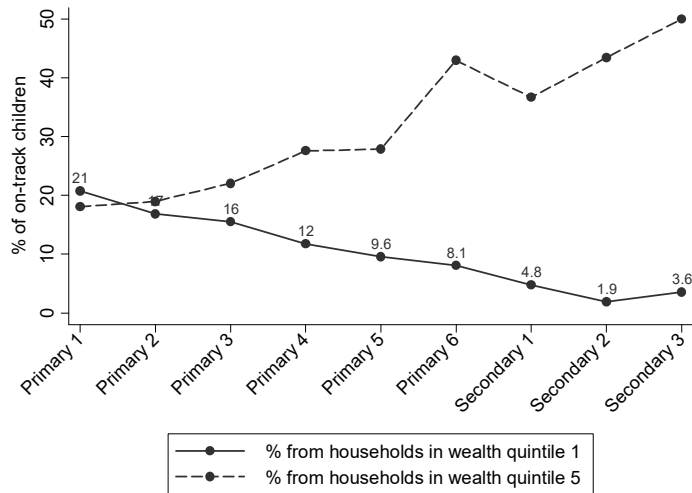
Late-entry, dropout and subsequent re-entry, and high repetition in early grades combine to create a major problem of over-ageing within Rwanda’s primary and secondary education system that results in delayed primary school completion. What happens at each point in a child’s educational trajectory has dynamic effects down the line. A good indicator of pupil progress and the quality of education is the percentage of students on-track with their education. A pupil who is “on-track” is in the appropriate grade, given her age. The proportion of children who are on-track with their education falls dramatically between the ages of 7 to 12. At the very start of primary school, an estimated 84% of children aged 7 in 2017 were on-track with their education and had enrolled in Primary 1. By age 13, when children should be starting lower secondary, at the start of the 2017 school year, we estimate that only 8% of students were still on-track and had made the transition to secondary school. By the age of 18, children in Rwanda have, on average, accumulated a 5-year delay in their education.

OVERAGING - The effect of repeated delays in the educational journey of children, through late start, dropout and repetition, is a growing disconnect between grade and age, i.e. over-ageing. A key characteristic of Rwandan classrooms in primary and secondary school is high age-variation within grades. High age-variation within grades inevitably affects class dynamics and the quality of teaching. Over-aging will continue to be a dominant feature of Rwanda’s primary and secondary education system for the years to come, because overaged children are already in the education system, and a lot of the key underlying trends in its determinants are still present today (e.g. late start, repetition, etc.)

LOW COMPLETION RATES - Another effect of the delays in the education system is the impact on completion rates in primary school, particularly in rural areas. In 2017, an estimated 58% of children aged 18 in rural areas had either completed primary 6 successfully or enrolled in secondary school thereafter the comparative figure for urban areas was 75%. These wide geographic gaps are symptomatic of the large educational divide between rural and urban areas in Rwanda.

INEQUALITIES - The result of differences in late entry, repetition and dropout rates between children from households from different socio-economic situations is that children from the wealthiest households stay on-track, while children from the poorest households drop behind. In Primary 1, when children first enter the education system, a roughly equal proportion of children from households in wealth quintile 1 and 5 are on-track with their education. By secondary 3, only about 4% of children who are on-track come from households in wealth quintile 1 (the poorest), compared to about 50% of children from households in wealth quintile 5 (the richest). These patterns imply that children from different socio-economic backgrounds have very divergent educational trajectories. On average, the education sector has not succeeded in achieving convergence in outcomes between children from different socio-economic backgrounds.

Percent of on-track children from households that come from wealth quintile 1 and that come from wealth quintile 5, by grade, in 2016



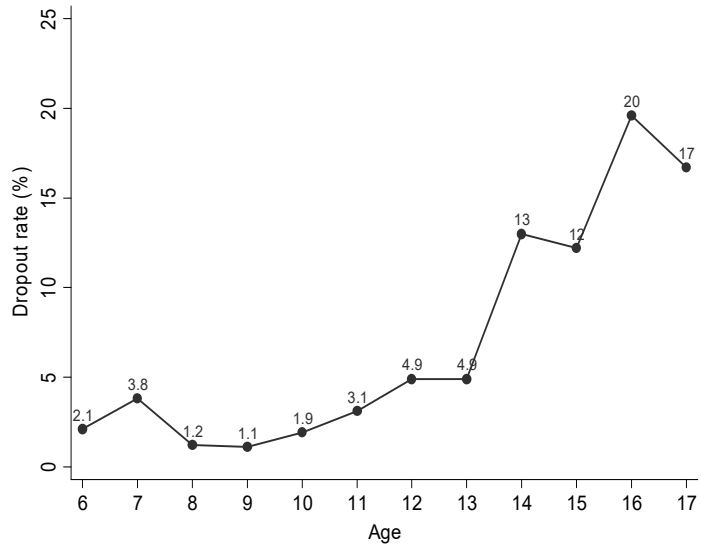
Profiles of Children who Drop-out, Repeat, or Start Late

A look at relevant child, household, school and community characteristics

Dropouts

CHILD – Dropout is uncommon for children of primary school age. In 2016, an estimated 2.6% children under the age of 13 had dropped out. After 13 however, dropout becomes a much more widespread and structural problem. Between the ages of 13-15, when children are meant to be in lower secondary school, and estimated 10% dropped-out in 2016, this rose to 18%, for children of upper-secondary age, 16-17. Due to much higher dropout rates, the number of children that are out-of-school doubles from about 5% for children of primary-school-age to 10% for children of lower-secondary-school-age, then quadruples to reach about 40% of children of upper-secondary-school-age.

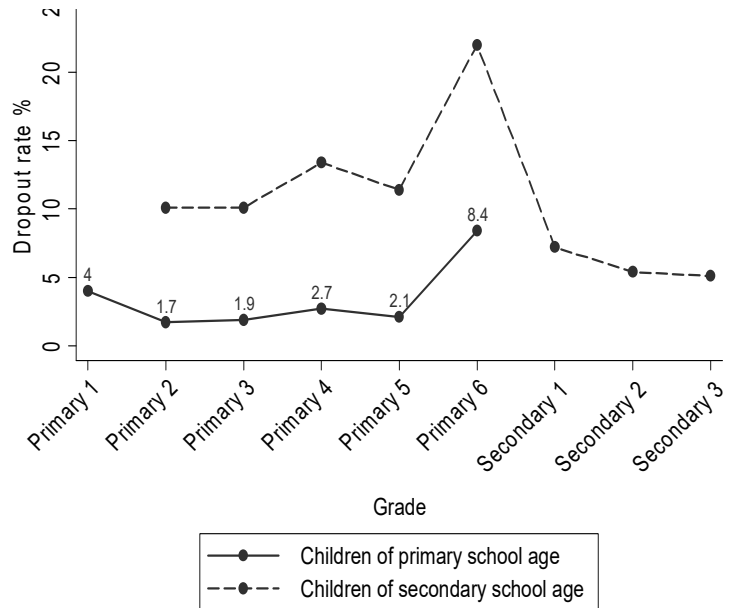
Dropout rate by age, for children enrolled in 2016



When we look at dropout by grade level, we see a slightly different story due to the high level of over-aged students currently in the education system. Regardless of age, we see higher levels of dropout in Primary 1, upon entry into the education system, and a dramatic uptick in Primary 6, the stage of transition from primary to secondary school.

In primary grades, when we compare dropout by grade for students who are primary age vs those who are secondary age, we see that both groups follow a similar trend with dropout spiking in Primary 6. However, students who are overaged in primary have much higher dropout levels than their on-track peers throughout Primary. An estimated 8.4% of children of primary-school-age, enrolled in Primary 6 in 2015 and/or 2016, failed to transition to secondary school in the subsequent year compared to nearly 25% of children of secondary age who were enrolled in Primary 6. Children who are on-track with their education are much less likely to drop-out of school than children that have accumulated delays.

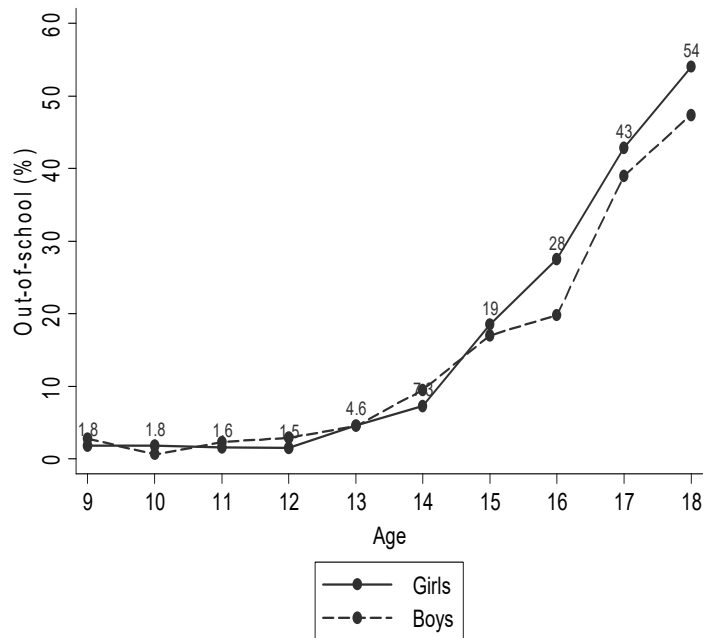
Average dropout rates by grade in 2015 and 2016, comparing children of primary and secondary-school



Dropout rates differ also by gender. Boys under the age of 13 are more likely to dropout than girls.

In 2017, an estimated 13.4% of 12-year-old boys had already dropped-out of school at least once during their education, compared to just 5.2% of 12-year-old girls. Boys continue to dropout slightly more than girls between the ages of 13 to 15 (lower secondary-school-age), but this difference reverses above age 16. Between the ages of 16 to 18, girls are more likely to dropout compared to boys, and consequently, at this age, there is a large difference of about 5.5 percentage points on average between the share of out-of-school girls and boys. Because dropout at younger ages tends to be temporary, and dropout at older ages is more often terminal, we see that dropout impacts boys and girls differently. Dropout for younger boys tends to disrupt their education and contributes to over ageing, whereas dropout for girls more often represents an end point in their education which is evident in enrollment of boys and girls in the upper years of secondary education.

Percent of children that are out-of-school, by gender and age (at the start of 2017)



Evidence shows that children of who dropped-out of school did not perform worse academically than children who repeated a grade. Children of primary-school age who dropped-out in their first year of education, scored as high as children who did get promoted to the next grade and, surprisingly, scored significantly higher on all learning assessments tests in our child survey compared to children who repeated grade. Children of primary-school-age who dropped-out after their first year of education do not seem to have learning difficulties when compared to children who repeated. We find that it is not necessarily the worst performing students who are dropping out.

We find that there is a clear link between certain forms of disability and dropout. For children of primary-school-age the disabilities that show the strongest link to dropout include: impaired hearing (associated with a 10-percentage point increase in dropout and significant at the 10% level) At the secondary age, the disabilities that have the strongest link to dropout are behavioral impairments, including difficulties making friends and controlling behavior, and cognitive impairments, including difficulties in speaking and getting understood by people outside the household.

HOUSEHOLD – Monetary poverty at the household level is one of the strongest predictors of dropout. School survival rates are significantly lower for children from households in lower wealth quintiles. There is a clear inverse relationship between household wealth and dropout rates: on average about 12% of children aged 7 to 12 in the poorest wealth quintile dropped-out in 2016-2017, compared to 3% of children in the highest quintile. Interestingly, the economic situation of households affects dropout patterns for children living in urban and rural areas differently. When we look at the impact of monetary poverty on dropout by location, we see that dropout rates for children of primary school age in urban areas is higher, which is a very important finding from a policy perspective.

Parents play a fundamental role in their children’s education - the data unequivocally shows that the education level of the household head matters for the education of the child and is correlated with dropout. Dealing with the death of a parent is a shock that affects older children and children from the poorest household disproportionately. This is important in the context of schooling because the death of a parent is associated with a higher incidence of dropout. We find that children who report having lost a parent are 5 percentage points more likely to have dropped out of school at some point during their education. Work, chores and caring for other family members are associated with dropout, but respondents do not identify these factors as being amongst the main drivers of dropout. Cost, illness, and the dislike of school were cited much more often as the main reasons for dropping-out. Supporting this argument, we find no evidence to suggest that children with the highest chore or work burdens are more likely to dropout out in subsequent years. What can be stated with greater certainty, is that after dropping-out, the chore and work-burden of children increases significantly. Dropping out is associated with a rapid increase in the proportion of children who work.

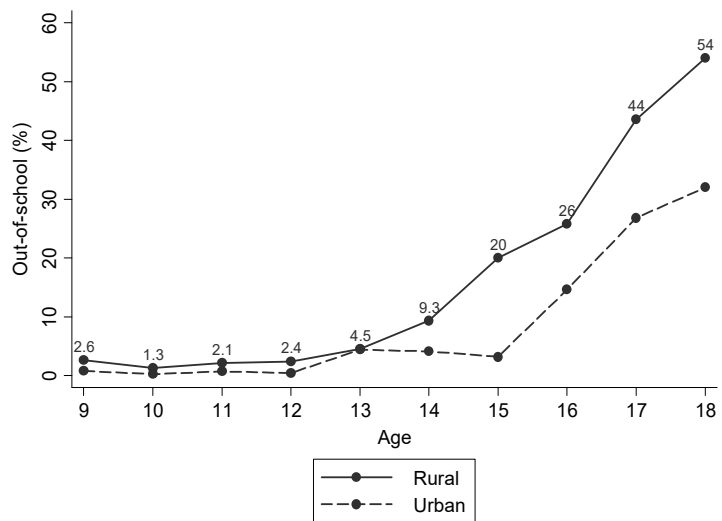
SCHOOL – While geographic access to primary school in Rwanda is high, we find that proximity to a primary school matters when it comes to dropout rates for children aged 7 to 12. Evidence suggests that children of primary school age, in rural areas, who live in a village where there is a primary school, are less likely to experience dropout than children that live in villages where there is no school. The network of

secondary schools in the country is more sparsely distributed than primary schools, resulting in reduced geographic access at the secondary level with consequent impact on dropout at the secondary level.

Another school level factor that is closely linked to dropout is the cost of schooling. While most children in Rwanda attend Public or Government Aided schools, free of tuition, there are other associated costs with education that may prevent a household from being able to afford to send a child to school. We estimate that the median cost of having a child enrolled in primary school is about RWF 6,900 per child per year. Sending a child to secondary school is considerably more expensive. The median cost of having a child enrolled in secondary school is about RWF33,500 per child per year in lower-secondary school and RWF136,000 per child per year in upper-secondary school. Costs associated with education represent a barrier to access to education and are highly correlated with the probability of dropping out of school.

COMMUNITY – For children of primary-school-age, living in an urban or rural area does not appear to be a strong predictor of dropout. The link between geography and dropout becomes much more pronounced for children of lower and upper secondary-school-age. Children of lower secondary-school-age that live in urban areas see their out-of-school rates stagnate and even reduce between the ages of 13 to 15; on the contrary, children in rural areas see them more than quadruple. One of the major drivers of this gap is lower transition rates to lower secondary school in rural areas.

Percent of children that are out-of-school, by location and age (at the start of 2017)

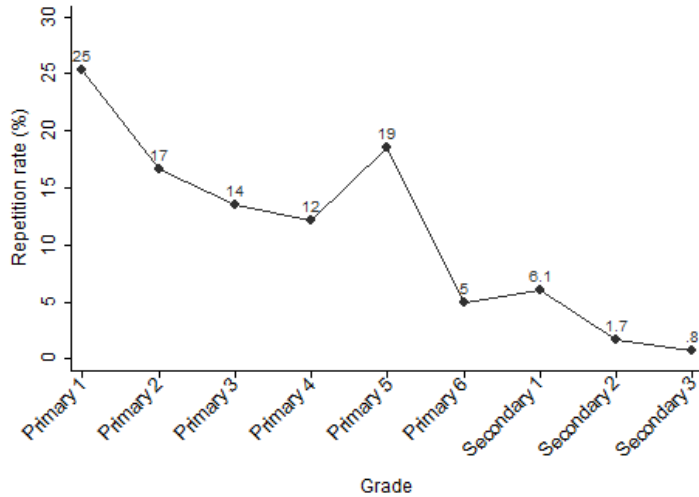


Repeaters

CHILD – Repetition rates are highest for children of primary-school-age.

An estimated 17% of children between the ages of 7 and 12 repeated in 2016, compared to about 9% of children of secondary-school-age (13 to 18). Repetition rates are lower for children aged 13 and above. This happens because: (i) children of secondary-school-age that are still enrolled in primary school are much more likely to drop-out of school rather than repeat grade; and (ii) children aged 13 or above that make it through to secondary school are on average better students, and thus, less likely to repeat. Repetition rates are highest for Primary 1 and follow a very clear declining trend. However, repetition rates for Primary 5 stand out from this trend.

Repetition rate by grade (2016-2017)



At all ages, girls are less likely to repeat than boys, a difference that holds true throughout their education. From the moment that they enter the schooling system, the educational trajectory of boys and girls starts to diverge due, in large part, to differences in their repetition rates. By age 9 in 2017 an estimated 40% of girls had reached Primary 3 (the grade that corresponds to that age) versus just 28% of boys. By age 12 in 2017, an estimated 15% of girls had made it to Primary 6 (the grade children are expected to be in by age 12), compared to just 6% of boys.

Children who repeat have much greater learning difficulties, on average, than children who get promoted. In Primary 1, one-time repetition is associated with a slight increase in test scores which suggests that repetition, at least in the early grades, can lead to some catch-up in learning. Two-time repeaters, however, performed worse than new entrants on reading comprehension and on all numeracy metrics compared to one-time repeaters. Repeating Primary 1 twice or more is a sign of major learning difficulties and a lack of foundational skills.

As was the case with dropout, certain forms of disability are linked with significantly higher repetition rates. Two types of disabilities stand out: (i) difficulties in speaking and being understood by people outside the household; and (ii) behavioral control issues. Children with difficulties in speaking and being understood were 15 percentage points more likely to have repeated at least once before. Children with behavioral control issues were about 9 percentage points more likely to have repeated at least once in the past.

HOUSEHOLD – Household poverty is very closely correlated to repetition. Children from the poorest households are the ones who repeat the most and from the earliest ages. Between 2014 and 2016 an

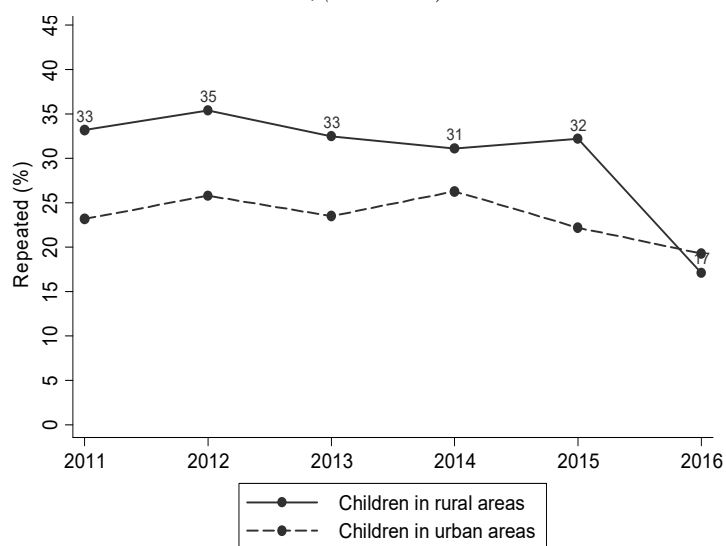
estimated 46% of 7-year-olds from households in wealth quintile 1 repeated, compared to 30% of 7-year-olds from households in wealth quintile 5. We do not find any difference in the repetition rates of children in households where the parents had never attended school or only attended primary school. A strong reduction in repetition rates is observed however, in households where at least one parent made it to secondary school or beyond. What seems to matter most when it comes to parents, is not simply their education level, but rather the level of educational support they are able to provide to their children. Children who live in households where they are not encouraged to do homework – or not able to do homework – are more likely to repeat. A relatively high proportion of children, about 24%, did not have anyone in or outside the household to turn to for support with their homework. These children were on average 3 percentage points more likely to repeat than children that could get support from at least one family member or friend.

SCHOOL – School-level factors matter when it comes to repetition. The type of school that children attend – public, private or government aided – is associated with repetition rates. Children that are enrolled in private schools perform better on average than children that are enrolled in either public or government-aided schools. There is a strong link between reported teacher-to-pupil ratios in Primary 1 and Primary 2 (as compiled during the head-teacher surveys) and repetition in the corresponding grade.

Evidence also suggests that teacher-absenteeism, teaching practices and repetition are associated. Children who reported that their teachers were absent on a regular basis in 2016 were also much likely to have repeated in 2016. There is a very strong link between children reporting getting punished by their teachers for bad behavior and repetition. Controlling for grade and other child, household and location factors, we find that children who reported having been punished by their teachers often were on average 7 percentage points more likely to repeat.

COMMUNITY – Between 2011 and 2015, primary-school-age children in rural areas were on average about 10 percentage points more likely to repeat than children from urban areas. As a result of the very large drop in repetition rates observed in 2016, primary-school-age children in rural areas were about 2 percentage points less likely to repeat than children in urban areas. This reduction in repetition rates happened across all ages and all grades in 2016. Remarkably, the reduction in repetition was much steeper in rural areas than in urban areas - the repetition rate for primary-school-age children in rural areas almost halved, dropping a full 15 percentage points, from 32% to 17%.

Repetition rates by location (rural/urban) and year, for children aged 7 to 12, (2011-2016)



Late Starters

CHILD – In 2017, an estimated 20% of children who entered the education system for the very first time were late starters. The majority, about 60 percent, of out-of-school children in 2017 were 7-year-olds, and approximately 91 percent of primary school age children who have never enrolled in school were 9 years old or younger. These observations are important since a late start to school can have a considerable effect on the likelihood that a child may repeat or drop out of school.

Boys are more likely to have never attended school at primary-school age. Examining enrollment rates of children aged 7 by gender suggests three important trends (i) first, the problem of late start seems to have reduced over time, with gradually increasing enrollment rates for 7-year olds between 2010 and 2017; (ii) historically, girls have been slightly more likely to enroll on time than boys; and (iii) that there is a very unexpected jump in the difference of enrollment rates of boys and girls aged 7 in 2017. This increase appears to be driven – at least partially - by an increased exposure to some form of pre-primary school.

HOUSEHOLD – There is a clear disparity in the distribution of late-starters across wealth levels - almost three quarters of all primary school age children who have never enrolled in school come from the bottom of the wealth distribution. Of all primary school age children who have never enrolled in school – and are likely to be late starters – 52% come from the poorest households; a further 20 percent of these children come from the second lowest wealth quintile. Children of primary-school-age from households in the poorest quintile are almost 5 times more likely to have never been enrolled in school compared to children from households in all other wealth quintiles combined.

We find some evidence to suggest that the chances of children enrolling late are higher in households headed by parents with no formal education or who completed primary school only compared to those of children from households headed by parents who completed lower or upper secondary (or higher levels of education). Likewise, other characteristics of the head of the household also seem to be correlated with the probability of starting late – such as a female headed of household, divorced parents or lack of siblings.

SCHOOL – We find that children who live in the immediate vicinity of a school at a distance of less than 500 meters are much more likely to enroll on time. Living within 500m of a primary school is associated with a 5 percentage-point increase in enrolment rates for children of primary school age. What matters is not how far a child lives from a school, but rather whether the nearest school is in the immediate vicinity of where the child's home is located.

COMMUNITY – Historically, late start has been much more prevalent in rural areas. However, gaps in late start between urban and rural areas have reduced significantly over time. In 2015 for example, an estimated 25% of new entrants in Primary 1 in rural areas were late starters, compared to 14% in urban areas, a statistically significant difference of more than 10 percentage points. However, by 2017, decreasing late entry in rural areas and a rapid increase in late start urban areas has reduced the the gap in the number of students that start late.

Drivers of Dropout and Repetition

Why do children repeat in their first year of education?

SCHOOL READINESS – School readiness - in terms of literacy, numeracy and socio-emotional development - is a strong determinant of why children tend to repeat in the first year of education.

After one year of primary education, we find that the majority of children cannot read in Kinyarwanda.

Only an estimated 34% of children were identified as being able to read after their first year of education. The ability to read is what distinguishes children who repeat after one year of education from children who progress to Primary 2. Almost 50% of children who progressed to Primary 2 after one year of schooling were identified as being able to read, compared to just 16% of children who repeated. These results imply that children are not ready for school when they enter the primary education system and that one year of primary school education does not equip the majority of children with the required literacy skills to succeed in primary school. Repeating primary school once helps to improve literacy and numeracy levels, but does not bring performance to the level required for success in school.

School readiness, in terms of having the requisite numeracy skills, is also a strong predictor of repetition in Primary 1. Evidence suggests that across numeracy tests, repetition leads to improved learning outcomes. However, as is the case with literacy, the learning gains from repeating Primary 1 are substantial but insufficient.

Socio-emotional development of children entering the primary education system was measured by a component of the IDELA assessment tool, developed by Save the Children. We find about one out of four children were not yet fully emotionally prepared for primary school as evidenced by low scores on questions related to emotional awareness and regulation.

PARENTAL EDUCATION – Low school readiness in numeracy and literacy is tied to low education levels in the household, especially in rural areas. Children from households in rural areas where the household-head had achieved at least secondary school level scored significantly better. After their first year of education, children in rural areas from households where the household-head had completed at least secondary school scored on average 25 percentage points higher on the Primary 1 EGRA reading assessment, 24 percentage points higher on the addition assessment and 31 percentage points higher on the subtraction test. There are multiple mechanisms through which the education of the parents affects the future educational prospects of children. Parents who have attended school have higher educational aspirations for their children, have different perceptions about how to best educate them, take greater ownership of the education of their children and play a much more active role in their education (supporting them with reading, maths, homework, etc.). Through its effect on school readiness, the low education level of parents appears to be one of the main reasons repetition rates in the first year of children's primary education are high. This is a generational challenge that can be addressed in the future, as the proportion of parents with an education increases substantially. Today, in Rwanda, virtually all children that enter adulthood have attended school before. This is one of the major achievements of the

past decade, which has seen enrolment rates increase very rapidly. School readiness is poised to improve through the effect of much more highly educated parents.

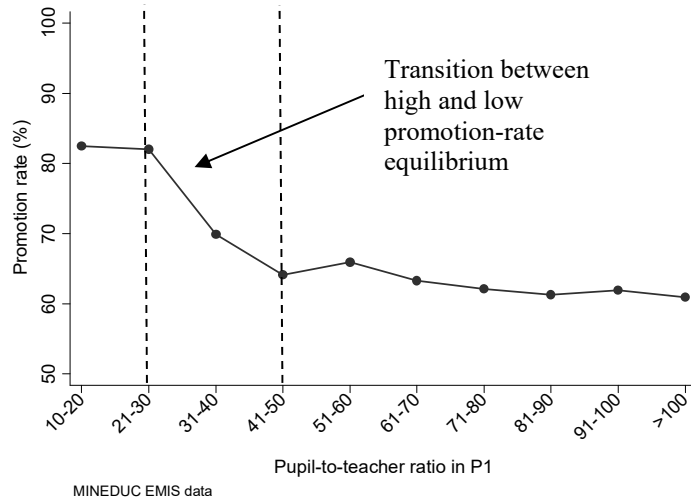
PRE-PRIMARY SCHOOL – Low levels of school readiness are in part explained by the fact that only about 54% of children entering the primary education system in 2017 had previously been enrolled in a formal or informal pre-primary school. We define pre-primary education as any type of formal or informal education that happens before a child is formally enrolled in Primary 1.

Attending pre-primary school is associated with a 12-percentage point reduction in repetition rates in Primary 1, an association that holds when controlling for relevant child, household and location factors. Further, attending pre-primary school is associated with a 5 percentage-point reduction in dropout rates for children in their first year of education. One of the vectors through which pre-primary school impacts educational outcomes is through improved numeracy, literacy and emotional development skills. However, these effects are not significant when controlling for household education. Indeed, household education is strongly correlated with whether children enrol in pre-primary school or not, so it is difficult to distinguish between the effects of the two.

RESOURCE CONSTRAINTS - Primary 1 is arguably one of the most important grades in a child’s educational trajectory.

Despite being so important, it is comparatively under-resourced. It is the grade with the highest pupil-to-teacher ratios, where the strain on teachers and over-crowding in classrooms is the largest. Resource constraints in Primary 1 are strongly linked to promotion rates. When plotting promotion rates against pupil-to-teacher ratios by school in 2014-2015 we can see that promotion rates drop significantly from about 80% in schools with fewer than 30 pupils per teacher, to somewhere between 60% and 65% for schools with more than 50 pupils per teacher.

Promotion rate (%) in Primary 1, by teacher-to-pupil ratio, in primary schools in Rwanda in 2014-2015



What is interesting is that there is a transition phase separating a high promotion-rate equilibrium from a low-promotion rate equilibrium. This “window of opportunity” occurs between 30 and 50 pupils-per-teacher. Primary 1 also appears to be the grade with the greatest issues when it comes to teacher attendance and professionalism, pointing to the possibility that schools might not be allocating their highest performing teachers to Primary 1. The problem of teacher absenteeism appears to disproportionately affect children in P1, where almost 50% of children (regardless of their age) reported that their teachers were often absent. With each passing grade, teacher absenteeism is cited less frequently as a regular occurrence. Given its importance in the shaping the education of children, it is important to re-think staffing and training for Primary 1 classes. Although the teaching content delivered in Primary 1 might be easy, the

importance of Primary 1 education to a child’s education trajectory means that it requires some of the best teachers to generate positive learning outcomes.

Why do children repeat in Primary 5?

Repetition rates in Primary 5 have consistently been higher than in any grade except Primary 1 over the past few years, raising the possibility that either schools are purposefully holding children back in Primary 5 in order to increase success rates on the Primary 6 leaving examination in the subsequent year, or that children are holding themselves back in order to be better prepared for the examination and maximize their chances of being accepted to a good secondary school. We find evidence to show that repetition in Primary 5 is driven primarily by schools rather than children or their families.

SCHOOL FACTORS – Evidence suggests that schools apply higher promotion standards in Primary 5, with the objective of securing better school-level results in the national primary school leaving examination in the subsequent year. An estimated 85% of head-teachers interviewed during the school survey reported that their “imihigo” targets included a minimum national examination pass-rate for their schools. In most schools, the reported target pass-rate was an average of 90% or more on the National Examination. One of the most immediate tools schools have at their disposal to increase pass-rates in the primary school leaving examination is to manage the flow of students that get promoted into Primary 6. By being more selective in Primary 5, schools can achieve three key objectives: (i) give the chance to children that are not yet ready for Primary 6 to better prepare through repetition; (ii) ensure that the pool of children that get promoted into Primary 6 are more likely to succeed in the national examination; and (iii) improve the learning environment in Primary 6 by reducing the number of pupils per classroom

Evidence shows that schools apply stricter standards to promotion in Primary 5 than in previous grades. This can be seen by comparing the proportion of children that get promoted in each grade, versus the proportion of children that reported having met minimum requirements to pass to the next grade. In 2016, evidence suggests that more children enrolled in Primary 1 to Primary 4 got promoted to the next level than the proportion of children who met minimum requirements to pass to the next level. This changes from Primary 5 onwards. Schools appear to be much more reluctant to let children in Primary 5 progress to Primary 6 if they do not meet the minimum requirements.

Finally, when asked, more children state that decisions about repetition are made by schools, rather than by pupils or their parents in Primary 5 than in preceding grades. Further, non-negligible proportion of head-teachers, 35%, explicitly say that the primary school leaving examination plays a role in Primary 5 repetition decisions.

CHILD/HOUSEHOLD FACTORS– The stakes of the national examination in Primary 6 are high not only for schools but for pupils themselves. The primary school leaving examination is key in determining which secondary school pupils will qualify for. Competition for the best secondary schools, especially schools with boarding facilities, is high and there is significant anticipation in the lead-up to the results each year, with pupils around the country eagerly awaiting the outcome. While the results are not binding for transition into secondary school, the national examination is the main allocation mechanism of pupils to

the best secondary schools. Further, most children only get the opportunity to attempt the primary school leaving examination once. While children have real incentives to repeat Primary 5, we have little evidence to support the child-side of the story.

Why do children dropout during the transition from Primary 6 to Secondary 1?

The transition point from primary to secondary school is where dropout rates are the highest. There are four key challenges for children associated with this transition: (i) learning barriers – many children do not have the required numeracy and literacy skills, in particular English, to make the transition successfully; (ii) the cost of secondary school education for poor households, which evidence shows is significantly higher than primary education despite the successful implementation of the 9- and now 12-years of basic education policy; (iii) a growing opportunity cost for children and households; and (iv) finally a supply-side problem, with too few teaching resources in secondary school to accommodate the very large population of children currently enrolled in primary school and gradually making its way to the transition point.

LEARNING BARRIERS – One of the key reasons children fail to make the transition to secondary school is because of learning barriers. In terms of numeracy and literacy abilities, many of the children enrolled in Primary 6 are not yet ready for secondary school. Data from the EGRA and EGMA-type tests, conducted during the child surveys, shows that many children entering Primary 6 have yet to fully assimilate the curriculum of previous grades. These children are at the highest risk of underperforming on the national examination and subsequently dropping-out of school. English literacy emerges as a particular area of concern, especially in rural areas. Gaps in the performance on the English assessment are very large between rural and urban areas, driving a wedge in the educational prospects of children depending on where they live. Children enrolled in Primary 6 in urban areas scored two times higher on the English assessment than children in rural areas. The average score on the reading comprehension questions was about 54% in urban areas, compared to just 27% in rural areas. These statistics suggest that more than two-thirds of children enrolled in Primary 6 in rural areas are not functionally literate in English. The English language barrier is closely associated to dropout in the transition from primary to secondary school.

NATIONAL EXAM - Low performance in Primary 6 – and by extension in the national examination – is strongly linked to dropout. In 2016, an estimated 60% of children who reported having failed to meet school-level requirements for Primary 6 dropped-out in the transition from primary to secondary. The worst performers in schools were also the most likely to skip the Primary 6 leaving examination, whether by choice or because schools discouraged them from sitting the examination. Only an estimated 56% of children who failed the school-exams went on to take the Primary 6 leaving examination, compared to 96% of children that did not fail to meet school-level requirements. Children can, in theory, progress to secondary school, without having passed the exam, but in practice a large proportion of children who fail or fail to register for the exam drop-out of school after Primary 6.

COST OF SECONDARY SCHOOL - According to households and children, the biggest barrier to entry into secondary school remains the aggregate cost of education, despite successful implementation of the 9/12-year basic education policy. Cost is mentioned as a leading cause of dropout across grades, but there is a notable jump in Primary 6 in the proportion of children that identified the cost of education – including costs such as the cost of school materials, uniforms, school feeding – as one of the main reasons that they dropped-out. The proportion of children that mention cost as barrier to entry is higher in the poorest households. The largest increase in cost is on non-tuition education expenditures, which triple on average between primary and secondary school.

The school-feeding program poses a significant challenge for children by creating a de-facto fee for children transitioning from primary to secondary. While the program has been a success in terms of the speed of its scale-up to the national level – all lower secondary schools in our sample reported providing lunch to students - it has created a significant new costs for students in secondary school and complex management issues to deal with at the school-level.

The opportunity cost of secondary education compared to primary, is another barrier children face in their transition.

Attending secondary school is a much more binding commitment: a) the required travel time to reach the nearest secondary school is generally higher (children enrolled in secondary school travel on average 3.3km to reach school, compared to 1.4km for children in primary school); b) children have to commit to much longer school days; and, c) children have to make a significant investment to do homework in after-school hours. These are trade-offs that might not always be compatible with the responsibilities and challenges that children face at home.

Cost item	Primary	Lower Sec	Change
Uniform	3,776	7,927	+4,151
School feeding program	58	3,129	+3,071
Notebooks	1,265	3,619	+2,354
Transport to school	13	787	+774
Bags	413	934	+521
Pens	471	967	+496
PTA fees	170	380	+210
Other supplies	54	199	+146
Books	34	100	+65
Voluntary contributions	187	213	+26
Total (RWF)	6,440	18,254	+11,814

ACCESS TO SECONDARY SCHOOLS - Rwanda has invested significantly in expanding physical and human resources in secondary education over the past few years, but the low supply of secondary education remains one of the main factors contributing to the high dropout rates observed in the transition from primary to secondary school. The supply-side of the story does not appear to be the most binding constraint to the educational progress of children at the moment. However, future projections, based on educational targets, suggests that insufficient resources in secondary education will very soon become one of the biggest challenges facing Rwanda’s education sector.

Why do older girls drop out of school?

Girls aged 16 and above, are more likely to be out-of-school than boys, particularly in rural areas. In 2017, in rural areas, girls aged 16 to 18 were about 8 percentage points more likely to be out-of-school than boys. In urban areas girls and boys aged 16 to 18 were equally likely to be enrolled. We find that girls

drop out of school after the age of 16 not because of performance in school but rather, because of their social and family environment, which puts pressure on them to discontinue their education. Moreover, existing social norms and gender stereotypes, social expectations, and the value that families appear to place on the education of boys compared to girls all seem to discourage girls from continuing their education.

PERFORMANCE - We find that while there are differences in the educational performance of girls and boys that contribute to differences in enrolment rates, learning is not the main reason girls aged 16 to 18 are out-of-school. Ironically, one of the factors contributing to lower enrolment rates for girls aged 16 to 18 is the fact that girls reach the Primary 6 milestone faster than boys. In 2017, an estimated 57% of girls aged 16 had previously attended Primary 6, compared to just 44% of boys. This is a large difference in the context of an education system that leads to girls dropping out-of-school - by failing to make the transition to secondary school - earlier-on than boys. This gender gap in transition rates is not driven by lower educational performance of girls.

PREGNANCY & MARRIAGE - Although there is a perception that pregnancy and/or marriage are a major cause of dropout for girls in later stages of their educational trajectory, this is not the case for girls in the 16 to 18 age group. According to data from the child survey, only an estimated 1.3% of girls aged 16 to 18 reported ever having been pregnant. Pregnancy and marriage were also not mentioned, by either girls or parents, as a major cause of dropout or a reason for not re-entering school after having dropped-out in our child and parent surveys. While pregnancy and/or marriage are not one of the main drivers of dropout for the 16 to 18 age group, evidence suggests that they are likely to be a key cause of dropout and prevent re-entry for older girls still enrolled in primary or secondary school as pregnancy rates increase quickly after the age of 18.

GENDER BIAS - Evidence suggests that parents, and communities more broadly, tend to prioritize the education of their sons and daughters differently. Social expectations within the household are different for girls than they are for boys and it appears that the household plays a bigger role in decisions about dropout and re-entry for girls than it does for boys, particularly in rural areas. When asked who participated in the decision for them to dropout in our child survey, out-of-school girls in rural areas, aged 16 to 18, were about 9 percentage points more likely to mention their parents than boys were. Parents also appear to have marginally lower educational aspirations for their daughters. Finally, evidence seems to suggest that girls aged 16 to 18 drop-out when there are a greater number of younger siblings of schooling age in the household.

These underlying biases and the differences in gender roles with respect to the family are laid to bare when there is a shock in the family. The education of girls seems to suffer more from the loss of a parent, than the education of boys. The death of a mother is associated with a 13.5 percentage point drop in enrolment for girls, compared to an 8 percentage point drop for boys. Similarly, the death of a father is associated with a 10.5 percentage point drop in enrolment for girls, compared to no significant difference in enrolment for boys. Other changes to the structure of the household, such as the birth of a child, also affects girls more than boys. The birth of a child in a rural household over the previous 12 months, for

example, is associated with a 25-percentage point drop in enrolment rates for girls aged 16 to 18, compared to no significant change for boys.

System Level Barriers at the National and School Levels

Dynamic Effects of Target Setting

The administrative mechanisms surrounding dropout and repetition are vital for deciding on and communicating education sector priorities and targets, delegating roles and responsibilities to different actors and developing effective monitoring and reporting systems. While there is a strong, target-driven administrative structure in place, the way targets are currently set can lead to unintended effects. We find that some of the targets outlined in the Education Sector Strategic Plan for the 2013/14-2017/18 (ESSP) period do not take into account the dynamic nature of the education system: some are mutually incompatible, and others are nearly impossible to achieve, or lead to effects that go against the stated objectives of the ESSP. It is possible that the current target-mix at the national and more decentralized levels might be contributing to non-desirable educational outcomes.

For example, a simple model of the education system shows that if ESSP dropout and repetition targets ESSP had been implemented as per the targets, it would have led to an unrealistic wholesale shift in the structure of the primary education system in the space of just a few years. There would have been a dramatic reduction in the number of students enrolled in Primary 1 and a shift of students into the upper primary years. To achieve this would require either all the school readiness and learning challenges highlighted in the sections above to have been solved, or to disassociate grade promotion from learning, an undesired policy outcome. Further, some of the targets of the ESSP are internally inconsistent. For example, it is virtually impossible to achieve a drastic reduction in the Gross Enrolment Rates, while at the same time achieving a large reduction in dropout rates. The target gross enrolment rate of 100% would mean that there were no children outside of the 7-12 age bracket enrolled in primary school. To achieve this target, any children who have accumulated delays in their education - through late start, repetition or dropout and re-entry – would either: a) have to dropout of school; b) be discouraged from re-enrolling if they have yet to finish primary school and have previously dropped-out; or c) would have to successfully transition to secondary school.

Pursuing a policy of reducing over-aging - and consequently also reducing the GER - is incompatible with a policy of also reducing dropout. These two targets are almost impossible to achieve together. This leads to important policy dilemmas as to what is more important: targeting better quality and lower costs, through a reduction in the Gross Enrolment Rate and over-aging, or targeting a greater equity and longevity for children within the education system, by reducing drop-out rates.

Targets at School Level

Targets that are set at the national level and communicated through to the school level are translated into school-level targets. Schools then implement rules to achieve these targets. We find that the rules surrounding grade repetition, dropout and enrolment are varied and not unified across different schools.

Evidence suggests that many schools do not have formal rules in place regarding grade repetition and that for those that do, repetition targets vary by school. For example, some schools allow a student to repeat only once, whereas others allow a student to repeat multiple times resulting in different educational trajectories for students with similar levels of learning. With regards to dropout, evidence suggests that schools have similar dropout targets, but inconsistent rules surrounding how many absences children can accumulate before being considered to have dropped-out.

Effective Monitoring

The EMIS system is the main mechanism through which dropout and repetition is monitored. This system provides valuable information but has several limitations the consequence of which is that MINEDUC cannot respond in real-time to changing trends or new challenges in the education system.

The current system of data aggregation also means that it is impossible to analyze data at the school level to look at the relationships between school indicators (such as class size or teacher turnover) and dropout/repetition. Further, the current method for defining and calculating dropout at the national level gives only a partial picture of the dropout issue. This is because schools report not having a specific rule or cut-off to decide when a child is considered a dropout, raising the possibility that the problem of dropout is being under-reported by schools or that enrolment levels are being over-stated. Furthermore, schools fail to capture any information on re-entrants, which means that the number of dropouts is really a measure of the number of drop-outs minus the number of drop-ins. This obscures the picture, providing artificially lower dropout rates if there are high drop-in rates.

Most schools identify dropout after a period of prolonged absence. Among these schools there is very little agreement on the length of an acceptable absence after which a child is considered a dropout. This is important firstly because it does not allow for children to be identified as “at risk” before the dropout event and secondly, because the longer the period of absence, the more school the child will miss and the harder it will likely be to find and re-enroll the child. Regular monitoring of attendance is important given that this is the primary way to identify dropouts. Taking daily attendance using a standardized register is an established practice in the vast majority of schools. Despite this, there are not consistent processes in place to compile and review these records regularly. This is important if the records are to be effective in the identification and monitoring of students at risk of dropping out. Schools keep historic data on whether children have previously dropped out or repeated however this does not appear to be sufficient to ensure effective follow-up; we find that only 72% of schools that have records are confident in identifying dropouts and their households.

Finally, there is a large information gap when it comes to the schooling background of children who have transferred between schools. Only 40% of schools know if a student transferring in has previously dropped out. This is very important as it means that it is very difficult to identify at-risk children who have transferred- a vital pre-requisite to targeted support.

Policy Recommendations

A set of policy recommendations are proposed. The policy recommendations outlined in this section stem from the key challenges identified in the data analysis presented above, key stakeholder consultations, and review of global best practice.

The Government of Rwanda has undertaken many policies to increase access and quality of basic education. This has been evident in the improvement of enrollment, timely entry and survival rates over the past decade. However, the system, as we have seen, is in flux. Net enrolment rates of well above 100 percent in primary grades have impacted the structure and dynamics of the education system. Achieving higher efficiency, equity, and quality with the current resources available to MINEDUC will need a more complex, targeted, and coordinated policy-mix. Trade-offs are required to ensure that repetition in the first years of Primary education and in the years preceding the transition to Secondary education are addressed, while the number of students dropping-out of school after the age of 13 is minimized. Here, we provide a brief set of policy recommendations that are not meant to be prescriptive but, at the very least, try to foster debate on some difficult decisions about prioritization and the allocation of resources in the education sector.

Ten key recommendations for how to strengthen the policy framework so that MINEDUC may better address dropout and repetition are proposed. The recommendations focus on strengthening the enabling environment and addressing supply-side, demand-side, and quality side barriers. In particular, we recommend policies and policy actions that seek to:

Improve the Enabling Environment, through the:

- 1. Strengthening of policies at the national-level:** Currently, there is no overarching national policy that explicitly addresses the issues of dropout and repetition in Rwanda. Thus, this report recommends a new national policy framework to address dropout and repetition. The policy should take into consideration the following:
 - Set internally-consistent national and school-level targets for dropout and repetition;
 - Create inter-ministerial coordination mechanisms;
 - Consider revising the formula on the school capitation grant to include proportional increases to capitation grants for schools based on factors that may increase the likelihood of repetition and dropout for certain groups;
 - Re-evaluate the current school feeding programme in secondary education;
 - Strengthening teacher recruitment; and
 - Revise the Special Needs and Inclusive Education policy.

- 2. Development of consistent national-level definitions on dropout and repetition, and provide systematic guidance on when and how to apply repetition for individual children:** In order to achieve the first recommendation, it is necessary to have national-level definitions and guidance

for all schools and education stakeholders to adhere to to ensure sound monitoring. To that end, the following activities are proposed:

- Harmonize the definitions and rules to track attendance, dropout, repetition, and enrolment at the school-level;
- Clarify and standardize the rules governing repetition and tracking of attendance, dropout, repetition, and enrolment at the school-level;

3. Improvement of systems for collecting, managing, analyzing, and monitoring education data, including data on repetition and dropout: In order to provide relevant and accurate information to policymakers and school administrators, the national policy proposed above should lead to a plan to provide more timely and accurate data on the situation of the education sector and, in particular, of repetition and dropout. It should also provide information on progress towards achieving targets and objectives, as well as facilitate information sharing and coordination between all relevant institutions in the education sector. To that end, the following is recommended:

- At both the national and school levels, strengthen overall educational data input and information management systems, from the Ministry and all the way down to the school level to: (i) provide more accurate, timely statistics on dropout and repetition; and (ii) provide real-time information about these issues to school administrators by:
 - Improving data management systems for the existing Education Management Information System (EMIS) by:
 - Creating a master database which includes all EMIS variables by school and year;
 - Ensuring calculations of promotion, repetition and dropout rates are based not only on information provided by schools in one year, but a comparison of information across years; and
 - Increasing the frequency of reporting to once-per term for key statistics, improve data collection processes and technologies, and automate the analysis using a structured dataset, so that results can be produced and shared more rapidly and at a more disaggregated level;
 - Investing in migrating the current EMIS onto a professional IT platform for better information management;
- Coordinate with Government agencies to provide each school and each child with a unique identification number;
- Introduce additional metrics related to dropout:
 - Introduce a measure of re-entry;
 - Introduce a measure of dropout during the year
- Ensure consistent monitoring and reporting procedures for school attendance are in place in all schools and that attendance data is reported to and aggregated at national level.

4. Improvement of systems for identifying and monitoring children at-risk of repetition and/or dropout: Given the results of the study, simple measures can be taken to develop tools that aid educators in identifying and monitoring children who are at risk of repetition and/or dropout. The following activity, therefore, is recommended:

- Develop a scorecard that can be used by schools to identify at-risk children who are likely to repeat a year or drop out of school: Such a scorecard could be developed using reliable data on trends around repetition and dropout in Rwanda and could help identify key variable sets that provide accurate classifications of children who may be at risk of repeating or dropping out;
- Develop a Referral Pathway for Children with special education needs to ensure systematic support for these children: A national-level system for referral should be developed whereby when a teacher suspects a child has special education needs the child can be systematically referred to the appropriate social sector worker or service for identification and treatment.

Improve Supply-Side Barriers, through the:

5. Launch of a national programme with targeted interventions to reduce dropout and repetition:

To address some of the key determinants of dropout and repetition, MINEDUC should design a national programme aimed at reducing dropout and repetition. This programme should lay out a portfolio of targeted interventions to address the key drivers and determinants of dropout and repetition identified in this study. The programme would be a key pillar of the implementation of the national policy on repetition and dropout and should seek to:

- Implement targeted learning support programmes for at-risk children who are likely to repeat or drop-out;
- Develop a programme to deploy Community Education Workers in each village; and,
- Consider geographically targeted interventions, especially for the urban poor.

6. Introduction of interventions to target remaining gender barriers in education for boys and girls, particularly among the poorest families:

Gender barriers continue to impact boys' and girls' education. At primary school age, boys are more likely to repeat and dropout, however around age 14 the dropout rate for girls surpasses that of boys and girls become more likely to not be enrolled in school. It is recommended to:

- Launch a national communications campaign to raise awareness on gender issues in education;
- Improve teachers' skills around gender sensitive pedagogy; and
- Increase coordination between schools and social services through stronger referral protocols: Having stronger community- or school-level protocols to connect girls and boys facing extenuating family difficulties to social services may help to alleviate gender barriers

7. Increase of access to pre-primary education for improved school readiness for all Rwanda children to mitigate repetition:

The first years in the educational trajectories of children in

Rwanda are fundamental in determining their future progression through the education system. The importance of addressing late entry and repetition in the early grades of primary school – particularly in Primary 1 – cannot be overstated as a pre-emptive measure to reduce future dropout and improve the efficiency in the education system in Rwanda. To address these issues, the following set of policy actions are proposed:

- Take steps to promote on-time entry – at age 7 – into Primary 1;
- Take steps to bring late-starters into the system and provide targeted remedial support;
- Encourage the expansion of formal/informal pre-primary, and strengthen early childhood education, specifically in rural and low-income areas, as a way to improve school readiness; and
- Strengthen the collaboration amongst ministries in the Social Cluster¹ to promote school readiness and early childhood development.

Improve Demand-Side Barriers, through the:

8. Increase of household support for and parental engagement in education: Parental involvement and the home environment are important correlates of repetition and dropout. We recommend testing interventions that can help parents – particularly those from low-income households – to create more conducive home environments for learning. MINEDUC should consider developing programmes that:

- Inform and sensitize parents on the importance of being actively involved in the education of their children;
- Provide support mechanisms to uneducated parents that can enable them to assist their children with their school work;
- Strengthen parent-teacher associations; and
- Raise awareness on the children and their right to education

9. Re-evaluation of the purpose of the Primary 6 examination and implications for students who do not perform well: Repetition rates in Primary 5 are unusually high compared to all other primary school grades, except for Primary 1. Unlike repetition in Primary 1, which is linked to low levels of learning and school readiness, repetition in Primary 5 seems to be mostly driven by strategic decisions by children, parents and/or schools, because of the Primary 6 national examination. To address these issues, it is proposed to:

- Reduce the stakes of the Primary 6 national examination by not using it as a national allocation mechanism for secondary schools: The Primary 6 examination is logistically and financially burdensome to implement. The cost of the examination is further augmented by the very large cost to the education system of high repetition in Primary 5. Finally, the Primary 6 examination cements the existing learning gap between urban and rural areas,

¹ The Social Cluster is a working group of high-level ministry officials from MINEDUC, Ministry of Health (MINISANTE), Ministry of Local Government (MINALOC), Ministry of Gender and Family Protection (MIGEPROF), Ministry of Youth, Ministry of Sports and Culture, and the Local Administrative Entities Development Agency (LODA) set up to increase coordination among ministries and government agencies in charge of social issues (e.g. education, health, etc.).

and low- and higher-income families, by ensuring that the best performers (who are much more likely to live in urban areas and come from better-off households) are also the children that make it to the best secondary schools.

Improve Quality-Side Barriers, through the:

10. Increase of the capacity of primary school teachers for improved quality of education: High repetition rates, and evidence of low learning outcomes, even after repetition, signal challenges related to quality of teaching, particularly, but not exclusively, in early grades. In addition to improving the resources available to teachers and lowering their work load through improved teacher-to-pupil ratios, it would be beneficial to strengthen professional development opportunities for primary school teachers and improving their quality by:

- Providing teachers with opportunities for capacity development and in-service training to increase the quality of teaching and address learning issues and teaching practices in the classroom;
- Promoting Inclusive Education: Teachers should have the capacity to identify children with special education needs, and then refer them to the necessary social service worker for identification and treatment, as necessary. Teachers should also have training and capacity to plan and deliver inclusive education, which meets the needs of all students; and
- Implementing programmes to support teachers in the transition to English instruction in upper primary education:

1. Introduction

Basic education serves as one of the foundational pillars for growth and development in any society. In Rwanda, a country whose dense population is young and growing, the question of how to provide high quality education for all is central to its economic future. Through its Vision 2020 document, the Government of Rwanda has emphasized the importance of skilled human capital in transitioning away from subsistence agriculture towards a knowledge based economy.

Over the past two decades, the Government of Rwanda has undertaken major policy reforms aimed at increasing access to and improving the quality of basic education. The first objective, to increase access to education, was achieved through the adoption of free and compulsory 9- year basic education (9YBE) and later, 12-year basic education (12YBE). The current focus on quality has been driven by the introduction of English as the primary language of instruction from upper primary school onwards, the implementation of a new competence-based curriculum and the integration of ICT into the classroom. To date, these ongoing policy reforms have recorded great successes. Notably, enrolment, timely entry and survival rates in basic education have all significantly improved since the reforms were launched.

While these important policy initiatives have set a new and ambitious course for the education system, ensuring their successful on-the-ground implementation remains a key challenge facing Rwandan educators. At present, we see a system in flux. The successes recorded in improving access, demonstrated by net enrolment rates of close to 100 per cent in the primary grades, have changed the structure and dynamics of the education system. While we see very high levels of enrolment in early years, challenges emerge as these pupils progress through their educational trajectory. Repetition is frequent in the first years of primary school, and in the years preceding the transition to secondary school, and we see that students increasingly start dropping out of school after the age of 13. How, having largely achieved the goal of improved access, can policy makers ensure that the students now in school are both learning, and moving through the system until graduation?

It is against this backdrop that MINEDUC, with the support of UNICEF, commissioned Laterite to perform an assessment of dropout and repetition in Rwandan schools. The main objective of this project is to support MINEDUC and other stakeholders in the education sector to generate new insights on the causes of grade repetition and dropout that will help inform the development of evidence-based policy options to increase retention, completion and the overall efficiency of the education system.

This study takes an innovative approach to understanding the current state of Rwanda's education system. We have compiled the educational histories of over 8,000 Rwandan children from across the country allowing, for the first time, analysis on how individual children have transitioned through the education system. This uniquely constructed time-series

data allows us to develop a rich understanding not only of the drivers of dropout and repetition at different stages in children's educational trajectories, but also, the dynamics of the education system.

Furthermore, we focus not only on the child, but include detailed contextual information from their schools, communities and families. Using data from interviews with children, their parents/guardians, their head teachers and their village leaders, we are able triangulate our findings on the drivers of dropout and repetition from four sources capturing the complex interactions between the child, home, school and community that shape educational outcomes.

The following report is structured into seven chapters. **Chapter two** lays out the study's methodology and framework. **Chapter three** summarizes some key stylized facts, and underlying determinants and trends of repetition and dropout rates and their implications on the structure of basic education in Rwanda. **Chapter four** provides detailed profiles of children who drop out, who repeat, and who start their education late. This chapter focuses on their individual characteristics, their household characteristics and other contextual characteristics to provide a picture of their personal circumstances and how it relates to their educational trajectories. **Chapter five**, elaborates on key drivers or barriers at specific points in the educational trajectory of children in Rwanda that leads them to repeat grades or drop out of school. **Chapter six** discusses some system-level barriers related to the setting of policy targets and objectives, as well as to defining, monitoring and reporting repetition and dropout. Finally, **Chapter seven**, proposes some policy recommendations to tackle the barriers and challenges involving repetition in dropout identified in this report.

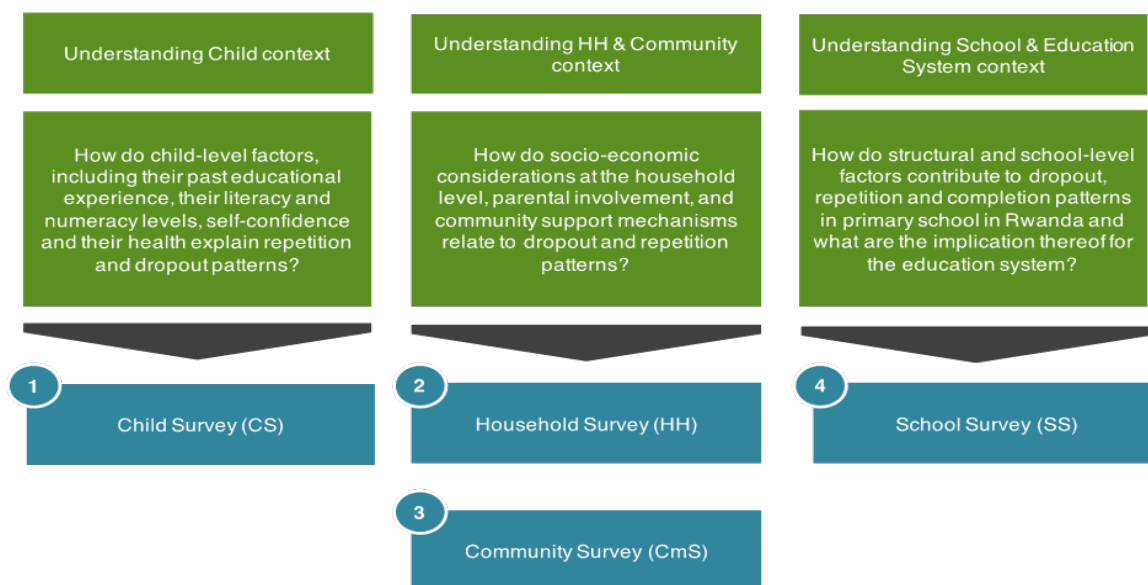
2. Methodology

2.1. Overview

The findings presented in this report are based on nationally-representative data collected in each of Rwanda’s thirty Districts. To understand the complexity of the phenomena of repetition and dropout, we used four survey instruments that allowed us to observe and analyze the relative importance of different contexts in affecting dropout and repetition. We look at how the individual, household, school and community contexts interact with each other to determine whether a child may repeat a grade or dropout of school (either temporarily or permanently). Final questionnaires were developed with extensive feedback from MINEDUC, and UNICEF. Altogether, we conducted four quantitative surveys:

- **Child Survey (CS):** administered to all children between the ages of 6 to 18, inclusive, in selected households;
- **Household Survey (HH):** administered to a parent or guardian in selected households;
- **School Survey (SS):** administered to head teachers at schools in the selected cells; and
- **Community Survey (CmS):** administered to the village leader or social affairs leader in the selected villages.

Figure 2.1 Research question and hypothesis



In addition, and to gain additional insights into dropout and repetition, we conducted a series of qualitative semi-structured interviews (SSIs) and focus group discussions (FGDs) with children, their parents, and school teachers. Children and their parents were interviewed through semi-structured interviews (SSIs) and teachers through focus group discussions (FGDs).

Qualitative work followed initial analysis of the quantitative data from the child, household, school and community surveys. The main reason for this sequencing was to investigate more deeply the findings uncovered during the preliminary analysis of the quantitative data, which identified important trends and correlates of dropout and repetition. Our qualitative research aimed at understanding the reasons behind some of these key trends and correlates- the “why” and “how” behind the statistics presented in the quantitative analysis. This qualitative research provided textured, contextual information that helped situate the quantitative findings and ground the trends we found with specific examples, and stories – where relevant – from children, their families and teachers.

2.2. Sampling Strategy

2.2.1. Sampling Strategy for Quantitative Surveys

The primary sampling strategy consisted of a three-stage cluster sampling approach, with stratification at the District and urban/rural levels. We used random sampling with proportional probability to determine the number of cells to select within each stratum (Districts, divided into urban/rural areas), and then randomly selected 5 villages per cell and 8 households per village.

Table 2.1 Sampling Parameters

Administrative Level	Sample	Survey	Sample Size (n)
District	All Districts	Child Survey	8,122
Cell	90 Cells	Household Survey	3,608
Village	450 Village (5 in each Cell)	School Survey	155
Household	3600 Households (8 per village)	Community Survey	449

Sampling for each of the four surveys took place concurrently although the target populations for each of the four surveys was different. The final sample selection strategy was determined by using population modelling and Monte Carlo simulations to compare differences between alternative operationally and financially feasible sampling strategies. By modelling the structure of Rwanda’s schooling population, using evidence from the Integrated Household Living Conditions Survey 4 (EICV 4) data (National Institute of Statistics of Rwanda (NISR), 2016)¹ and some rules and assumptions about the distribution of data at various levels of geographic aggregation, our objective was to create a hypothetical population that closely mimics the actual schooling population of Rwanda. The precision of a given sampling strategy was then measured using an estimate of the margin of error. Variables of interest, for which the margins of error were calculated, included: enrolment, repetition, dropout and promotion.

¹ Collected between October of 2013 and October of 2014 by the National Institute of Statistics of Rwanda (NISR).

While the sample size of over 8,000 pupils provides a relatively high level of precision at the national level, our analysis frequently required us to break the sample into many sub-groups – looking at trends by age or grade level, for example. If findings were deemed to have too little statistical power, we have removed them from the report or looked at several years of trajectory data to obtain a higher level of precision.

The sampling for the child and household survey took place concurrently. First, we selected 450 villages stratified at the District level and between urban and rural areas of the district to ensure representation. Within each village, we worked with village leaders to prepare a household list for each village, and from this list, we randomly selected 8 households to participate in the survey after ensuring that the chosen family had at least one child living in the household aged 6 to 18. At each of the selected households, all children in the qualifying age range were interviewed along with the household head. This age range corresponds to the range within which children in Rwanda are expected to be in primary and secondary school. This age range was selected after consultations with MINEDUC and after taking into consideration the budgetary constraints for this survey.

EICV 4 data shows that 93% of primary school students are between the ages of 6 to 18.² As such, we are confident that our sample provides an accurate representation of children in primary school and for children in transition between primary school and lower secondary school. However, a direct implication of using this age range as a qualifying criterion for the child survey is that this study does not provide information on the full spectrum of students in Rwanda's basic education system (primary and secondary school). This is because of overaging in Rwanda's basic education system. To provide some context, according to Rwanda's EICV 4 data (National Institute of Statistics of Rwanda (NISR), 2016), more than 50% of students in lower secondary school were above the age of 17 in 2014 and hence many years overaged. This means that using a cut-off at age 18 excludes many children still in the basic education system.

While our data provides good estimates for children in primary school and in the transition to lower secondary school, the sample is not representative of all students in lower or upper secondary school; representativeness is restricted to the 6 to 18-year-old range in those grades. The study also does not provide representative statistics at the grade level for all children in each grade; rather it provides insights on grade-level dynamics only in so far children aged 6 to 18 are concerned.

For the school survey, all primary and secondary schools within each of the 90 cells chosen were selected for interviews, corresponding to a total of 155 completed surveys. Only primary or secondary schools were chosen for the headteacher interviews as the purpose of the survey was to match children with the schools they were likely to attend.

It is important to note that sampling power is relatively low at the school-level. While the data is nationally representative, in that it was collected from all schools in 90 Cells across the country, we do not have sufficient statistical power in the school sample to make accurate estimates and generalizations about school-level statistics at the national level.

² While the population structure has changed since then, the proportion of primary school students falling within that age range has remained relatively unchanged.

For the community survey, community leaders (*umudugudu* leaders) or the social affairs focal points within each of the 450 chosen villages were contacted for interviews.

Fieldwork for the quantitative surveys took place between February and April of 2017. Household and child survey data was collected between mid-February and mid-March 2017. Data from the Head teacher and community surveys was collected at the end of March and during April of 2017. Collecting data after the start of the 2017 school year – mid-January 2017 – allowed us to get data on enrollment in the 2017 school year, as well as calculate dropout rates for 2016.

2.2.2. Sampling Strategy for Qualitative Interviews

For the SSIs, we chose respondents in our child survey sample from two rural districts, and one district in Kigali: (i) Ngoma, (ii) Gicumbi, and, (iii) Gasabo. The two rural districts in our sample – Ngoma and Gicumbi – had middle to low levels of dropout and repetition rates. The urban district in our sample, Gasabo, in Kigali, had the highest rates of both repetition and dropout of the three districts in Kigali. We selected these districts as we considered that they would provide us with a wide variety of opinions and views that would allow us to better capture the complexity of repetition and dropout in rural and urban areas of Rwanda.

We limited the age range for children participating in SSIs to 13-18 year of age, as older children are further along their educational trajectory and are more likely to be able to provide insights into reasons for repetition and dropout at different points throughout their educational trajectory. Finally, given that, as we will see later in this report, dropout is more prevalent for children in the 13-18-year-old age group, the perceptions of children in this age group are particularly interesting. For each child selected for to be part of the SSIs, we interviewed one of their parents or guardians, making it possible to triangulate the findings and build a more comprehensive understanding of the causes of repetition and dropout. A total of 46 SSIs for 23 households (i.e., 23 children and 23 parents) were conducted, distributed across topics of interest, gender, and location (rural/urban). The number and distribution of interviews per location is specified in Table 2.1.

The purpose of the FGDs was to collect perspectives and impressions from teachers about their experiences and knowledge of factors affecting repetition and dropout. To collect information about these phenomena in primary school – since we did not conduct any SSIs with primary school-aged children – our final sample for FGDs was divided into: (i) three FGDS with 10 teachers who teach in different grades of primary school; and, (ii) one FGD with 10 teachers of lower secondary school. We selected a mix of teachers from all grades for each of the levels (primary or lower secondary) to get insights into what happens at different grades. See ANNEX 2 for more details on the composition of FGDs.

Interviews for the qualitative component of the study, for both SSIs and FGDs, took place in the last week of July and the first week of August 2017.

2.3. Overview of Main Research Instruments

2.3.1. Quantitative Survey Instruments

The main objective of the child survey was to collect information about each child between the ages of 6 to 18, focusing on three key modules, namely: (i) the child's educational trajectory, (ii) a literacy and numeracy³ and socio-emotional assessment⁴, and (iii) information on a child's attitudes, aspirations and perceptions. The main objective of the household survey was to collect information about the household context in which the children interviewed live, including household resources, perceptions, attitudes on education, and how these factors relate to repetition and dropout.

A unique feature of the child survey is that it included a module which recorded the educational trajectory of each child. The education trajectory asks children about key events in each year of their education (promotion, repetition, dropout during and between years, change of schools and late entry), from the very start of their education until 2017. Enumerators worked closely with students and their parents to reconstruct their educational trajectory, and double check its accuracy. The key to studying repetition and dropout patterns is understanding a child's experience moving through the education system, not just observing a snapshot at one point in time.

The main objective of the household survey, which was administered to a parent or guardian, was to understand the situation at home of the children interviewed. This survey looked at the educational achievement of household members and their attitudes and perceptions about the importance of education. It also collected information on health, disability, and the socio-economic status of the household. One of the key modules of this survey focused on schooling costs, collecting disaggregated information on direct and indirect costs relating to the schooling of children.

The main objective of the school survey, which was administered to headteachers, was to provide contextual information on school-level variables that may be linked with repetition and dropout. The school survey provides data that helps us better understand how some structural and school-level factors contribute to dropout, repetition and completion patterns in primary school in Rwanda. The data includes insights on: (i) the number of students and teachers by grade; (ii) academic and administrative policies in the school; (iii) material and human resource constraints; and, (iv) the causes and consequences of repetition and dropout from the perspective of headteachers.

The community survey provides information on the community context in which repetition and dropout take place and focuses on relevant community-level variables to determine if there are any relationships with the schooling trajectory of

³ The assessments were based on EGRA and EGMA assessment tools developed for the program evaluation for Literacy, Language and Learning Initiative (L3) (Education Development Center, 2017) and the Soma Umenye Project, slightly modified for our study's needs. The literacy assessment measured reading comprehension skills only, and the numeracy assessment tested basic mathematics skills. We thank USAID, EDC, and the Soma Umenye Project for sharing these tools with us.

⁴ For the socio-emotional assessment (for 6 and 7 year olds) we used the socio-emotional items of the Kinyarwanda version of the IDELA assessment (Pisani, et al., 2015). We thank Lauren Pisani from Save the Children for providing these materials.

children living in those communities. Focus areas of interest include: (i) basic information about the community; (ii) access to services; (iii) attitudes towards education; and (iv) community mechanisms to deal with dropout and repetition.

2.3.2. Qualitative Survey Instruments

The child and parent SSIs aimed to collect information on the experiences and perceptions of parents and children who had experience different educational trajectories. The reason for this was so that we could delve deeper into some of the reasons behind educational events of interest during their educational trajectory, namely instances of repetition, dropout (transitory and permanent), and re-entry. Children were purposefully selected based on their school trajectories identified from the quantitative child survey. For each selected child, we also interviewed one of their parents.⁵

We developed SSI guidelines to better understand the circumstances and motivations behind specific educational events that each child in the qualitative sample had experienced. The main types of trajectories and educational events that the SSIs focused on included: (i) a currently enrolled child who had repeated school in the past; (ii) a currently enrolled child who had dropped out and re-entered in the past; (iii) an out-of-school child who had repeated school before dropping out of school; (iv) an out-of-school child who was enrolled at some point but, dropped out and had not re-enrolled in school. All SSIs included questions on the child profile and perceptions about education, and, depending on the type of event, questions about the time(s) they repeated, dropped out or re-entered.

The objective of the FGDs was to collect some perceptions and perspectives from teachers about the causes and context of repetition and dropout in their schools. The discussions followed general guidelines that asked the groups about their opinions and experiences as teachers and what they considered to be some of the underlying reasons why children in their schools repeat, why they drop out, and what drives some children to re-enter after they have dropped out. We also asked them about school-specific circumstances, policies and practices that may affect whether a child repeats grade at specific points (e.g. during primary 1 or primary 5), or may lead some children to drop out of school.

2.4. Conceptual Framework

The analytical framework adopted in this study is inspired by the UNESCO/UNICEF ‘Five Dimensions of Exclusion’ (5DE) approach (UNICEF and UNESCO Institute for Statistics (UIS), 2011). The 5DE approach consists of segmenting the population of children of schooling age into five different groups, based on their age and schooling situation, namely whether they are out-of-school or at risk of dropping-out of school. For children that are out-of-school the model distinguishes between children that have attended but dropped-out, will enter school late or will never enroll.⁶ For children that are at risk of

⁵ All SSIs and FGDs were conducted in Kinyarwanda.

⁶ The 5DE framework categorizes children using predictions about their expected probability of attending school and never enrolling based on strong assumptions based on national averages.

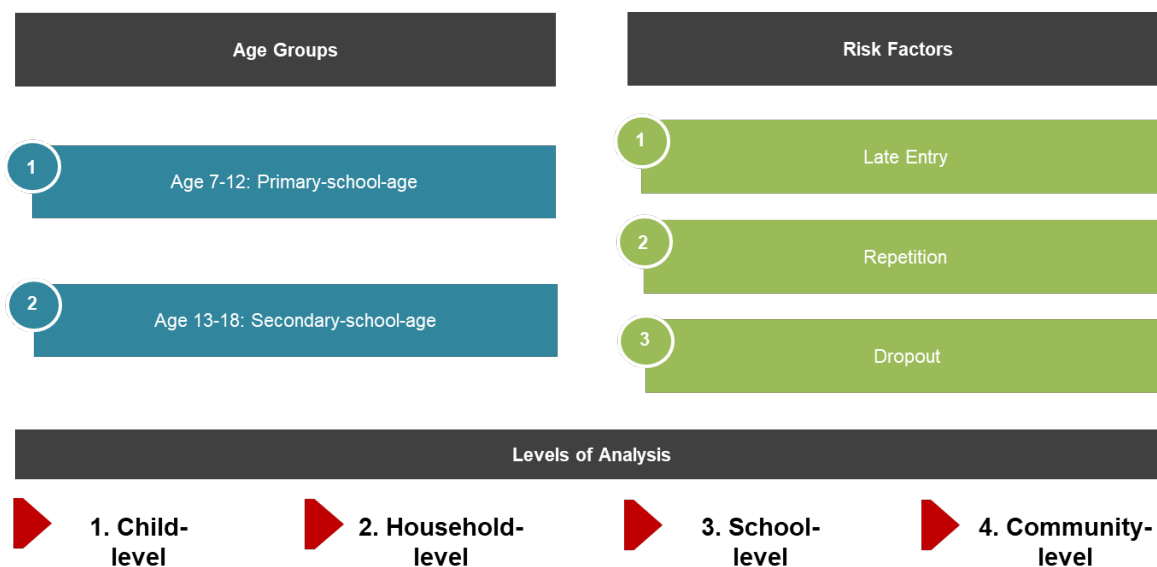
dropout, the model looks at risk factors linked to attendance. The five groups or what are referred to as “dimensions” in the 5DE framework are summarized in Table 2.2, below.

Table 2.2 Analytical dimension in the 5DE approach

Categories	Out-of-school	In-school, but at risk of dropping-out
Pre-primary aged children (6 or below)	Dimension 1	
Primary-school aged children (7 to 12)	Dimension 2	Dimension 4
Lower-secondary school aged children (13 to 15)	Dimension 3	Dimension 5

Given the target age group (children aged 6 to 18) and the key purpose of this research – better understanding dropout and repetition dynamics in Rwanda - we have modified the 5DE model to meet our analytic objectives (see Figure 2.2).

Figure 2.2 Analytical Framework



Age groups. First, we focus on similar age groups, that link to the age-grade structure of Rwanda’s education system. Where relevant, we report results separately for children in the following groups:

- (i) Children of primary school age: 7 to 12 years old;⁷
- (ii) Children of secondary school age: 13 to 18 years old; and, where relevant and where we have sufficient statistical power, we divide this age group into a lower-secondary school age group (13 to 15) and an upper-secondary school age group (16 to 18).

As we will see, there are stark differences between these age groups across various dimensions, and analyzing trends and determinants of dropout and repetition for each age group can reveal important insights when thinking about policies to address them.

A couple of things are worth noting. First, our sample does include children that are aged 6, and while the report will focus on the benefits of pre-school and starting school at a young age, pre-primary school age – or Dimension 1 – is not studied in this report. Second, the group of children of secondary school age includes both children of both lower-secondary (13-15) and upper-secondary (16-18) school-age. We include both groups in order to incorporate this latter age group into the analysis as there are children of this age still attending basic education in Rwanda.

Throughout this report, we will refer to children aged 7 to 12 as primary-school-age children, and children aged 13 to 18 as secondary-school-age children. Note that our classification into age groups (primary school age and secondary school age) is age-based, not grade-base; thus, it is important to keep in mind the difference between children who are of primary school age and children who are in primary school – which can and does include children of secondary school age, i.e. ages 13 to 18.⁸ We chose these age ranges to maintain, as much as possible, comparability with the 5DE framework.

Out-of-school status. In terms of the conceptual focus of the report, we study the out-of-school status of children as a dynamic process and not just as a binary distinction of being in-or-out of school at a particular point in time. We show throughout this study that in Rwanda, the out-of-school status of children is not necessarily a permanent status. Children often spend periods of time enrolled in school and out-of-school. For example, some children drop-out during the school year and re-enter immediately after; some children do not enroll in a given school year, but rejoin the education system at a later date; others start late; and others dropout and never return. The structure of the school trajectory dataset enables us to separately study those children who entered late, dropped-out and re-entered, dropped-out and never re-entered, etc. Note that in this study we do not focus on the category of children that have - or will - never enroll. In the Rwandan context, virtually all children in the 6 to 18 age-group have at some point been enrolled in school. Only an estimated 0.3% of children aged 18 in 2017 had never been enrolled in school.

Risk factors. We study the risk factors that may lead children to be out-of-school, making use of the school trajectory data, to show that key events that occur during a child's schooling trajectory often affect their in-school status down the line.

⁷ In Rwanda, children are expected to join primary school for the first time in the year they turn 7 (school years follow the calendar year; starting in January and ending in November).

⁸ Due to overaging in Rwanda's basic education system, the age range of children in different school levels varies widely.

Looking at these dynamics, we show that repetition and dropout are interlinked: children who repeat in early grades, subsequently dropout. Children who start late or who re-enter after having dropped-out are also at a much greater risk of dropout. These factors, combined with insights about children's background, their household, their school and community, provide for an in-depth understanding of which children are at the highest risk of being out-of-school.

There are a few more points worth noting. In this study, we define a dropout as a child who falls into either of the three following categories:

- (i) Children who completed the school year (year t), but failed to enroll in the subsequent year (year $t+1$);
- (ii) Children who dropped out during the school year (year t) and who did not re-enroll in the subsequent (year $t+1$); and,
- (iii) Children who dropped out during the school year (year t) and who did re-enroll in the subsequent (year $t+1$).⁹

We will also refer to a child as a permanent dropout if she was enrolled in any grade at least two years back but, has not enrolled back in school since. For example, we call a child a permanent dropout if that child was out-of-school in 2017 (i.e. did not enroll in school in that year) and was not enrolled in school in 2016 but, was enrolled in school in 2015.¹⁰

It is important to note that our definition of dropout is a broader definition than the definition that is currently used in the official statistics for the Education Statistical Yearbook by MINEDUC, as it captures not only what happens between years, but also what happens during a school year. In the Yearbook, the average dropout rate is defined as: *the share of pupils from a given grade or age group in time 't', that were not enrolled in school anymore in time 't+1'*. This definition defines dropout with respect to enrolment, regardless of whether a child attends school during the year or not.

As we move along, it is important to keep in mind that: (i) data from previous years – derived from the school trajectory dataset - are likely to be slightly more imprecise, due to the possibility of recall errors or errors in the reconstruction of the educational trajectory of children; and (ii) with each previous year, we lose one age group. In 2017, we have data on enrolment and grades for all children aged 6 to 18 in our sample. In 2016, these children were one year younger, so we only have data on 6 to 17 year olds. In 2015, we only have data on 6 to 16-year-olds and so forth. Therefore, if we want to present statistics over time, we have to limit our sample to the age group for which we have data in each of the years we are interested in.

⁹ Data from our surveys allows us to calculate dropout rates up to 2016; which includes dropout instances that took place either within the 2016 school year or between the 2016 and 2017 school years.

¹⁰ We chose the 2 year threshold is somewhat arbitrary but, it helps distinguish between an instance of dropout (which covers a single year) and instances where the length the child stays out of school may indicate that the child may stay out of school permanently or, at least, a length of time long enough that it represents a substantial break in her education trajectory. We favor the term permanent dropout over "out-of-school" as it highlights the fact that permanent dropouts have, at some point or another, been enrolled in school.

We structure this report around four key questions: (i) what are the driving underlying determinants that have shaped the basic education system in Rwanda which, as we will see, are closely related to repetition and dropout; (ii) who are the children dropping-out, or at risk of dropping-out; (iii) why are children repeating and dropping-out at crucial points of their educational trajectories; and (iv) what are the implications on the education system of targets and objectives, as well as data collection and processing methods on repetition and dropout. As mentioned above, throughout this report, where relevant and where our data allows, we focus on two groups of interest: primary-school-age children, and secondary-school-age children. We do this given the different dynamics and challenges related to repetition and dropout that each of these groups faces. For the groups of interest, we focus on the individual, household, school, and community context and how they shape group dynamics for repetition and dropout.

3. Dropout and Repetition: Stylized Facts, Underlying Determinants, Trends, and their Implications on the Structure of the Basic Education System in Rwanda

In this section, we provide a brief overview of some of the main stylized facts about out-of-school children in Rwanda, their underlying factors and the implications of these on the basic education system. This brief analysis provides insights on the current structure of the basic education system in Rwanda. It also underpins our conceptual and methodological approach, and the different age groups and risk factors for out-of-school children we focus on throughout this report.

3.1. Stylized Facts

There are four main stylized facts that illustrate the in- or -out-of-school status of children in Rwanda:

- (i) High enrollment rates: Virtually all children in the 6 to 18 age-group have at some point been enrolled in school.
- (ii) Out-of-school children in Rwanda are found primarily in the tails of the age distribution. Children are out of school because of:
 - a. Late start: Late start overwhelmingly affects children of primary-school-age, particularly the youngest among them. It is a temporary state as virtually all children in Rwanda enroll in school at some point.
 - b. Permanent dropout: Permanent dropout primarily affects children of secondary-school-age; particularly around the transition from primary to secondary education.
- (iii) Dropout rates are higher and re-entry rates are lower for older children (secondary-school-age) – “older children drop out”:
 - a. Dropout rates are relatively low and re-entry rates are high for primary-school-age children.
 - b. Dropout rates increase considerably and re-entry rates go down for secondary-school-age children.
- (iv) Repetition rates are higher for younger children – “younger children repeat”: Repetition rates are very high, particularly for primary-school-age children.

Dropout Rate

The dropout rate is defined as the share of children in school enrolled at time t that either: (i) completed the school year in t and did not enroll in $t+1$; (ii) dropped out during the school year in t and enrolled in $t+1$; (iii) dropped out during the school year in t and failed to enroll in $t+1$.

In Rwanda, high enrollment rates mean that virtually all children have, at some point or another, been enrolled in school. Only an estimated 0.3% of children aged 18 in 2017 had never been enrolled in school.

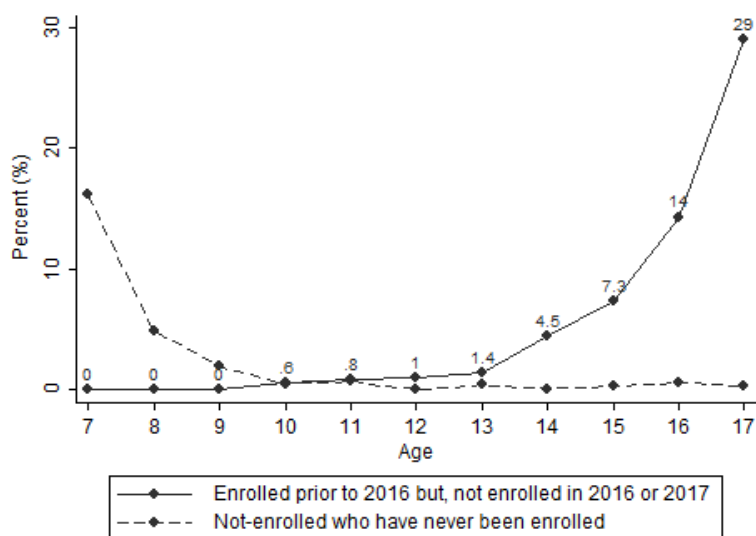
Due to the considerable efforts by the Government of Rwanda in the past few years, enrollment rates are quite high. Table 3.1 shows net and gross enrollment rates in primary education in Rwanda from 2012 to 2016 (MINEDUC, 2016).¹ Not only are net enrollment rates high, they have been increasing over the past five years reaching 97.7% in 2016 (MINEDUC, 2016).

Table 3.1 Net and Gross Enrollment Rates in Primary Education in Rwanda

	2012	2013	2014	2015	2016
Net Enrollment Rate (NER)	96.5%	96.6%	96.8%	96.9%	97.7%
Gross Enrollment Rate (GER)	123.2%	138.5%	134.3%	135.3%	139.6%
Source: (MINEDUC, 2016)					

The majority of children who are out-of-school are primary-school-age children who start school late, or secondary-school-age children who have dropped-out (permanent dropouts). Figure 3.1 shows this clearly; of all children who were out-of-school (i.e. not enrolled) in 2017, virtually all children between the ages of 10 and 12, had enrolled in school, while those between the ages of 7 and 9 and who had not enrolled will enroll at some point (late starters).² For children of secondary-school-age, Figure 3.1 shows that children of this age group who were out-of-school were not children who had never enrolled; rather, they were children who had enrolled in school at some point but, dropped out and have been out-of-school for an extended period of time – at least 2 years.³

Figure 3.1 Percent of Out-of-School Children by Age (2016/2017)



¹ Based on latest-available public Education Statistical Yearbook.

² In Rwanda, children are expected to enroll in primary school in the year they turn 7.

³ Note that missing from the graph are those children not enrolled in 2017 who dropped out in 2016 (dropouts). This group follows a very similar pattern as those who have enrolled but are out of school up to age 14 where the trend jumps to about 10 percent and remains relatively flat until age 17. That group, dropouts, is analyzed separately.

For younger (primary-school-age) children, repetition and re-entry rates are high, and dropout rates are low. For older children (secondary-school-age), repetition and re-entry rates are low, but dropout rates are high. Figure 3.2 shows dropout and repetition rates by age in 2016, while Figure 3.3 shows re-entry rates for secondary-school-age children who were out-of-school and re-entered in 2017. As these figures show, dropout is a rare occurrence for primary-school-age children (7 to 12) – see, while repetition is common. For secondary-school-age children, dropout rates go up, re-entry rates go down. Repetition is not a very common event for this age group. These trends are also shown in Table 3.2 and Table 3.3.

Repetition rate

The repetition rate here is defined as the share of children from a given grade or age group that were enrolled the same grade in time $t+1$ as they were in time t .

Figure 3.2 Dropout and Repetition Rates for Children Enrolled in 2016

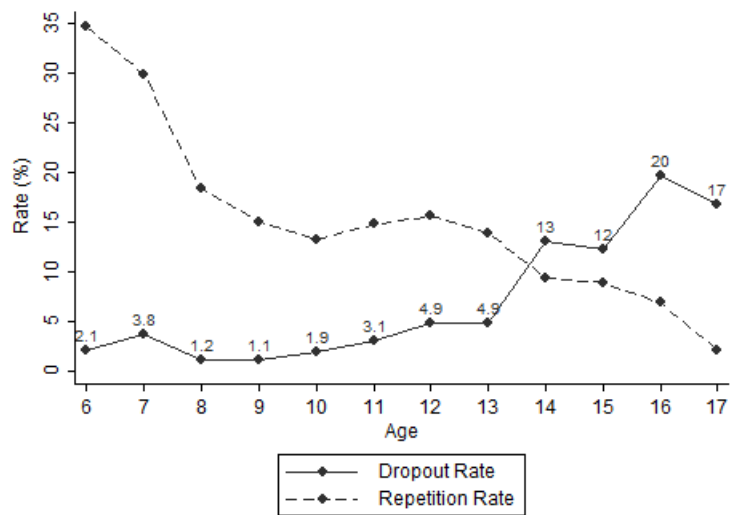
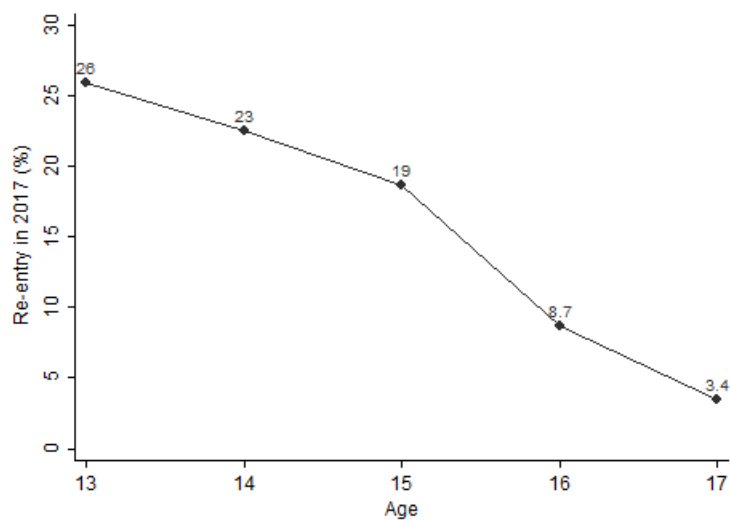


Figure 3.3 Share of Out-of-School Children in 2016, who re-entered in 2017



Two additional points distinguish dropout rates of children of primary- and secondary-school-age: (i) most children of secondary-school-age drop-out between school years, not during the school year as is the case for primary-school-aged children; and (ii) dropout becomes more permanent for secondary-school-age children, with fewer children re-enrolling after dropping out. Dropout for children of primary-school-age is a *circumstantial* form of dropout that is short-lived; it marks a pause in a child's education and, in most cases, it does not signal the end of a child's education. Dropout for children of secondary-school-age, on the other hand, is a *structural* form of dropout that is more permanent and tends to signal the end of a child's schooling trajectory.

Table 3.2 Breakdown of dropout rates for children aged of primary-school-age in 2016

Type of Dropout	Point estimate	Lower bound (95% confidence interval)	Higher bound (95% confidence interval)
Completed year, but did not enroll in 2017	0.5%	0.2%	0.8%
Dropped-out during 2016 year and did not enroll in 2017	0.2%	0.0%	0.5%
Dropped-out during year 2016, but re-enrolled in 2017	1.9%	1.2%	2.7%
ESTIMATED DROPOUT RATE (%)	2.6%	1.3%	4.0%

Table 3.3 Breakdown of dropout rates for children of secondary-school-age in 2016

Type of dropout	Point estimate	Lower bound (95% confidence interval)	Higher bound (95% confidence interval)
Completed year, but did not enroll in 2017	6.8%	4.5%	9.0%
Dropped-out during 2016 year and did not enroll in 2017	3.9%	2.5%	5.3%
Dropped-out during year 2016, but re-enrolled in 2017	1.7%	1.0%	2.4%
ESTIMATED DROPOUT RATE (%)	12.4%	8.0%	16.8%

KEY MESSAGES:

- *There are four main stylized facts that affect the in- or -out-of-school status of children in Rwanda: (i) high enrollment rates; (ii) the largest shares of out-of-school children in Rwanda come from the tails of the age distribution and are due to late start and permanent dropout; (iii) dropout rates are relatively low, re-entry rates and repetition rates are high – “young children repeat”; and (iv) dropout rates increase considerably, and re-entry and repetition rates go down for secondary-school-age children – “old children drop out”*

- *Other than their levels, two key points distinguish dropout rates of children of primary- and secondary-school-age: (i) most children of secondary-school-age drop-out between school years, not during the school year as is the case for primary-school-aged children; and (ii) dropout becomes more permanent for secondary-school-age children, with fewer children re-enrolling after dropping out.*

3.2. Underlying Determinants and Trends

In this sub-section, we focus on 3 key underlying determinants or risk factors associated with dropping out of school permanently. These are: (i) late entry into the primary education system, (ii) dropout and re-entry (temporary dropout), and (iii) repetition.

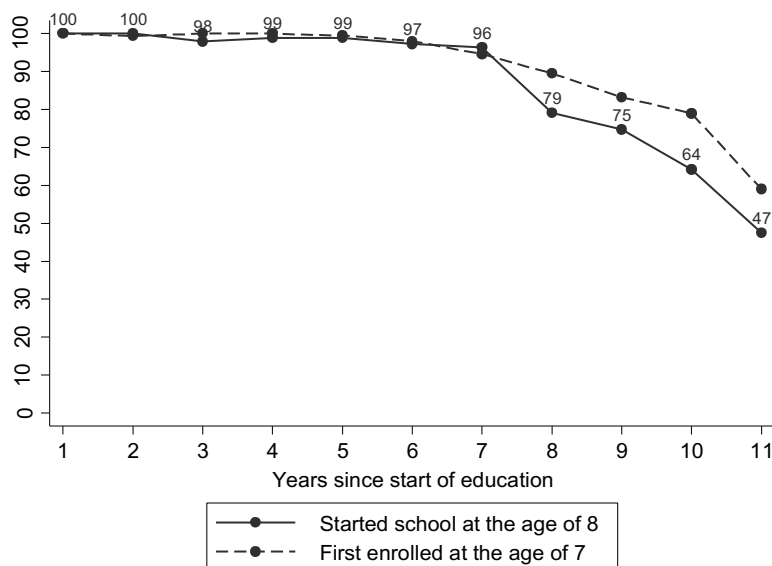
3.2.1. Late Entry to the Primary Education System

Despite significant improvements in encouraging on-time entry over time, delayed start remains a key challenge as it is a strong predictor of future dropout. Children who start school late, begin their formal education at a very significant disadvantage. In Rwanda, children are expected to start the first grade of primary school in the year in which they turn 7. While enrollment rates around age 7 are high, approximately 16% of children remain out-of-school in the year in which they turn 7 (we refer to these children as 7-year-olds moving forward). We define “late starters” as children who started school at the age of 8 or above. We show that late start remains a very relevant policy issue for children of primary-school-age.

School trajectory data shows clear evidence that late start to a child’s education is a key predictor of future dropout in Rwanda’s education system – with late starters less likely to transition from primary to secondary school. A late start to a child’s education might not appear to be an issue of major concern, especially if children start school with a delay of just one year. The reality, however, is that it does matter. Whether it is a direct cause of the delayed start to a child’s learning - or whether the late start to education shares the same underlying causes as future dropout - we find that children who started school at the age of 8 or higher, are much more likely to eventually dropout of school than children who started school at the age of 7. Figure 3.1 shows that children who started school at ages 7 and 8 follow a similar educational trajectory – in terms of enrollment – between the first and seventh year of their educational trajectory.⁴ However, the educational trajectory of these two groups starts to diverge in the eighth year of their educational trajectory, after which children who started school at the age of 8 are more than 10 percentage points more likely to be out-of-school than children who started their education at the age of 7. This sudden divergence of enrollment rates is because late starters are significantly less likely to transition from primary to secondary school. They are more likely to drop-out after Primary 6.

⁴ For example, a child who starts her education at age 7 and does not repeat or drop-out, would be in Secondary 2 in the seventh year of her educational trajectory (at an age of 14). A child who starts her education at age 8, does not repeat or drop-out, would also be in secondary 2 in the seventh year of her educational trajectory (at an age of 15). Finally, a child who starts her education at age 7, repeats Primary 1 once, progresses to Primary 3, drops out after completing Primary 3 (and re-enters in Primary 4 after a year out of school), would be in Primary 6 in the seventh year of her educational trajectory (at age 14).

Figure 3.4 Enrollment Rates, by Years Since Start of Education, Comparing Late Starters and Children Who Started Primary School On Time at Age 7



It is not possible, using this dataset, to accurately disentangle whether late start directly leads to future dropout, or whether late start and dropout share the same underlying causes (for example, household-level poverty or the low educational level of parents). The effect of late start persists - and is statistically significant - when controlling for household wealth and other factors of interest. Regardless of the direction of causality, an on-time start to primary education provides children more time within the education system to learn and increase their prospects of success.

3.2.2. High Dropout Rates and Low Re-entry Survival Rates

Re-entry is a positive outcome for children who have experienced dropout but, we find that children who re-enter the system after having dropped out are at a high risk of dropping out again. Dropping-out of school does not necessarily mean the end of a child’s educational trajectory. Dropout is a flow that is part of a system where children move from being enrolled in school, to being out-of-school, and vice-versa. We refer to the process of re-enrolling after dropping out as “re-entry” or “drop-in” and in this section, we discuss re-entry dynamics by age, grade and gender.

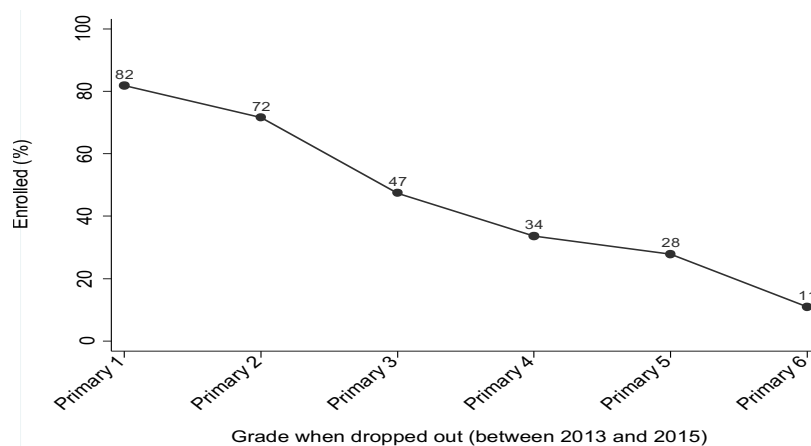
Although dropout is not necessarily a one-way street, more children drop-out in any given year than drop-in or re-enter the education system. In 2016, an estimated 6.2% of children dropped-out while only 2.7% of re-entered either within the 2016 school year or at the start of 2017.

Dropout becomes more permanent with age and with each passing grade. Most children who drop-out in Primary 1 or Primary 2 re-enroll in school, but the probability of re-enrollment decreases rapidly as children progress through the education system. We show this in Figure 3.5, which plots the proportion of children aged 7 to

16 who dropped-out of school between 2013 and 2015, who had re-enrolled by 2017. Out of the children that dropped-out of school during the 2013-2015 period, about 80% of those that dropped out of Primary 1 were re-enrolled in 2017, compared to just 10% of children that dropped out of school in Primary 6. Dropping-out of school during or after an early grade does not tend to mark the end of a child’s journey in the basic education system. Dropping-out towards the end of Primary school however, does, in most cases, signal a more permanent end to a child’s schooling.

Similar patterns are found when it comes to age. An estimated 71% of children of primary-school-age (7 to 12) who dropped-out of school between 2013 and 2015, were re-enrolled by 2017, compared to only 23% of children of lower secondary-school-age (13 to 15) who dropped-out during the same period. These statistics show that the educational cost of dropping-out of school increases steadily with each passing grade and year.

Figure 3.5 Share of Children Who Dropped-out of School Between 2013 and 2015 (aged 7-16 in year of dropout) Who Had Re-entered the System by 2017, by Grade in Which They First Dropped-out



Children who have dropped out and re-entered the education system are at a much higher risk of future dropout than children who have never left the system. Re-entry in 2016 was associated with a 10-percentage point average increase in dropout rates in the same year, a difference that is statistically significant controlling for various child, household, and locational factors of interest. Children who had dropped-out and re-entered school prior to 2016 were also about 7 percentage-points more likely to drop-out of school compared to children who had never dropped-out and re-entered. The schooling system allows for children to exit and re-enter the primary and secondary school, which is key to ensuring greater equity, but the data shows that children who have dropped-out in the past are much more vulnerable and at a higher risk of future dropout than their peers.

3.2.3. Repetition: “Today’s Repeaters are Tomorrow’s Dropouts”

Repetition is a major issue in Rwanda’s education system. Despite a very sharp decline observed in 2016-2017, repeaters are much more vulnerable to future dropout. Repetition is a strong signal that children are struggling with their education and falling behind.

The majority of children in Rwanda’s education system have repeated at least once in the past (see Figure 3.6). Repetition is a common occurrence in the educational trajectory of children in Rwanda’s education system. An estimated 31% of students in Primary 1 in 2017 had repeated.⁵ This number reaches 60% by Primary 2, increasing steadily to 85% of children by Primary 6 and Secondary 1. Repetition is often not a one-time event in the educational trajectory of children. By Primary 6, an estimated 56% of children had repeated at least twice (see Figure 3.6), and almost 30% of children had repeated three times or more. By the age of 18, more than 20% of children had repeated four times or more (see Table 3.1).

Figure 3.6 Percentage of Children Who Had Repeated, by Grade, for All Children Aged 6 to 18 (2017)

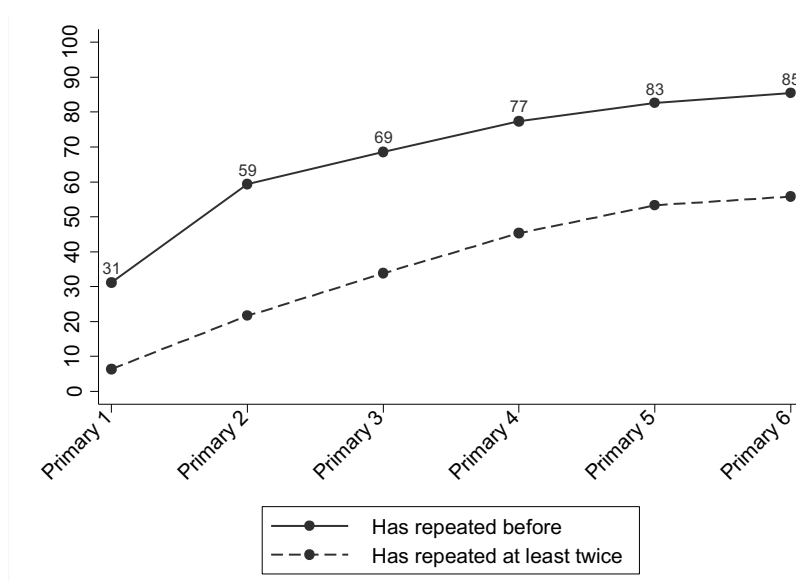


Table 3.4 Number of Times Repeated Grade, by Age 18 (2017)

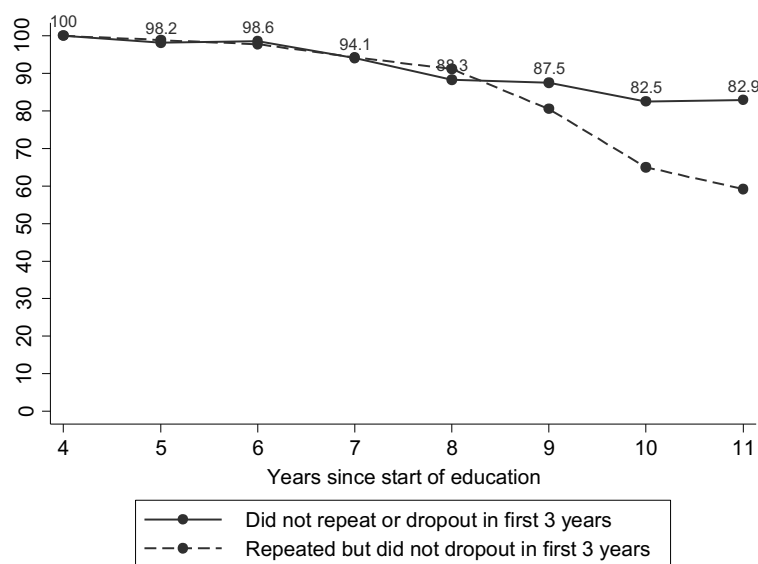
Number of times repeated	Percent of children aged 18
Never	13.3%
Once	19.5%
Twice	26.7%
Three times	18.0%
Four times	12.1%

⁵ Note that this differs from the repetition rate as some children repetition rate as it includes children who had repeated before (even if they are not repeating in 2017) and those who are repeating grade that year (2017).

Five times	6.8%
Six times	3.1%
Seven times	0.6%

Repetition and dropout are inter-linked in a dynamic way from the very start of a child’s education – children who repeated at least once in their first 3 years of their educational trajectory are much more likely to drop out after the 8th year of their educational trajectory. When comparing children who repeated at least once during their first three years of education - but did not drop-out - to children who neither repeated nor dropped-out during the same period, we find that the former group of children was more likely to eventually drop-out of school. As shown in Figure 3.1, children who repeated at least once during their first three years of education and those who did not repeat experience similar enrollment rates up to their 8th year of education. Thereafter, their enrollment rates start to diverge, with children who repeated at least once in their first three years of education becoming much more likely to drop-out later.

Figure 3.7 Enrollment Rates, by Years Since the Start of Education. Children Who Repeated in Their First 3 Years of Education to Those Who Did Not (2017)



Repetition is not a rare occurrence in Rwanda’s education system. It is not an event that only affects a few children or a specific sub-group of children. Instead, repetition is a phenomenon that is wide-spread, with far reaching costs and implications for the education sector.

Repetition is a precursor to dropout and a key risk factor in the educational trajectory of children. Children who repeat during primary-school-age, and accumulate delays in their education, have a much higher risk of dropping-out when they reach secondary-school age. This link between previous academic performance and dropout can clearly be seen in Table 3.1. The table shows that the incidence of dropout increases in tandem with the number of times a child has repeated in the past.

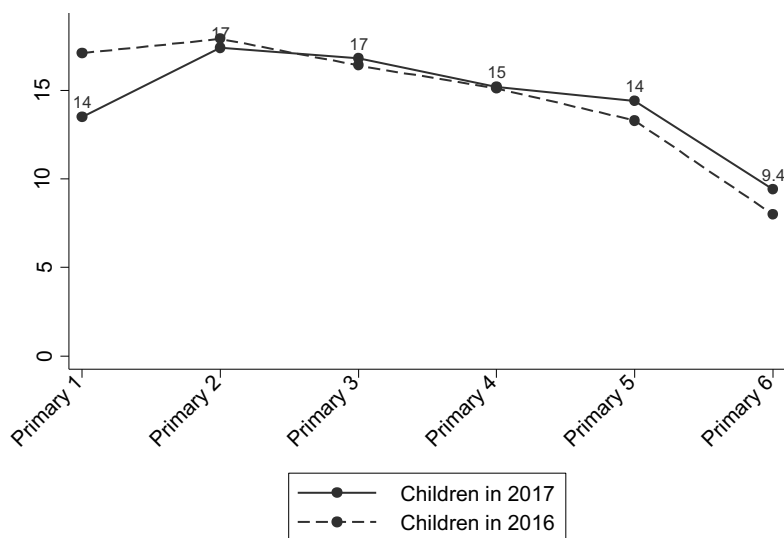
Table 3.5 Average Dropout Rate by Number of Times a Secondary-School-Age Child has Repeated (2016)

Number of times repeated	Dropout rate (%)
Never	6.0%
Once	8.3%
Twice	11.7%
Three times	13.7%
Four times	17.5%
Five times	34.3%

There was a drastic reduction in repetition rates across all ages and all grades in 2016 (note that the repetition rate in 2016 refers to children that were enrolled in the same grades in 2016 and 2017).⁶ The reduction in repetition was much steeper in rural areas than in urban areas. For example, between 2011 and 2015, primary-school-age children, for which repetition rates are the highest, in rural areas were on average about 10 percentage points more likely to repeat than children from the same age group from urban areas. In 2016, repetition rates for primary-school-age children in rural areas almost halved, dropping a full 15 percentage points, from 32% to 17%. While repetition rates in urban areas also fell, the drop was much smaller.

It is likely that this sharp reduction in repetition rates is the result of a major policy change with regards to grade repetition in Rwandan schools. Qualitative interviews in our FGDs suggest stricter enforcement of repetition targets in recent years and that schools are currently being asked to limit repetition rates to 5% of students per grade. This change has had the immediate effect of transforming the structure of Rwanda's primary education system and distributing children over a greater number of grades. More specifically, the reduction in repetition rates: (i) significantly eased the pressure, in terms of number of students, on Primary 1, which saw an approximate 16 percentage point reduction in the number of students enrolled between 2016 and 2017 as these children were promoted to Primary 2 instead of re-enrolled in Primary 1 (we estimate that there are about 90,000 fewer students enrolled in Primary 1 in 2017 compared to 2016); and (ii) slightly increased the pressure in Primary 5 and Primary 6 (Figure 3.8). On the positive side, the reduction in repetition rates created a more balanced distribution of students by grade, and as a result also a more balanced use of teaching resources. On the negative side, the blanket reduction in repetition rates by age/grade does not, in the immediate term, solve the education quality problem. By reducing the expected standards for being promoted to the next grade, a greater number of students progress through the education system, but the average performance of children who get promoted is lower, making the next grade significantly more difficult for them. This creates complex dynamics that are very difficult to predict.

⁶ This is confirmed by data in both our household and child surveys.

Figure 3.8 Grade-distribution of children aged 6 to 17, comparing 2016 to 2017⁷**KEY MESSAGES:**

- Despite significant improvements over time, there is clear evidence that late start to a child's education is a key predictor of future dropout in Rwanda's education system – children that started school at the age of 8 are much more likely to drop out of school than children that started at the age of 7
- In 2017, an estimated 20% of children that entered the education system for the very first time were late starters
- The vast majority of children in Rwanda's education system have repeated at least once in the past: in 2017, 31% of students in Primary 1 had repeated; by Primary 2, 60% had repeated, increasing steadily to 85% of children by Primary 6
- Repetition and dropout are inter-linked in a dynamic way from the very start of a child's education – children who repeated at least once in their first 3 years of education are much more likely to drop out after the 8th year in their educational trajectory
- Re-entry into the education system is a positive outcome. However, we find that those children who re-enter the system after having dropped out, are at a high risk of dropping out again: in 2016, re-entry was associated with a 10-percentage point average increase in dropout rates in the same year
- Dropout becomes more permanent with age and with each passing grade. Most children who drop-out in Primary 1 or Primary 2 re-enroll in school, but the probability of re-enrollment decreases rapidly as children progress through the education system
- An estimated 71% of children of primary-school-age (7 to 12) who dropped-out of school between 2013 and 2015, were re-enrolled by 2017, compared to only 23% of children of lower secondary-school-age (13 to 15) who dropped-out during the same period
- In most cases, dropping out towards the end of primary school or at secondary-school-age signals a more permanent end to a child's schooling

⁷ For 2016, we only have education data for 6 to 17-year-olds; to ensure the data is comparable with 2017, we limit the sample to only include 6 to 17-year-olds.

3.3 Implications on the Structure of the Basic Education System: Over-aging, Low Completion Rates, and Inequalities within the Education System

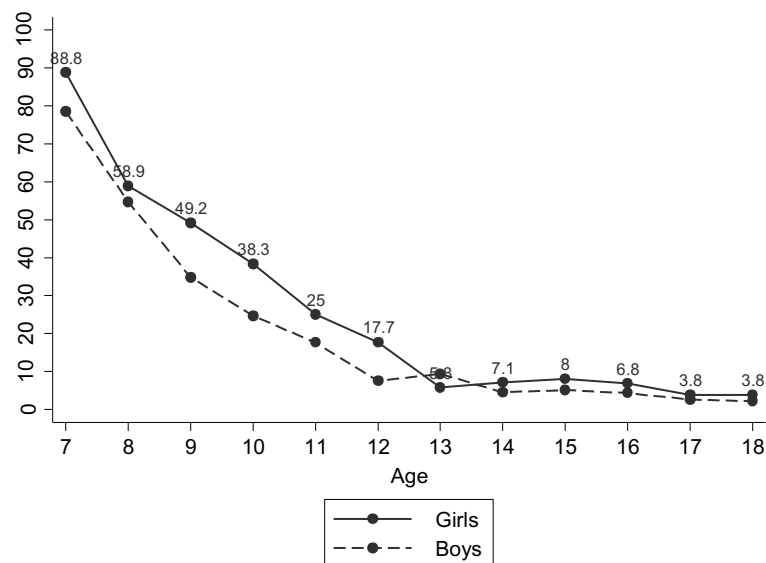
In this sub-section, we highlight the key implications of dropout, repetition and accumulated delays in children's progression through the education system, namely: (i) over-aging; (ii) low primary completion rates; and (iii) inequalities in the education system.

The consequences of late-entry, high repetition in early grades, dropout and subsequent re-entry, combine to create a major problem of over-ageing within Rwanda's primary and secondary education system that results in delayed primary school completion. What happens at each point in a child's educational trajectory has dynamic effects down the line. Events that shape a child's journey through the education system include the timing of when she started her education, instances of dropout and potential re-entry, and, of course, repetition.

A good indicator of pupil progress and the quality of education is the percentage of students on-track with their education. A pupil who is "on-track" is in the appropriate grade, given her age. That implies not having entered school late or ever repeated – or dropped out before completing, and passing, a grade and then re-entering. For the purposes of this report, we consider a pupil to be "on-track" if she is at the appropriate age/grade-level. Using this definition, a pupil in Primary 1 is on-track if she is age 7 or below; a student in Primary 2 if she is age 8 or below, and so forth. This definition does not allow for pupils to have accumulated any delays in their education. We adopt a strict definition, that does not allow for delays, because, as we have shown in previous sections, any deviation from an optimal educational trajectory, that is, a trajectory without any dropout, repetition or late start, matters and can be a precursor of future and more permanent dropout.

Due to a combination of late start and repetition, children of primary-school-age in Rwanda quickly fall behind in their education (Figure 3.9). The proportion of children who are on-track with their education falls dramatically between the ages of 7 to 12. At the very start of primary school, an estimated 84% of children aged 7 in 2017 were on-track with their education and had enrolled in Primary 1. By age 13, when children should be starting lower secondary, at the start of the 2017 school year, we estimate that only 8% of students were still on-track and had made the transition to secondary school. By the age of 13, children had accumulated 2.5 years of delay on average; 45% of children were delayed by 3 years or more. The main drivers of this delay were: frequent repetition (70%), late start (20%), years spent out-of-school (5%) and temporary dropout (5%). Delays in children's education are a much greater concern in rural than in urban areas, where 6% of children were on track by age 13 in 2017 compared to about 18% of children in urban areas.

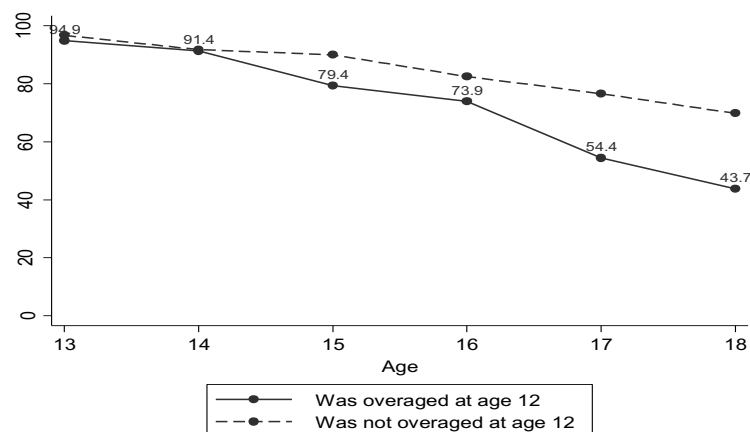
Figure 3.9 Percent of Children On-track With Their Education, by Gender, Out of All Children Age 6 to 18 (2017)



The proportion of children that are on-track with their education stabilizes during lower-secondary-school-age but continues to decrease when children reach upper-secondary-school age, as can be seen in Figure 3.9. A similar number of children aged 13 and 16 are on-track with their education. However, by age 18, only about 3% of children remained on-track and are enrolled in Secondary 6.

By the age of 18, children in Rwanda have, on average, accumulated a 5-year delay in their education. Children who had accumulated delays during primary-school-age continue to underperform. They accumulate further delays and start to drop out of school at much faster pace. By the age of 18, 46% of the delays in children's education are explained by repetition, 36% by permanent dropout, 15% by late entry and just 3% by temporary dropout.

Dropout is closely correlated to over-aging. Children who are older than their expected grade (because of repetition) are at a higher risk of dropout. This holds after controlling for child-related factors, the late start of children's education, but also household wealth, the education of the parents the gender of the household head and location (provinces, by rural and urban). This link between previous disruptions in a child's educational trajectory and dropout can clearly be seen in Figure 3.10, which shows the diverging enrolment rates of children who at age 12 were overaged by more than one year, versus the enrolment rates of children who were not overaged by over a year by age 12.

Figure 3.10 Enrolment of children that were over-aged by more than a year at age 12 versus children that were not, 2017

The combined effects of late start, dropout and repetition for a large population of children in Rwanda's basic education system has led to at least three major defining characteristics of the structure of the basic education system in Rwanda: (i) over-aging; (ii) low completion rates, and (iii) inequalities in the education system.

(i) Implication 1: Over-ageing within classrooms

The effect of repeated delays in the educational journey of children, through late start, dropout and repetition, is a growing disconnect between grade and age, i.e. over-ageing. A key characteristic of Rwandan classrooms in primary and secondary school is high age-variation within grades. This creates a learning problem and serious teaching challenges, because children of very different ages co-exist in the same classrooms.

One way to visualize over-ageing is to look at the range of grades that children of each age are enrolled in (Table 3.1). This table shows that older children span many grades. For example, there are as many 12-year-olds in Primary 1 as there are 12-year-olds in Primary 6; there are a similar number of 15-year olds in Primary 4 and Secondary 3. Grades therefore include children of many difference ages. For example, in Primary 1 we find children between the ages of 6 and 17; in Primary 6, we find children between the ages of 10 and 18.

Table 3.6 Proportion of Children of Each Age by Grade (2017)

Grade/Age	6	7	8	9	10	11	12	13	14	15	16	17	18
Out of school	59.4%	16.5%	5.1%	2.4%	1.2%	1.9%	2.2%	4.6%	8.5%	17.8%	23.8%	40.9%	50.4%
PRIMARY 1	38.0%	60.6%	38.4%	13.3%	7.8%	3.5%	2.0%	1.5%	0.6%	0.0%	0.3%	0.2%	0.0%
PRIMARY 2	2.6%	21.0%	43.8%	43.4%	21.5%	13.8%	8.8%	5.9%	2.9%	1.3%	1.2%	0.8%	0.7%
PRIMARY 3		1.9%	11.7%	33.9%	38.3%	26.0%	17.3%	15.0%	6.5%	4.2%	1.8%	1.7%	0.0%
PRIMARY 4			1.0%	6.3%	25.1%	33.6%	28.7%	19.9%	15.4%	8.5%	4.0%	1.9%	0.5%
PRIMARY 5				0.7%	5.8%	17.9%	28.3%	28.7%	24.2%	15.5%	14.5%	6.3%	1.4%
PRIMARY 6					0.3%	3.1%	10.7%	17.0%	21.8%	21.0%	14.4%	7.0%	5.5%
SECONDARY 1						0.2%	1.9%	6.4%	14.5%	15.6%	13.1%	8.8%	4.2%
SECONDARY 2							0.1%	0.9%	4.5%	9.6%	12.6%	12.0%	7.9%
SECONDARY 3								0.0%	1.1%	5.1%	8.8%	11.1%	11.4%
SECONDARY 4									0.0%	1.4%	2.5%	6.4%	8.3%
SECONDARY 5										0.0%	2.9%	1.9%	7.8%
SECONDARY 6											0.2%	1.3%	1.9%
TOTALS	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

* **NOTE:** This table should be read by age column, not by row. It describes what share of children of a given age are in each grade, in other words the distribution of children by age and grade. For example, for age 6, we see that 59% of children aged 6 are out of school, 38% in P1 and 2.6% in P2. The color coding is proportional to the share of children of a given age that are enrolled in a grade. The higher the share of children of a given age group in a particular grade, the higher the proportion of children enrolled in that grade.

High age-variation within grades inevitably affects class dynamics and the quality of teaching. Over-aging will also continue to be a dominant feature of Rwanda's primary and secondary education system for the years to come, because overaged children are already in the education system, and a lot of the key underlying trends in its determinants are still present today (e.g. late start, repetition, etc.).

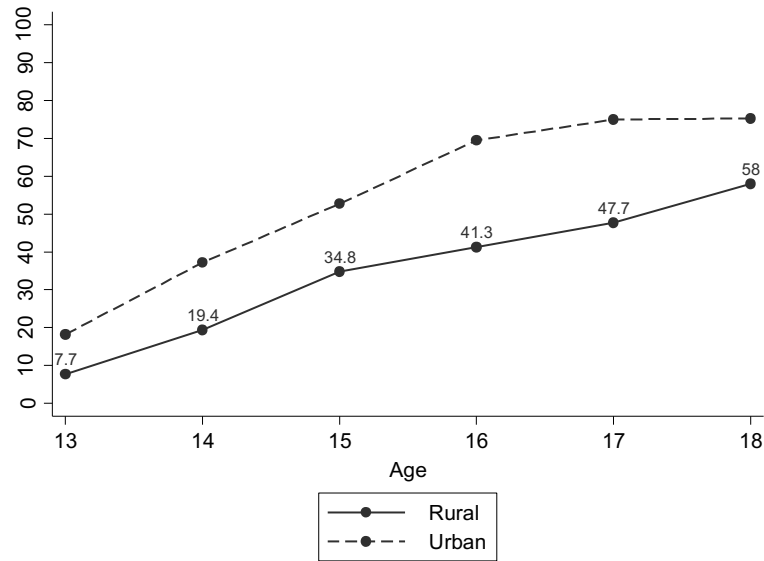
(ii) Implication 2: Low Completion Rates in Primary School

Another effect of the delays in the education system is the impact on completion rates in primary school. It is also a key metric of the efficiency of the education system, which we define here as the proportion of children who either: (i) completed and passed Primary 6 (as the result of school-level exams and grading); or (ii) eventually enrolled in secondary school.

The results show that primary school completion rates are quite low in rural areas. At the age of 18, in 2017, an estimated 58% of children in rural areas had either completed primary 6 successfully or enrolled in secondary school thereafter. At age 15, when children are supposed to be enrolled in Secondary 3, only 35% of children

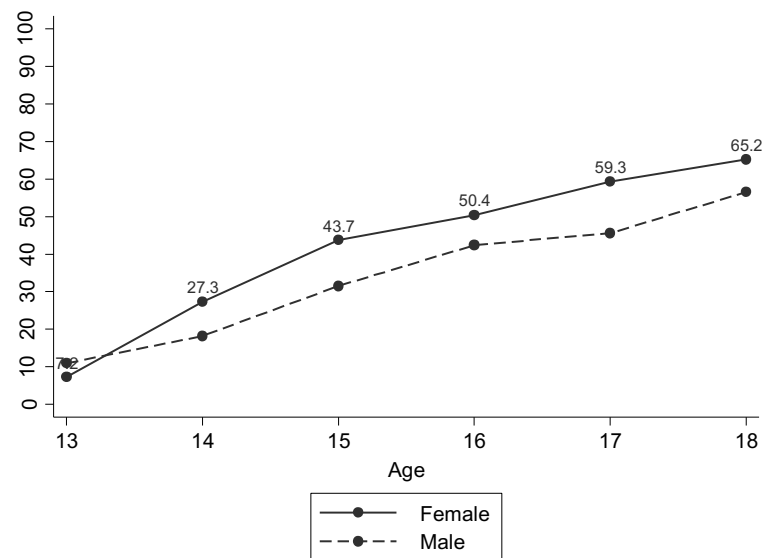
in rural areas had completed primary school, which corresponds to about one out of every three children. Completion rates in urban areas are significantly higher, at 75% of children aged 18 in 2017 (Figure 3.11). These wide geographic gaps are symptomatic of the large educational divide between rural and urban areas in Rwanda.

Figure 3.11 Primary 6 Completion Rates, by age (2017)



Finally, in line with previous findings about the educational performance of girls and boys, we find that girls are more likely to have completed Primary 6. This holds true between the ages of 14 through to 18. During those ages girls are about 10 percentage points more likely to have completed Primary 6 than boys, a gap that is large and statistically significant after controlling for other confounding factors.

Figure 3.12 Primary 6 Completion Rates, by Gender (2017)

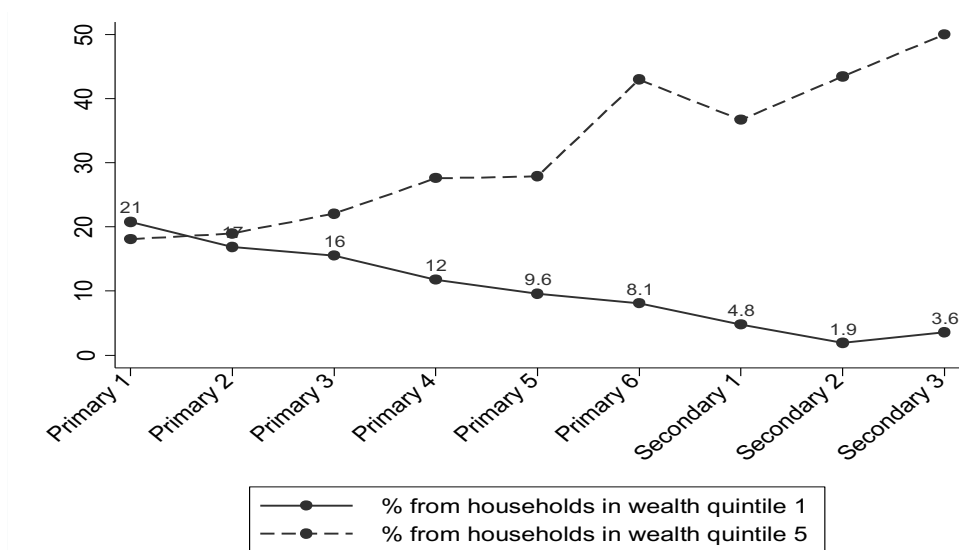


(iii) Implication 3: Inequalities in the education system

The result of these differences in late entry, repetition and dropout rates between children from households from very different socio-economic situations is that increasingly, children from the wealthiest households stay on-track, while children from the poorest households drop behind. As we move from one grade to the next, the socio-economic background of children changes. We can see this in Figure 3.1, which plots the percentage of children that are on-track that come from wealth quintiles 1 and 5, by grade. In Primary 1, when children first enter the education system, a roughly equal proportion of children from households in wealth quintile 1 and wealth quintile 5 are on-track with their education. By secondary 3, only about 4% of children who are on-track come from households in wealth quintile 1, compared to about 50% of children from households in wealth quintile 5.

These patterns imply that children from different socio-economic backgrounds have very divergent educational trajectories. On average, the education sector has not succeeded in achieving convergence between children from different socio-economic backgrounds.

Figure 3.13 Percent of on-track children from households that come from wealth quintile 1 and that come from wealth quintile 5, by grade, in 2016

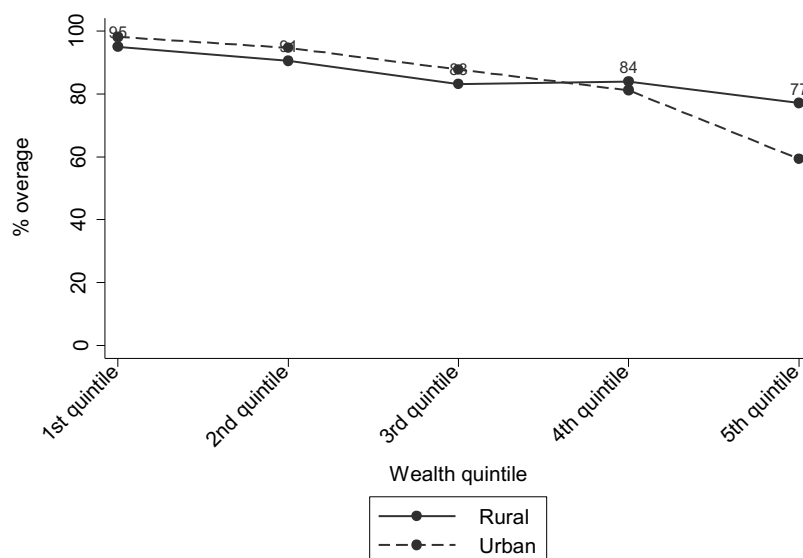


Considering that children from the wealthiest households are also more likely to live in urban areas, we find that the education sector gets increasingly urbanized as we move from one grade to the next. Out of all children below the age of 18, an estimated 12% of children in Primary 1 live in urban areas, compared to about 33% of children in Secondary 3⁸.

⁸ It is important to note that here we are looking here at the proportion of children in Secondary 3 that are aged 18 and below; the actual proportion of children from rural areas in Secondary 3 might be significantly higher if children that are in Secondary 3 and are above the age of 18 are included.

A closer look at the data however suggests that living in urban areas is not uniformly beneficial; in-fact children aged 13 or above from households in wealth quintiles 1 through 3 are slightly more likely to be overaged or out-of-school in urban areas than they are in rural areas. What drives the difference between urban and rural areas is the educational performance of children in the highest wealth quintile (see Figure 3.14). Fewer than 60% of children aged 13 or above from urban households in the highest wealth quintile were overaged or out of school; this compares to 77% of children aged 13 or above from rural households in the highest wealth quintile.

Figure 3.14 Percent of children that are overaged or out of school, by wealth quintile and location, for children aged 13 or above (2017)



KEY MESSAGES:

- *The consequences of late-entry, high repetition in early grades, dropout and subsequent re-entry, combine to create a major problem of over-aging within Rwanda's basic education system that results in delayed primary school completion*
- *The proportion of children who are "on-track" with their education (i.e. without repeating, dropping out temporarily or permanently, and are at the appropriate age/grade level) falls dramatically between the ages of 7 to 12*
- *By age 13, at the start of the 2017 school year, we estimate that only about 8% of students were still on-track and had made the transition to secondary school.*
- *By age 18, children in Rwanda have accumulated, on average, a 5-year delay in their education*
- *One key implication of this on educational outcomes is a growing disconnect between grade and age, i.e. over-aging. A key characteristic of Rwandan classrooms in primary and secondary school is high age-variation within grades*

- *Dropout is closely correlated to over-aging. Children who are older than their expected grade are at a higher risk of dropout*
- *A second key implication is that primary school completion rates are quite low, particularly in rural areas. By the age of 18, in 2017, an estimated 58% of children in rural areas had either completed primary 6 successfully or enrolled in secondary school thereafter*
- *Considering that children from the wealthiest households are also more likely to live in urban areas, we find that the education sector gets increasingly urbanized as we move from one grade to the next.*
- *The result of these differences in late entry, repetition and dropout rates between children from households from very different socio-economic situations is that increasingly, children from the wealthiest households stay on-track, while children from the poorest households drop behind. Thus, the composition the education sector gets increasingly urban as we move from one grade to the next*

4. Profiles of Children who Drop out, Repeat, or Start Late

In this chapter, we provide descriptive profiles of: (i) children who drop out of the school system, (ii) children who repeat grade, and (iii) children who will start their education late (late starters). These classifications align with the dimensions of the UNESCO 5DE framework, with each of the 4 target groups (except pre-primary) addressed within this approach. For each profile, we will analyze patterns separately by age group, distinguishing between children of primary-school-age (ages 7-12), and children of lower- and upper- secondary -school age (ages 13-15). Within these classifications, we will provide insights about the child, household, school and community context – wherever relevant.

As explained in the methodology section, we do not profile children who have never attended school (which is one of the focus areas of the 5DE approach). We do not have sufficient statistical power to do so because in the Rwandan context non-enrollment is a very marginal event. There are two categories of children who are out-of-school in Rwanda: young children who will likely enroll in the future (late starters); and, dropouts, i.e. children who were previously enrolled but who are now out of school.

In this chapter, we profile: (i) children who have never enrolled in school but will do so in the future (**late starters**), (ii) children who have stopped attending school (**dropouts**); and (iii) children at risk of dropping out, through repetition, one of the key drivers of dropout (**repeaters**). The distinction between these groups is important from a policy perspective given that the underlying causes and the ways to address them through policies will differ.

4.1 Profiles of Children Who Drop Out of School

In Chapter 3, we provided some stylized facts about children who have enrolled but dropped out. In this section, we go one step further by trying to better understand who these children that enroll but dropout during the year are. Given the different dynamics of dropout rates for primary-school-age and secondary-school-age children, in this section we provide, where possible, details on the characteristics of both age-groups to provide insights into their individual, household, school and community contexts.

4.1.1 Child Characteristics

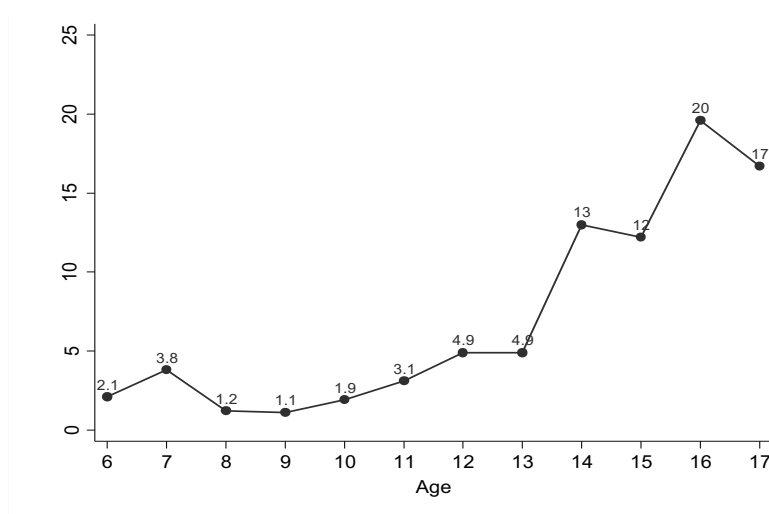
4.1.1.1. Age – “at what age(s) are children dropping out?”

How and when a child drops out of school is strongly related to where a child is in her educational trajectory. Before the age of 13, when children are of primary-school-age, dropout is uncommon. In 2016, an

estimated 2.6% of children of primary-school-age (7 to 12) dropped-out of school. Most of these children were from vulnerable households or from households experiencing unexpected shocks such as the death of a family member or a reduction in total household income. This dropout happened mostly during the school year as opposed to failing to enroll in school at the beginning of the next school year. It is a form of dropout that is short lived, as most children of this age who drop out of school subsequently re-enroll.

Dropout becomes a much more widespread and structural problem after the age of 13, when children are of lower - and upper - secondary-school-age. An estimated 10% of children of lower secondary-school-age (13 to 15) dropped out of school in 2016, a figure that increases to 18% for children of upper secondary-school-age (16 and 17¹). This critical turning point can be seen clearly in Figure 4.1. Dropout more than doubles for children between the ages of 13 and 14, from 4.9% to 13%, increasing further to reach a peak of 20% at the age 16. This step change in the dropout rate results in the rapid decline of the estimated school enrollment rate from almost 96% at age 13, to 82% at age 15 and 49% at age 18. By the time children reach the age of 18, more than half have dropped-out of school, without having completed basic education.

Figure 4.1 Estimated dropout rate by age, for children enrolled in 2016



a. Children of primary-school-age (7-12 years)

Children who dropout of school between the ages of 7 to 12 mostly drop-out during the school year (80% of dropouts), not between school years and because of the failure to enroll in the subsequent year. In fact, about 90% of children of primary-school-age who dropped-out of school during the school year in 2016, had re-enrolled by 2017. This is important from a policy perspective because it strongly suggests that tackling dropout for children of primary-

¹ Note that in this study, data is not available on children aged 18 in 2016, because the study was restricted to children aged 6 to 18 in 2017.

school-age is a question of putting the right systems in place to ensure that children complete the school year and that dropout is addressed right when it happens and not only between school years.

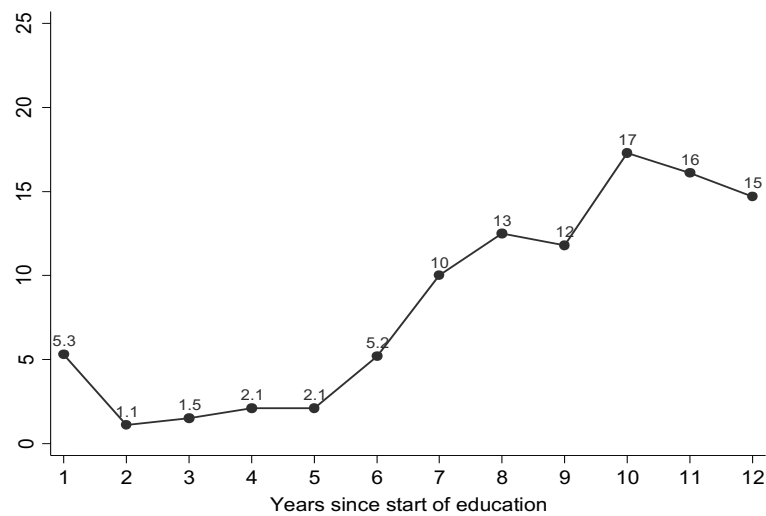
These statistics suggest that dropout for children of primary-school-age is a *circumstantial* form of dropout that is short-lived; it marks a pause in a child’s education and, in most cases, it does not signal the end of a child’s education. However, it does affect learning and future educational prospects. We show in this report that dropout that occurs during the year is more likely to happen because of unexpected events (for example, illness or a death in the household) – or what we refer to as “circumstances” – compared to more permanent forms of dropout that happen because of the failure to enroll. Further, we find that this circumstantial form of dropout is also short-lived. In 2016, an estimated 90% of children aged 7 to 12 who had dropped-out during the school year, had re-enrolled in the subsequent year; an estimated 60% of children aged 7 to 12 that dropped-out in 2015 because they failed to enroll in 2016 had re-enrolled by 2017. The biggest risk with dropout during primary-school-age is therefore not that a child will never return to school, but rather that her learning and future educational prospects will be affected by this interruption.

For children of primary-school-age, dropout is the highest at ages 7 and 12. The comparatively high dropout rate of children aged 7 stands out. Between the ages of 8 to 12, the incidence of dropout gradually increases from about 1% for children aged 8 to 5% for children aged 12. With an estimated dropout rate of 3.8%, 7-year-olds are more likely to drop-out of school than children aged 8 to 11. They are also more likely to drop-out of school than 6-year-olds, an important point we will return to again in this report.

Children of primary-school-age are particularly vulnerable to dropout in their first year of education. This can clearly be seen in

Figure 4.2 which depicts the dropout rate in 2016 based on the number of years since a child started her formal education, using data from the child trajectory dataset. Five times more children drop-out of school in their first year of education than in their second. The average dropout rate for children in their first year of education is 5%, compared to 1% to 2% for children in their second to fifth year of education. Understanding why children are vulnerable to dropout in their very first year of education is a question we will explore further in this study.

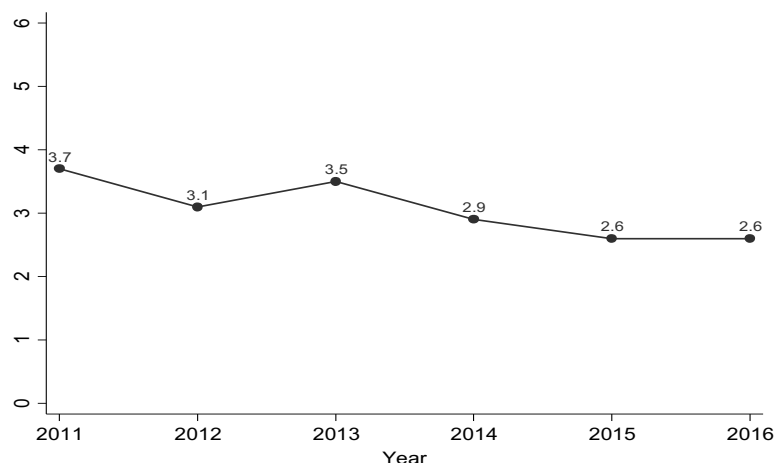
Figure 4.2 Estimated dropout rate by years since start of education, 2016



A positive development has been the gradual reduction in dropout rates for primary-school-age children over time. Using children’s trajectory data for the sub-set of children aged 7 to 12 (primary-school-age), as shown in Figure 4.3 we find that dropout rates have been reducing gradually since 2011– dropping from an estimated 3.7% in 2011 to about 2.6% for children of primary-school-age in 2015 and 2016.²

Figure 4.3 Reduction in overall dropout rates since 2011

² We use data on the educational trajectory of children from the child survey.



b. Children of secondary-school-age (13-18 years)

The form and scale of the dropout problem changes dramatically for children of lower - and upper - secondary-school-age (aged 13 to 18). The change in dropout dynamics happens quite suddenly, between the ages of 13 to 14, during which the dropout rate increases three-fold. This corresponds to the period when many children reach Primary 6, which corresponds to a critical moment in the educational trajectory of children in Rwanda. Due to this increase in dropout rates, the number of children who are out-of-school doubles from about 5% for children of primary-school-age – mainly consisting of children who will start school later than the norm, i.e. after age 7– to 10% for children of lower-secondary-school-age, then increases more dramatically to reach about 40% of children of upper-secondary-school-age. In Rwanda, almost all children who are out-of-school between the ages of 13 to 18 were previously enrolled and have dropped-out. Only an estimated 0.3% of children aged 13 to 18 in Rwanda never attended school.

Two important points distinguish dropout rates among children who are of primary and secondary-school-age: (i) most children of secondary-school-age drop-out between school years, not during the year as was the case for primary-aged children; and (ii) dropout becomes more permanent, with fewer children re-enrolling after dropping out. In 2016, an estimated 55% of dropouts aged 13 to 17³, dropped-out by failing to enroll in the subsequent year. This compares to about 20% of dropouts of primary-school-age. Evidence suggests that failing to enroll is a more permanent form of dropout that mostly occurs at a particular point in a child's education – namely the transition from primary to secondary school. Unlike for children of primary school age, dropout for secondary school age children is more structural than it is circumstantial. Few children of secondary-school-age who drop-out of school re-enroll after having dropped-out. Only about 20% of children 13 to 15 who dropped-out in 2015 had re-enrolled in school by 2017.

³ In this study, we only have data for 6 to 17 year olds in the transition from 2016 to 2017.

Despite remaining high, dropout rates for children of secondary-school-age have fallen over time. For children of lower secondary-school-age⁴, we estimate that the average dropout rate has reduced from 13% of children in 2014, to 12% in 2015, and further down to about 10% of children in 2016; a considerable improvement over a relatively short period of time.

KEY MESSAGES:

- *Before the age of 13, when children are of primary-school-age, dropout is uncommon. In 2016, an estimated 2.6% of children of primary-school-age (7 to 12) dropped-out of school*
- *Children who dropout of school between the ages of 7 to 12 mostly drop-out during the school year (80% of dropouts), not between school years and because of the failure to enroll in the subsequent year. For this age group, dropout is the highest at ages 7 and 12 (the two extremes of the age range)*
- *Dropout for children of primary-school-age is a circumstantial form of dropout that is short-lived; it marks a pause in a child's education and, in most cases, it does not signal the end of a child's education.*
- *Dropout becomes a much more widespread and structural problem after the age of 13, when children are of lower - and upper - secondary-school-age. An estimated 10% of children of lower secondary-school-age (13 to 15) dropped out in 2016, a figure that increases to 18% for children of upper secondary-school-age.*
- *The form and scale of the dropout problem changes dramatically for children of lower - and upper - secondary-school-age (aged 13 to 18). The change in dropout dynamics happens quite suddenly, between the ages of 13 to 14, during which the dropout rate increases three-fold.*
- *Two important points distinguish dropout among children who are of primary and secondary-school-age: (i) most children of secondary-school-age drop-out between school years, not during the year as is the case for student of primary-school-age; and (ii) dropout becomes more permanent with fewer secondary-aged children re-enrolling after dropping out*
- *A positive development has been the gradual reduction in dropout rates over time for both primary and secondary-school aged children*

4.1.1.2. Grade – “are children in certain grades more prone to dropout?”

To understand dropout in the context of Rwanda's basic education system, it is important to keep in mind that due to over-aging grade and age are not perfect correlates. This can easily be seen by comparing the average dropout rate of children of primary-school-age, which we estimate to be 2.6% in 2016, to the average dropout rate for primary school, an estimated 6.2% in 2016.⁵ These two dropout rates are different because many children of secondary-

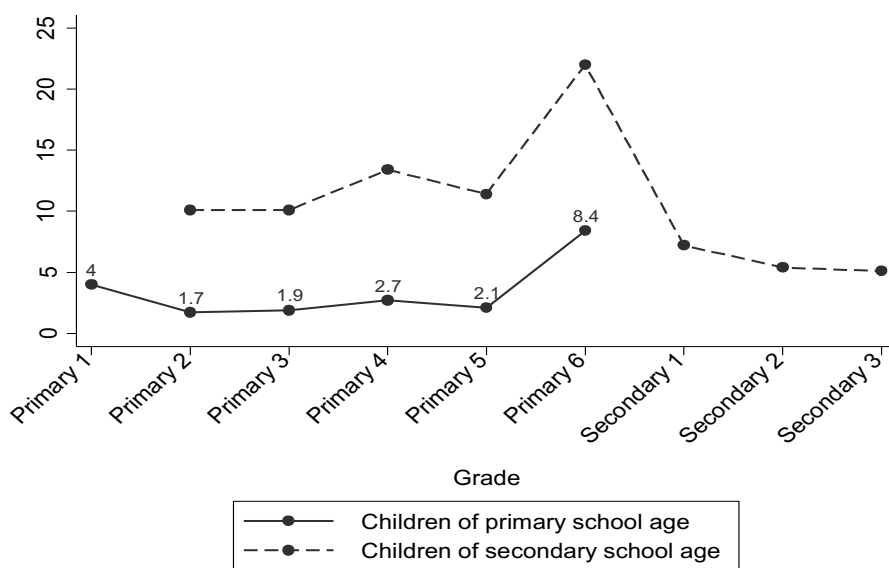
⁴For which 3 years of school trajectory data are available.

⁵ On the other hand, the average dropout rate of children of secondary-school-age was of 12.4% in 2016, and the average dropout rate for secondary school was 5.7%. Note that this estimate for secondary school is based on our child survey data. As such, it is only representative of children in our sample's age range in secondary school. Thus, this rate is likely to underestimate the actual dropout rate in secondary school (which would include children older than 18 due to overaging).

school-age are still enrolled in primary school. In fact, in 2017, almost four out of five in-school children of lower-secondary-school-age (13 to 15) were enrolled in primary school; the corresponding ratio for children of upper-secondary-school-age was close to one in two. These dynamics result in age imbalances within the primary education system. In 2017, more than 90% of children enrolled in lower primary school were of primary-school-age, compared to fewer than half of children enrolled in Primary 4 to Primary 6. The imbalance is largest in Primary 6 where only about 14% of students in 2017 were aged 12 or below.

This over-ageing explains why dropout patterns by age and grade differ. As can be seen in Figure 4.4, both age and grade matter when it comes to dropout. For example, 1.7% of primary-school-aged children dropped out of Primary 2 while, approximately 10% of secondary-school-aged children dropped out of Primary 2. We will see throughout this report the interaction between the two produces complex behavior.

Figure 4.4 Average dropout rates by grade in 2015 and 2016, comparing children of primary and secondary-school-age⁶



a. Children of primary-school-age

For children of primary-school-age, the two grades that stand out from the perspective of dropout are Primary 1 and Primary 6, which correspond to the entry and exit of the primary school system (see Figure 4.4). Dropout rates by grade vary little between Primary 2 and Primary 5, compared with the Primary 1 and Primary 6 dropout rates.

⁶ Dropout rates are averaged over two years (2015 and 2016) to increase the precision of estimates for certain grades; this does not in any way change the conclusions.

Dropout rates in Primary 1, averaging 4% for children of primary-school-age between 2015 and 2016, are higher than for any grade between Primary 2 and Primary 5 (refer to Figure 4.4). This is consistent with the earlier finding that children face a comparatively high risk of dropout in their very first year of education and that children aged 7, face a higher risk of dropout than children aged 8 to 11.

Evidence also points towards a sharp increase in dropout rates for children of primary-school-age in Primary 6, during the transition from primary school to secondary school. An average of 8.4% of children of primary-school-age, enrolled in Primary 6 between 2015 and 2016, failed to transition to secondary school in the subsequent year. This corresponds to a quadrupling of the dropout rate compared to the previous grade, Primary 5. The failure to transition from primary to secondary school is one of the main roadblocks in the educational trajectory of children in Rwanda's basic education.

b. Children of secondary-school-age

Regardless of the grade, children of secondary-school-age are significantly more likely to dropout during primary than children of primary-school-age enrolled in the same grade. The gap in dropout rates by grade between children of primary and secondary-school-age is relatively consistent and greater than 8 percentage points in all grades between Primary 2 and Primary 6. This points to a strong link between over-ageing (being older than the grade corresponding to your age) and dropout.

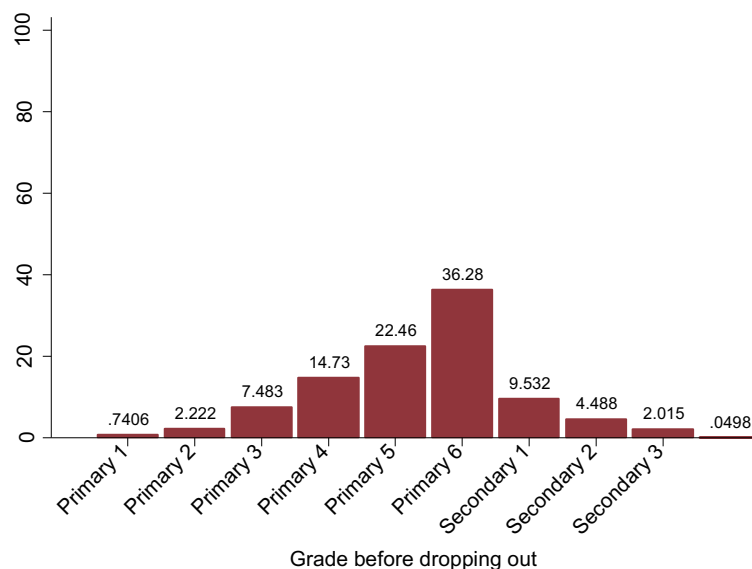
There is a small increase in dropout rates in Primary 4. This increase is visible for children of primary-school-age, but becomes more pronounced for children of secondary-school-age (see Figure 4.4). This small increase in dropout rates associated with Primary 4 is more prominent in 2015, where the associated increase is estimated 3 percentage points (controlling for age and other factors of interest), and is there, but less prominent in 2016, where the estimated increase was 1.3 percentage points.

There is a very sharp increase in dropout rates for children of secondary-school-age enrolled in Primary 6. On average, between 2015 and 2016, about one out of four children aged 13 to 16 enrolled in Primary 6 failed to make the transition from primary to secondary school. These statistics confirm that the transition from primary to secondary school is one of the biggest roadblocks in the educational trajectory of children.

More than 85% of secondary-school-aged children drop-out before or during the transition to secondary school. The grade at which most children dropout is Primary 6, which marks the transition between primary and secondary school. The transition from primary school to secondary school is a significant barrier for many children. These dynamics around the transition could signal that: (i) Primary 6 is an academic barrier for many children, who do not have the required skills to transition into secondary school; (ii) Primary 6 is a psychological barrier and an end in itself – children have as a goal to complete primary school and drop out of school once that milestone has been

achieved; (iii) the transition to secondary school is an economic barrier, with children not able to afford secondary school; or (iv) secondary school suffers from low accessibility, from the perspective of supply (there are no secondary schools nearby, or sufficient secondary school spaces to accommodate the influx of students). In the following sections we will provide some insights around these issues.

Figure 4.5 Grades at which children aged 13 to 18 dropped-out, 2016



Finally, children who are on-track with their education are much less likely to drop-out of school than children who have accumulated delays. Children of secondary-school-age who are enrolled in secondary school face lower dropout rates, on average, than children of secondary-school-age who are enrolled in primary school. An estimated 12% of children aged 13 to 15 in 2015/2016 who were enrolled in primary school dropped-out of school, compared to just 4% of children of the same age group enrolled in secondary school. This is a very large and significant difference, that suggests that over-ageing matters.

KEY MESSAGES:

- *The over-ageing imbalance is largest in Primary 6 where only about 14% of students in 2017 were aged 12 or below.*
- *For children of primary-school-age, the two grades that stand out from the perspective of dropout are Primary 1 and Primary 6, which correspond to the entry and exit of the primary school system.*
- *There is a sharp increase in dropout rates for children of primary-school-age in Primary 6, during the transition from primary school to secondary school. An average of 8.4% of children of primary-school-age, enrolled in Primary 6 between 2015 and 2016, failed to transition to secondary school in the subsequent year.*
- *Regardless of the grade, children of secondary-school-age are significantly more likely to dropout than children of primary-school-age enrolled in the same grade.*

- *There is a very sharp increase in dropout rates for children of secondary-school-age enrolled in Primary 6. On average, between 2015 and 2016, about one out of four children aged 13 to 16 enrolled in Primary 6 failed to make the transition from primary to secondary school.*
- *More than 85% of secondary-school-aged children drop-out before or during the transition to secondary school. The grade at which most children dropout is Primary 6, which marks the transition between primary and secondary school*
- *Ensuring that children are on-track with their education is key: children who are on-track with their education are much less likely to drop-out of school than children who have accumulated delays.*

4.1.1.3. Gender – “is dropout more prevalent amongst girls or boys?”

Gender gaps in dropout rates exist throughout the education system. While these differences have reduced recently, boys of primary-school-age (6-12) and lower-secondary-age (13-15) are more likely to drop-out than girls of those same age groups. However, this trend reverses at the age of 16 and 17 where girls become more likely to drop-out than boys.

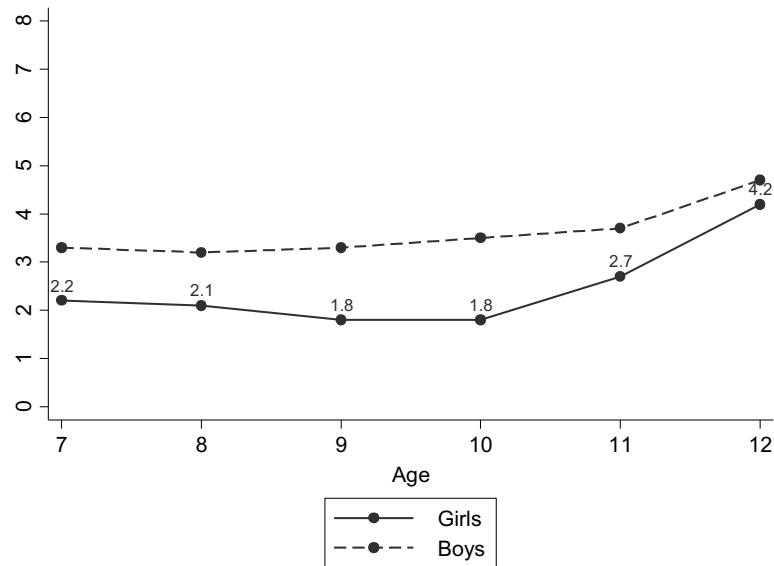
a. Children of primary-school-age

Of children who are primary-school-age (7 to 12), we find that boys have *historically* been more likely to dropout than girls, but differences are small. Across the years, boys aged 7 to 12 appear to have been more likely to have dropped-out than girls. Averaging dropout rates for boys and girls in our sample between 2011 and 2016, we can see that primary-school-age boys were between 0.5 and 1.5 percentage points⁷ more likely to have dropped-out of school compared girls of the same age group at all ages between (see Figure 4.6).⁸ By 2016, the difference in the dropout rates between girls and boys aged 7 to 12 was very small: an estimated 2.8% of boys aged 7 to 12 dropped-out in 2016, compared to 2.4% of girls.

⁷ The differences in the dropout rates for boys and girls are not statistically significant, but evidence strongly suggests this is an issue related to low statistical power and does not reflect the absence of a gender effect – albeit small.

⁸ We combine several years of data to obtain more precise estimates, as our sample is small because dropout before the age of 13 is a rare event.

Figure 4.6 Dropout rates for boys and girls, by age, for primary-school-aged children (average combined dropout rate 2011-2016)



While in any single year the difference in dropout rates between girls and boys of primary school age is small, a higher dropout rate for boys in each year of their education has cumulative effects over time. By the age of 12 (in 2017) an estimated 13.4% of boys had already dropped-out of school at least once during their education, compared to just 5.2% of girls. This is a large difference of about 8 percentage points.⁹

It is important to note that while boys are at a higher risk of dropout between the ages of 7 to 12, most children who drop-out during that age re-enter school within one or two years. So, while boys might be more likely to drop-out, it is not, in most cases, a terminal event in their education. Rather, like repetition, it interrupts their schooling and slows their progression through the education system.

b. Children of secondary-school-age

Boys continue to dropout more than girls between the ages of 13 to 15 (lower secondary-school-age), but the trend reverses by ages 16 and 17. At an estimated 10.3%, the average dropout rate for boys aged 13 to 15 in 2016 was about one percentage point higher than it was for girls of the same age. Conversely, between the ages of 16 and 17, girls had a dropout rate of 18.8% in 2016 and were about one percentage point more likely to have dropped-out than boys.

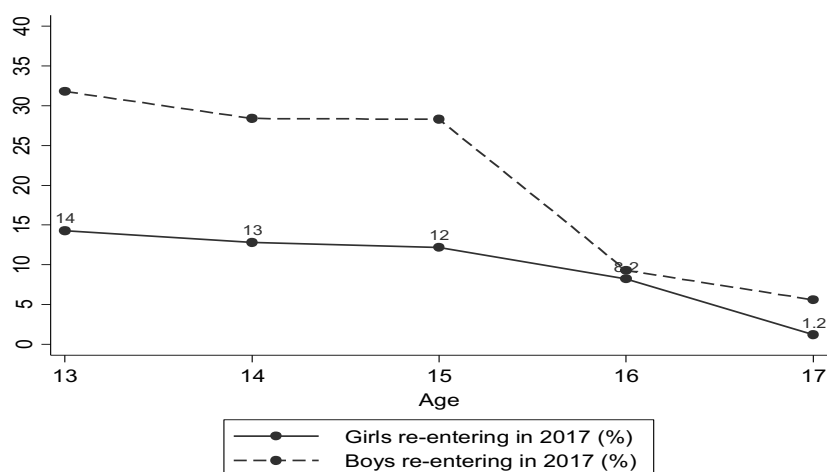
⁹ Statistically significant at the 10% level.

Table 4.1 Dropout rates for boys and girls, by age group, in 2016

	Children of primary-school-age (7-12)	Children of lower secondary-school-age (13-15)	Children of upper secondary-school-age (16-17)
Boys	2.8%	10.3%	17.8%
Girls	2.4%	9.4%	18.8%

One of the key findings of this study is that dropout is more permanent for girls than it is for boys during secondary-school-age, especially between the ages of 13 to 15 (see Figure 4.7). Divergent re-entry rates for girls and boys of secondary-school-age explains in part the gap in enrollment rates that emerges between genders after the age of 15. An estimated 7% of out-of-school girls aged 13 to 17 in 2016, re-entered the education system in 2017; this compares to 15% for boys, more than double the rate for girls. Almost 30% of out-of-school boys aged 13 to 15 in 2016, re-enrolled in 2017, compared to just 12% of girls. This difference is largest for children in the 13 to 15 age-group and shrinks substantially for children of upper secondary-school-age. These differences are strongly statistically significant and hold controlling for age, the highest grade achieved, and other location factors of interest. The result of these trends is that the majority of re-entrants aged 13 or above are boys.

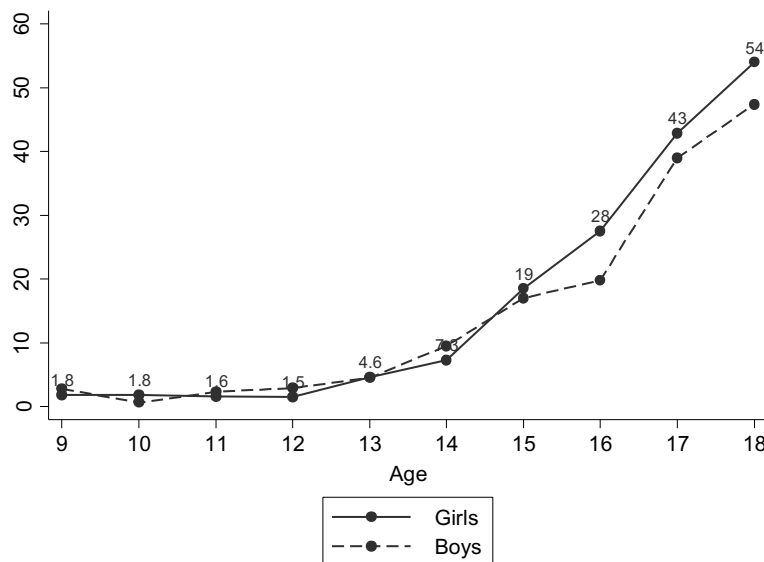
Figure 4.7 Share of out-of-school children aged 13 to 17 in 2016, who re-entered in 2017, by gender



Through a combination of marginally higher dropout rates and much lower re-entry rates, girls are more likely to be out-of-school than boys from age 15 on. Figure 4.8 shows this very clearly: while the proportion of out-of-school boys and girls follows a similar trajectory between the ages of 9 to 15, the trends start to diverge from age 15 onwards. The difference in the proportion of girls and boys that are out-of-school is relatively large - about 5.5 percentage points on average between the ages of 16 to 18. Data from the household survey (which included parental interviews on the enrollment and grade of their children) confirms this pattern and further suggests that this difference between boys and

girls persist until at least the age of 20.¹⁰ Understanding the reasons why girls of secondary-school-age are more likely to be out-of-school than boys and, in particular, why they are less likely to re-enter, is an important issue to understand the gender dimension of dropout and will be explored further later in this report.

Figure 4.8 Percent of children that are out-of-school, by gender and age (at the start of 2017)



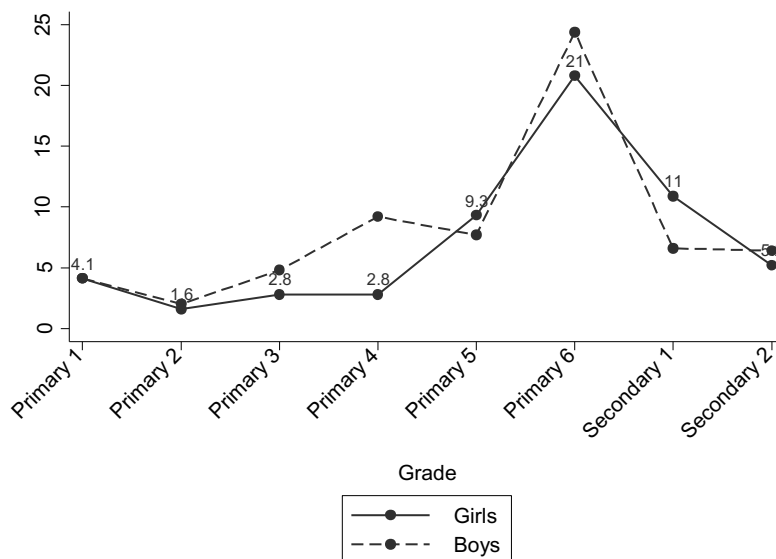
When we look at grades rather than age, we see that the dropout rate in 2016 was higher for boys than it was for girls in primary school, in particular, in Primary 4 (see Figure 4.9). We observe differences between boys and girls in other grades as well, mainly in Primary 6 (where boys appear to be 3 percentage points more likely to dropout) and Secondary 1 (where girls are 4 percentage points more likely to dropout).

The gap in the dropout rates of girls and boys in Primary 4, at 6.5 percentage points, is surprisingly large (see Figure 4.9). An estimated 9.3% of boys dropped-out of Primary 4 in 2016, compared to just 2.8% of girls. This statistic does not appear to be a statistical anomaly, as the difference is significant at the 5% level and holds when controlling for age and location factors. Moreover, similar patterns are found in previous years. In 2015, an estimated 11.5% of boys dropped-out in Primary 4, compared to 5.5% of girls.¹¹ Primary 4 is an important point in the education system as it marks the transition from lower to upper primary school and the shift from Kinyarwanda as the main language of instruction to English. One important question to examine is whether the observed spike in Primary 4 dropout rates for boys is related to a school-related factor – for example boys’ greater difficulty with English – or captures something different.

¹⁰ In the household dataset we asked information about the current enrollment and grade of all household members at the start of 2017; thus, this allowed us to have information about school enrollment for all household members, including those above the age of 18.

¹¹ Note that our schooling trajectory data for 2015 includes only data on children aged 6 to 16.

Figure 4.9 Dropout rate, by gender and grade, in 2016

**KEY MESSAGES:**

- Of children that are primary-school-age (7 to 12), we find that boys have historically been more likely to dropout than girls. In 2016 however, this gender difference was negligible
- There is a divergent educational trajectory for boys and girls between the ages of 7 and 12, with boys at a much higher risk of having dropped-out of school at some point by the age of 12. In 2017, an estimated 13.4% of 12 year old boys had already dropped-out of school at least once during their education, compared to just 5.2% of 12 year old girls
- Dropout is more permanent for girls than it is for boys during secondary-school-age, which can largely be explained by divergent re-entry rates for girls and boys of secondary-school-age: boys are the more likely to re-enter. For children of lower secondary age (13-15), boys are twice as likely to re-enter than girls. This gap closes as children reach upper secondary age.
- Through a combination of marginally higher dropout rates and much lower re-entry rates - girls are more likely to be out-of-school than boys from age 15 on.
- Boys continue to dropout slightly more than girls between the ages of 13 to 15 (lower secondary-school-age), but this difference reverses by ages 16 and 17
- Between the ages of 16 to 18, girls are more likely to dropout compared to boys - there is quite a large difference of about 5.5 percentage points on average between the share of out-of-school girls and boys. Further, data suggest that this trend with girls more likely than boys to be out of school, will continue until at least the age of 20
- Looking at grades rather than age groups, we find that dropout rates are higher for boys than girls in primary school, in particular, in Primary 4.

4.1.1.4. Performance in School – “do children who drop-out perform as well as their peers?”

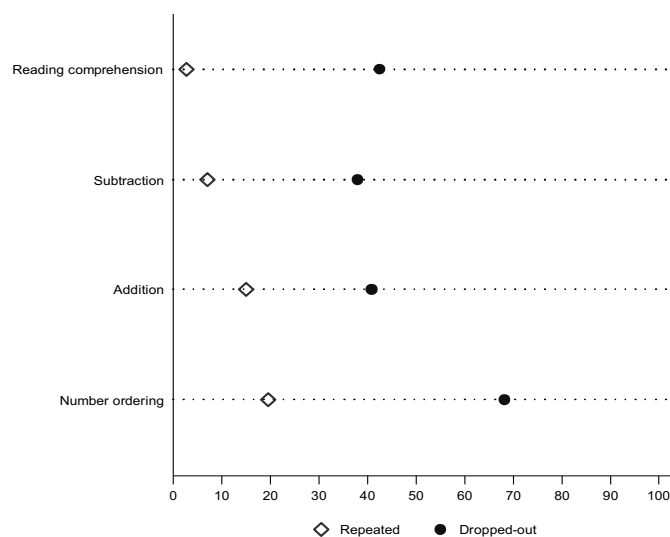
An important question to ask is whether dropout is tied to low academic performance. Do children drop-out because they do not perform well at school? To answer this question we study the past schooling experience of children, look at self-assessments on their schooling trajectory and outcomes, and use the reading comprehension and numeracy scores from our child survey.

Evidence shows that children of who dropped-out of school did not perform worse than children who repeated grade - who tend to underperform with respect to children who are promoted, regardless of age group. Children of primary-school-age who dropped-out scored as high as those who got promoted and higher than those who repeated, on average. Children of secondary-school-age who dropped-out performed worse than those who got promoted but, not so compared to those who repeated grade. For both age groups, it seems, performance is not a major driver behind dropout.

a. Children of primary-school-age

Children of primary-school age who dropped-out in their first year of education, scored as high as children who did get promoted to the next grade and, surprisingly, scored significantly higher on all learning assessments tests in our child survey compared to children who repeated grade (see Figure 4.10). The difference in the learning assessment scores between children who dropped-out and children who repeated holds controlling for age, gender and locational factors of interest and is significant at the 5% level. These children even scored better than children who got promoted, although the difference in this case was not statistically significant.

Figure 4.10 Learning assessment scores (% correct answers) comparing children that dropped-out in their first year of education versus children that repeated, 2016-2017



Children of primary school age who dropped-out after their first year of education do not seem to have learning difficulties when compared to children who repeated. Several indicators point in this direction. Firstly, children aged 7 to 12 who completed the year in 2016, but did not re-enroll in 2017, had higher school passing rates than children who completed the grade but repeated. It is a pattern that is found repeatedly in previous years and that is significant at the 10% level. Second, we find that children who dropped-out performed better in our reading comprehension and numeracy assessments; with higher test scores on average than repeaters.

Children aged 7 to 12 who dropped-out of school were also not more likely to have repeated previously. Repetition is, usually, an educational event that signals that a child is experiencing learning difficulties. We have seen in Chapter 3 that repetition can lead to dropout in the future. This does not hold true, however, for children of age 7 to 12. In 2016, the difference in prior repetition rates between children who eventually dropped-out of school and children who did not was insignificant. We conclude by excluding learning difficulties as a key factor that links to dropout for children of primary-school-age.

b. Children of secondary-school-age

Although previous academic performance is a very strong predictor of dropout, we find that it is not necessarily the worst performing students who are dropping out. Focusing only on the Primary 4 reading comprehension, addition, subtraction, multiplication and division assessments in our child survey - which was taken by almost all children in our sample who were in Primary 4 and Primary 5 in 2016, we find that while dropout is consistently associated with lower test scores, children who repeat performed slightly worse on average than children who dropped-out. This holds true controlling for age, gender, grade and various household and location factors.

Controlling for child, household and location factors, we find that children who dropped-out and children who repeated in 2016 were both significantly less likely to have found classes to be easy. Having dropped-out or repeated is associated with a 6 to 8 percentage point drop in the share of children who deemed classes at school to be easy. There are no statistically significant differences between repeaters and children who dropped-out.

Where children who dropped-out differed from repeaters is on the metric of self-confidence to learn difficult concepts. Both children who dropped-out and children who repeated in 2016 were significantly less likely to have confidence in their own abilities to learn, compared to children who were promoted. However, the signal was strongest for dropouts. Dropping out of school is associated with a 15-percentage point reduction in children's confidence in their ability to learn the most difficult things, while repetition was associated with a 6 percentage point reduction in self-confidence (both differences are significant at the 1% level).

In summary, there is a strong link between performance, self-confidence and dropout. Children who have repeated the most and children with low scores on our assessments are also more likely to dropout.

However, performance does not appear to be a greater issue for children who drop-out than for children who repeat. In fact, some of the evidence points to the fact that, all else equal, children who repeated grade scored less on our assessments than children who dropped-out. Where there seems to be a difference is that children who drop-out appear to have given-up on their own skills; they have lost confidence in their own ability to perform at school.

KEY MESSAGES:

- Although previous academic performance is a very strong predictor of dropout, we find that it is not necessarily the worst performing students who are dropping out.
- Children of primary-school age who dropped-out in their first year of education, scored as high as children who did get promoted to the next grade and, surprisingly, scored significantly higher on all learning assessments tests in our child survey compared to children who repeated grade
- Children of primary school age who dropped-out after their first year of education do not seem to have learning difficulties when compared to children who repeated
- Children aged 7 to 12 who dropped-out of school were also not more likely to have repeated previously.
- We find that children who dropped-out and children who repeated in 2016 were both significantly less likely to have found classes to be easy.
- Where children who dropped-out differed from repeaters is on the metric of self-confidence to learn difficult concepts. Both children who dropped-out and children who repeated in 2016 were significantly less likely to have confidence in their own abilities to learn, compared to children who were promoted.

4.1.1.4. Disabilities – “do disabilities increase the chance of dropping-out?”

An important factor when it comes to the risk of children dropping-out or accumulating delays in their education is the health of the child and - in particular - the of issue various forms of disability or impairment. Disability is often studied or measured in terms of physical disability (for example, impaired vision, hearing or movement), but it is important to not forget that cognitive and behavioral disabilities can be equally important. In this sub-section, we briefly present average rates of different forms of disabilities or impairments for children of primary and secondary-school-age from our household survey and establish the link with dropout.¹²

a. Children of primary-school-age

Each individual form of disability or impairment is rare, but taken together, a non-negligible group of children experience some form of physical, cognitive or behavioral impairment. In 2017, according to the household survey, an estimated 16.7% of children aged 7 to 12 experienced some form of impairment. We

¹² It is important to note that our data on disabilities/impairments is self-reported and was asked to a parent or guardian about children in her household. As such, the results on disabilities should be taken with caution as self-reported disabilities, by definition, have not been diagnosed by a trained medical professional. Thus, the accuracy and reliability of such self-reported disabilities tends to be low.

observe few differences between children of primary school age, except for impaired vision which gradually increases with age. On average, boys tend to experience more disabilities than girls. Boys are almost two times more likely to experience difficulties controlling their behavior, difficulties speaking and being understood, and taking care of themselves (for difficulties dressing or feeding themselves).

Table 4.2 Percentage of children aged 7 to 12 with a form of disability, 2017

Type of disability/difficulty	Girls	Boys	Total
Physical			
Difficulties w/ vision	5.0%	5.3%	5.1%
Difficulties w/ hearing	2.8%	2.8%	2.8%
Difficulties w/ movement	0.2%	0.1%	0.1%
Cognitive			
Difficulties w/ learning	3.5%	4.7%	4.1%
Difficulties w/ self-care (including mental illness)	1.2%	3.3%	2.2%
Difficulties w/ speech	1.1%	2.7%	1.9%
Behavioral			
Difficulties controlling behavior	3.0%	5.6%	4.3%
Difficulties making friends	2.2%	1.8%	2.0%
Child has at least one difficulty/disability	14.3%	18.5%	16.4%

Certain forms of disability are more closely linked to dropout than others. For children of primary-school-age the disabilities that show the strongest link to dropout include: impaired hearing (associated with a 10-percentage point increase in dropout and significant at the 10% level), difficulties with self-control and cognitive impairments (both associated with to a 4.5 percentage points increase in dropout rates, but the differences are not significant). We are not able to obtain more precise insights for this age group because both dropout during primary school age and disabilities are rare, leading to low statistical power.

b. Children of secondary-school-age

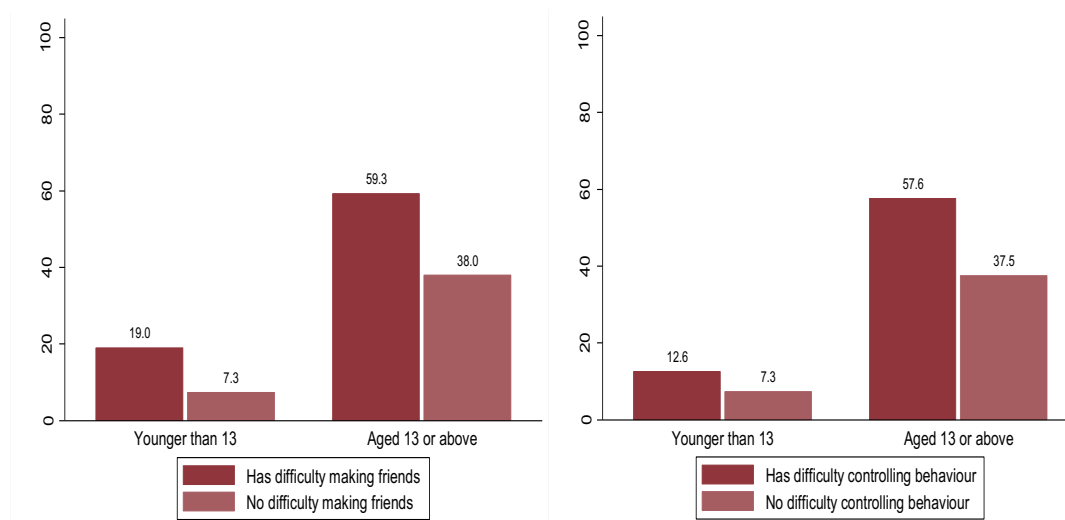
Convincing evidence suggests there is a positive association between having a disability and having dropped out of school at some point in time for children between the ages of 13 and 18. In this study, parents were asked whether their children faced any disability. Children who were reported as having a disability, be it having

difficulty hearing, expressing themselves, learning, making friends, controlling their behavior, are more likely to have dropped out of school at some point during their education than children who do not face that disability. The disabilities that provide the strongest link to dropout are behavioral impairments, including difficulties making friends and controlling behavior, and cognitive impairments, including difficulties in speaking and getting understood by people outside the household. Statistical power to study the link between disability and dropout is low, because both dropout and disability are rare occurrences. We nevertheless find statistically significant effects on these three forms of disability – making friends, controlling behavior and being understood - controlling for age, age squared, gender, and location (rural/urban, by province). To illustrate this, Figure 4.11 compares the percentage of children in 2016 that had dropped-out of school at least once, by age and disability.

Figure 4.11 Percent of children in 2016 that have dropped out of school at least once, by age and by disability

(a) difficulty making friends

(b) difficulty controlling behavior



KEY MESSAGES:

- An important factor when it comes to the risk of children dropping-out or accumulating delays in their education is the health of the child and - in particular - the of issue various forms of disability or impairment
- Each individual form of disability or impairment is rare, but taken together, a non-negligible group of children experience some form of physical, cognitive or behavioral impairment. In 2017, according to the household survey, an estimated 16.7% of children aged 7 to 12 experienced some form of impairment
- Certain forms of disability are more closely linked to dropout than others. For children of primary-school-age the disabilities that show the strongest link to dropout include: impaired hearing (associated with a 10-percentage

point increase in dropout and significant at the 10% level), difficulties with self-control and cognitive impairments (both associated with to a 4.5 percentage points increase in dropout rates, but the differences are not significant).

- *There is a positive association between having a disability and having dropped out of school at some point in time for children between the ages of 13 and 18. We nevertheless find statistically significant effects on these three forms of disability – making friends, controlling behavior and being understood - controlling for age, age squared, gender, and location (rural/urban, by province).*

4.1.2 Household Characteristics

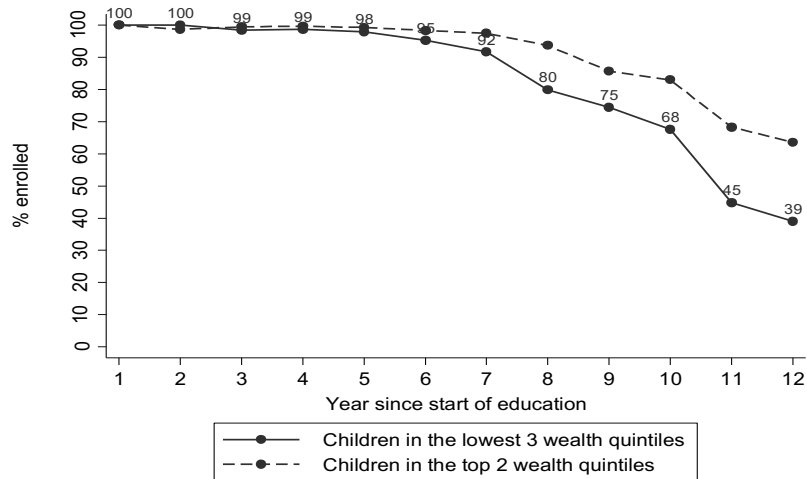
4.1.2.1. Poverty – “is dropout more prevalent in poor households?”

Monetary poverty at the household level is one of the strongest predictors of dropout. In this section, household wealth is proxied for using an assets-based index, calculated with Principle Component Analysis. To facilitate comparisons, households are segmented into five wealth brackets, or quintiles (each quintile accounts for about 20% of children).¹³

School survival rates are significantly lower for children from households in lower wealth quintiles. This can be seen in Figure 4.12, which compares the school survival rates of children from households in the bottom three income quintiles to those of children from households in the top 2 income quintiles. The graph shows that twelve years after the start of their education an estimated 39% of children from the bottom three wealth quintiles were still enrolled, compared to over 60% of children from households in the top 2 wealth quintiles. The wedge in enrollment rates between these two groups of children starts to appear in the 5th year of their education, but it is only after the 7th year of education that the school survival rates of the two groups start diverging more rapidly. This corresponds to the period when a greater number of children reach P6 and the critical juncture from primary to secondary school, when many children drop out.

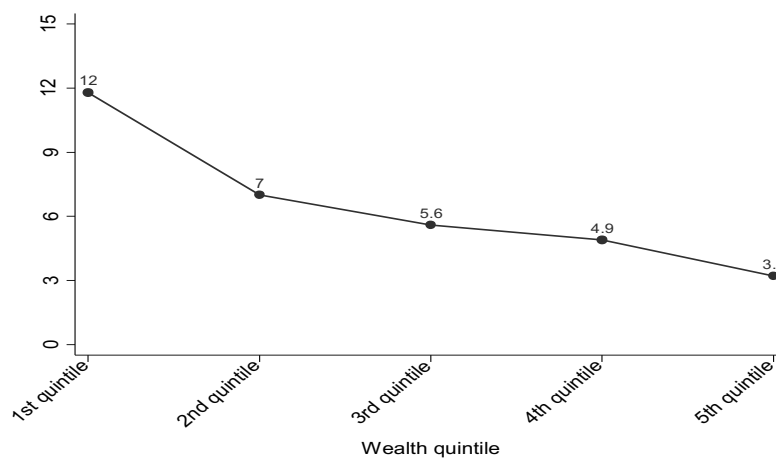
¹³ Wealth quintile 1 groups the 20% of households that ranked lowest in terms of wealth – i.e. the poorest; on the other hand, wealth quintile 5 groups the 20% of households that ranked highest in terms of wealth – i.e. the richest.

Figure 4.12 School survival rates for children aged 6 to 18, by wealth quintile and years since start of education (2017)



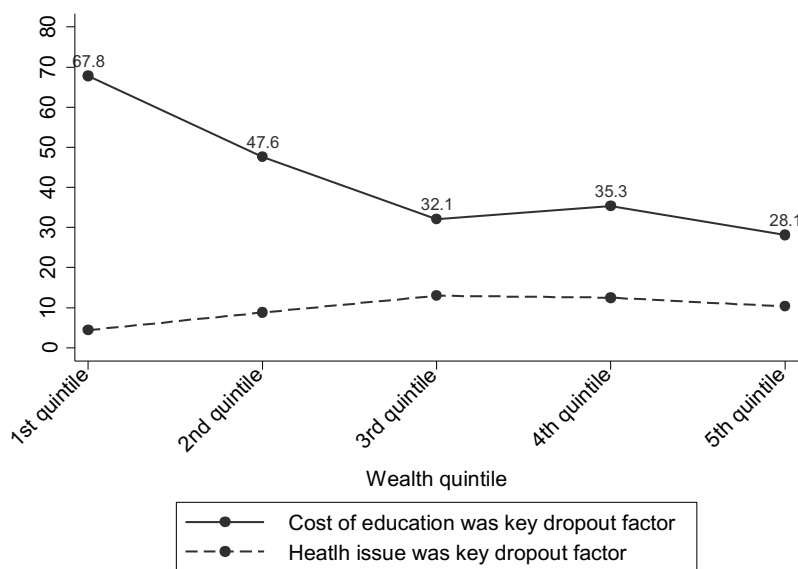
The evidence linking dropout and the wealth status of a household for primary-school-aged children is very strong. There is a clear inverse correlation between household wealth and dropout rates (see Figure 4.13). The data suggests that by the end of 2016, an estimated 12% of children aged 7 to 12 from households in the lowest wealth quintile had dropped out of school at least once during their education. This compares to about 3% of children from households in the highest wealth quintile. Children from the poorest households were almost four times more likely to have dropped-out of school at least once, when compared to children from households in the highest wealth quintile. The largest wealth effect is observed in wealth quintile 1, in the poorest households. This underlines the fact that dropout in primary school age is an event that affects children from the poorest and most vulnerable households.

Figure 4.13 Percentage of children aged 7 to 12 who have dropped out at least once, (2016/2017)



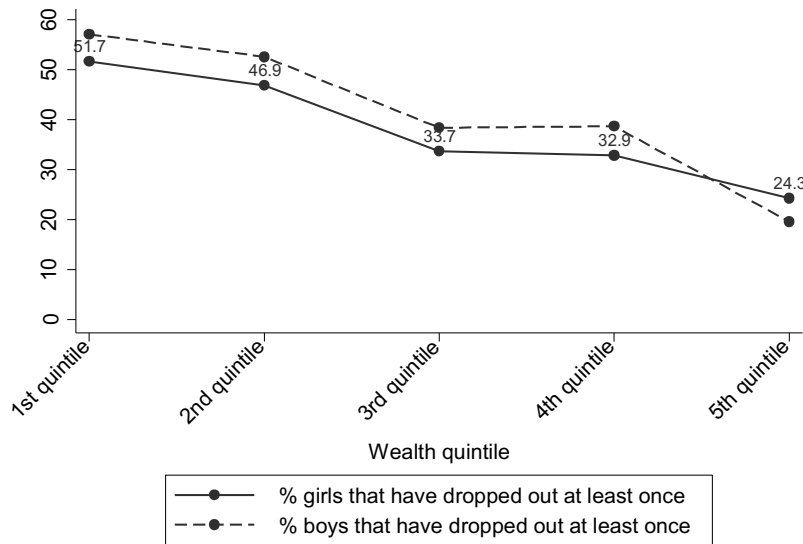
When asked why they dropped-out, children (and parents alike) from the poorest households reported two key factors: the cost of education and health related issues (in particular, temporary sickness). Across wealth quintiles, children identified cost as the main reason for dropping-out. However, the proportion of children that identified cost as the main reason for dropping-out, was much higher in the poorest two quintiles: 70% in the poorest wealth quintile, compared to 30% on average between wealth quintiles three and five.

Figure 4.14 Key identified dropout factors for children aged 7 to 12 that dropped-out between 2014 and 2016



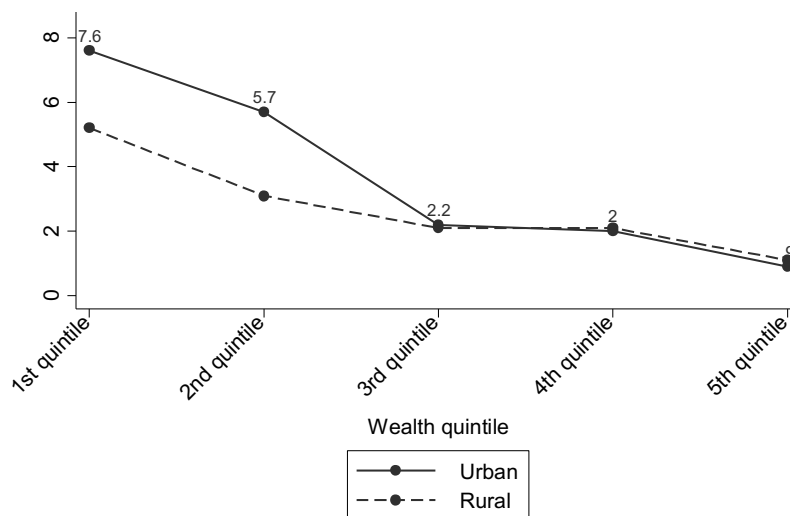
One of the hypothesis that was tested was whether girls in poorer households were at a higher risk of dropout compared to their male peers. The evidence suggests otherwise. In the four lowest wealth quintiles boys were on average more likely to have dropped out of school. Moreover, the difference in the dropout rate between boys and girls remains relatively constant across all four wealth quintiles, suggesting there is no particular effect of household wealth on the gender balance of dropout. The difference between genders disappears in wealth quintile 5.

Figure 4.15 Children aged 6 - 18 that have dropped out at least once during their education, by wealth quintile and gender



The economic situation of households affects dropout patterns for children living in urban and rural areas differently. When we look at the impact of monetary poverty on dropout by location, we see that dropout rates for children of primary school age in urban areas is higher, which is a very important finding from a policy perspective. Although dropout rates are lower in urban areas, on average, when controlling for wealth a very different picture emerges (see Figure 4.16). Instead of finding lower dropout rates in urban poor areas, evidence suggests that: (i) children in the poorest urban households are at a higher risk of dropout; and (ii) children from households in the top three wealth quintiles in urban and rural areas face an almost identical risk of dropout. This urban risk-factor for the poorest households underlines the extent to which dropout for children aged 7 to 12 is an economic problem, much more than it is a problem related to a child’s learning or his/her health status.

Figure 4.16 Percentage of children aged 7 to 12 who have dropped-out between 2014 and 2016



Children of secondary school age from rich urban households – those in the third, fourth and fifth wealth quintiles – are much less likely to have dropped out of school than children of that age group from those same wealth quintiles who live in rural areas. Children from relatively wealthy urban households seem to benefit from the educational opportunities offered by cities, relative to children from relatively wealthy rural households. While we find that belonging to an urban household in the lowest wealth quintile is associated with a slightly higher risk of dropout for secondary-school-age children than belonging to a rural household in the same quintiles, the difference is not large enough to be statistically significant. In sum, we see greater inequality in educational outcomes in urban areas, with students from poorer urban households doing worse than poor households in rural areas, and wealthier urban households doing better than their rural counterparts.

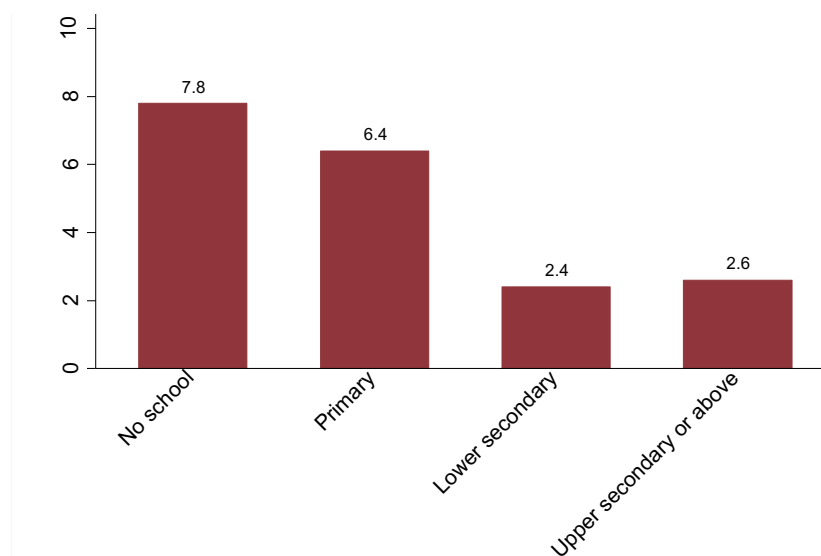
KEY MESSAGES:

- *Monetary poverty at the household level is one of the strongest predictors of dropout.*
- *School survival rates are significantly lower for children from households in lower wealth quintiles. Twelve years after the start of their education an estimated 39% of children from the bottom three wealth quintiles were still enrolled, compared to over 60% of children from households in the top 2 wealth quintiles.*
- *The evidence linking dropout and the wealth status of a household for primary-school-aged children is very strong. There is a clear inverse correlation between household wealth and dropout rates (see figure 4.11). The data suggests that by the end of 2016, an estimated 12% of children aged 7 to 12 from households in the lowest wealth quintile had dropped out of school at least once during their education.*
- *When asked why they dropped-out, children (and parents alike) from the poorest households reported two key factors: the cost of education and health related issues (in particular, temporary sickness). Across wealth quintiles, children identified cost as the main reason for dropping-out. However, the proportion of children that identified cost as the main reason for dropping-out, was much higher in the poorest two quintiles*
- *In the four lowest wealth quintiles boys were on average more likely to have dropped out of school. Moreover, the difference in the dropout rate between boys and girls remains relatively constant across all four wealth quintiles, suggesting there is no particular effect of household wealth on the gender balance of dropout*
- *The economic situation of households affects dropout patterns for children living in urban and rural areas differently. When we look at the impact of monetary poverty on dropout by location, we see that dropout rates for children of primary school age in urban areas is higher*
- *Evidence suggests that: (i) children in the poorest urban households are at a higher risk of dropout; and (ii) children from households in the top three wealth quintiles in urban and rural areas face an almost identical risk of dropout. This urban risk-factor for the poorest households underlines the extent to which dropout for children aged 7 to 12 is an economic problem, much more than it is a problem related to a child's learning or his/her health status*
- *Children of secondary school age from rich urban households – those in the third, fourth and fifth wealth quintiles – are much less likely to have dropped out of school than children of that age group from those same wealth quintiles who live in rural areas*

4.1.2.2. Home Environment – “is dropout higher in households with less parental support or less supportive home environments?”

Parents play a fundamental role in their children’s education. The data unequivocally shows that the education level of the household head, or whether the household head knows how to read and write, matters for the education of the child and is correlated with dropout. Children in households where the parents have higher levels of education are less likely to drop out of school. This can clearly be seen in Figure 4.17 below, which shows the average dropout rate in 2016 for children, based on the level of education of the household head.

Figure 4.17 Average dropout rate, by education level of the household head (2016)



The education levels of parents are closely inter-twined with the socio-economic status of the household, making it difficult to isolate the association between the education of the parents and the schooling of their children. Controlling for the wealth of the household, and other relevant factors,¹⁴ we find that the education of the household head nevertheless remains a significant predictor of dropout. This can be seen in Table 4.1, which shows that the education level of the household head and the socio-economic status of the household have an additive effect on dropout.¹⁵

¹⁴ Such as age, age squared, gender, and location.

¹⁵ For statistical power purposes, we look at the percentage of children that have dropped out at least once in the past, not the dropout rate in 2016.

Table 4.3 Proportion of children aged 6 to 17 who have dropped out at least once, by education level of the household-head and the wealth quintile of the household (2016)

Wealth group	Education of the household head		
	No education	Primary only	Lower secondary
Quintile 1	33.2%	27.7%	26.2%
Quintile 2	25.3%	24.0%	18.4%
Quintile 3	24.5%	16.3%	8.1%
Quintile 4	21.1%	19.2%	12.5%
Quintile 5	19.0%	11.2%	6.7%

Evidence suggests that both parents play an important role in the education of their children. What matters within a household is not the maximum level of education of one of the parents, but the combined education levels of the two parents. We show this in Table 4.4, which for statistical power purposes focuses only on the sub-set of households where parents either have no education or primary education only. This table reveals that the proportion of children who have dropped out at least once is lowest in households where both parents have attended primary school and highest in the households where neither parent has attended school.¹⁶

Table 4.4 Proportion of children aged 6 to 17 that have dropped out at least once, by education level of the household-head and the spouse, 2016

	Spouse: No education	Spouse: Primary education
Household-head: No education	27.3%	20.3%
Household-head: Primary education	23.3%	16.5%

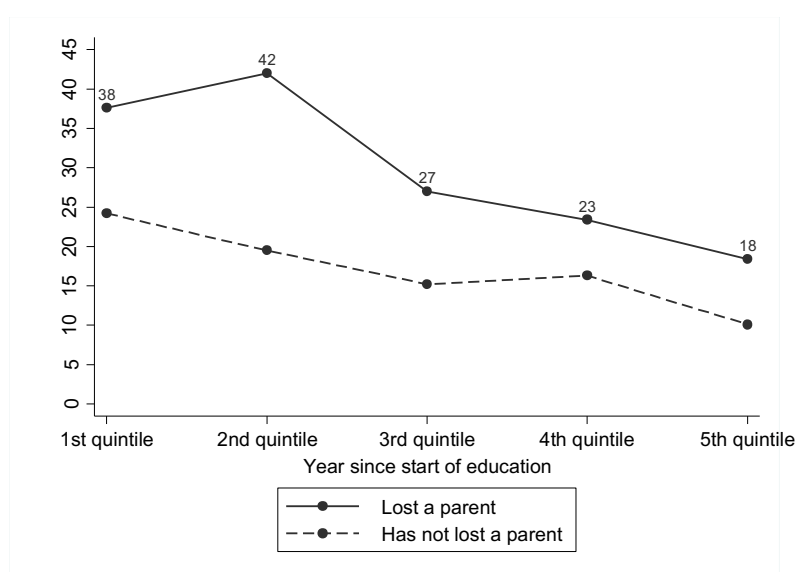
Dealing with the death of a parent is a shock that affects older children and children from the poorest household disproportionately. This is important in the context of schooling because the death of a parent is associated with a higher incidence of dropout. We find that children who report having lost a parent are 5 percentage points more likely to have dropped out of school at some point during their education.¹⁷ Older children are more likely to have lost a parent because of the effect of time. An estimated 20% of children aged 16 to 18 reported having lost a parent, compared to about 7% of children aged 6 to 8. Children from the very poorest household are at the highest risk of losing a parent. An estimated 17% of children aged 6 to 18 in wealth quintile 1 – poorest – reported having lost a parent, compared to about 10% in all other wealth quintiles.

¹⁶ This association holds when controlling for other factors of interest, but multicollinearity resulting from the interactions between the educational attainment of the parents, wealth and location make regression coefficients difficult to interpret.

¹⁷ The difference is statistically significant, controlling for age, age squared, gender, wealth, location and other factors of interest such as the education level of the parents.

In addition to dealing with the emotional consequences of the loss of a parent at such a young age, children in the poorest households are more likely to have to step in to take over the responsibilities of the lost parent. Data suggests that the effect of losing a parent is larger for children from poorer households. This can be seen in Figure 4.18, which shows that children who have lost a parent and that are in the lowest wealth quintiles are relatively more likely to have dropped out of school than children who have lost a parent in higher wealth quintiles (i.e. the gap in the incidence of dropout for children who have lost a parent and children who have not is higher for children from households in lower income quintiles).

Figure 4.18 Proportion of children aged 6 to 18 that have dropped out at least once, by wealth quintile and whether they have lost a parent (2017)



Work, chores and caring for other family members are associated with dropout, but respondents do not identify these factors as being amongst the main drivers of dropout. Cost, illness, and the dislike of school were cited much more often as the main reasons for dropping-out. Supporting this argument, we find no evidence to suggest that children with the highest chore or work burdens are more likely to dropout out in subsequent years. Rather, increases in the chore and more specifically, the work burden of children appears to be a direct consequence of dropout, that affect children in the poorest households the most. These factors appear to be more barriers to re-entry than they are factors driving dropout.

Only a small share of children and parents identified work, chores and/or caring for other family members as the main reason for dropout. An estimated 4.5% of children who dropped-out in 2016 said that they dropped-out because of chores, work, or caring for other family members. Parents agree: according to the household interviews, 4.1% of children who dropped-out were reported to have dropped-out because of household-level responsibilities or for work. This

compares to an estimated 52% of children – and about 43% of parents - who mentioned the cost of schooling (either fees, the cost of materials, clothing, etc) as the main reason they dropped out.

Compared to children and parents, data from our school survey suggests that head-teachers perceive chores and work to be a more prominent cause of dropout, but similarly, they do not perceive chores or work to be the leading cause of dropout. An estimated 13.5% of head-teachers said children that drop-out of Primary 1 because of household chores and/or work; this increases to 21% for children in Primary 6. Across grades, head-teachers identified the main driver of dropout being the fact that children and parents do not value education (head-teachers were not directly asked about the issue of cost).

If chores and work are not the driving factors behind dropout, then we would also expect the chores and work burden of children at a given point in time not to be good predictors of dropout in subsequent years. This hypothesis is tested using questions in the child survey in which children were asked what chores they conducted in a typical week in 2016 and whether in a typical week they worked for another household. In this case, we only study patterns in relation to dropout between years, because for dropout that occurs during a year we do not know what came first: whether children first start working and/or conducting household chores and then dropped-out, or vice versa.

Studying chores first, there is no consistent pattern to suggest that a greater chores-burden in 2016 is associated with higher levels of dropout between 2016 and 2017. Firstly, there is no overall association between the number of chores that children conducted in 2016 and dropout rates between years after controlling for age and gender. We also find mixed and relatively weak signals when it comes to individual chores. Some chores, such as cleaning utensils or doing the shopping for the household, are associated with a slight reduction in dropout rates; others, such as herding livestock, are associated with a slight increase in dropout rates. We believe that these signals do not constitute evidence of a link between dropout and chores, but rather capture something deeper about the socio-economic situation of the household. For example, children who report cleaning utensils and going shopping for the household, come from families with a higher wealth index on average than children who report not doing these chores. On the contrary, children who herd livestock, come from families that are significantly worse off than children that do not herd livestock.

We also find only a weak signal linking working outside of the household in 2016 to dropping out of school between 2016 and 2017. Children who reported working outside of the household in 2016 and who completed the school year, were about 1.5 percentage points more likely to drop-out between years, but this difference is not statistically significant.

In summary, we do not find evidence to suggest that there is a strong link between work and chores in 2016 and subsequent dropout between 2016 and 2017. What can be stated with greater certainty, is that after dropping-out, the chore and work-burden of children increases significantly. The vast majority of children who drop-out of school report dedicating themselves to chores or work as their main activity after dropping-out. An estimated 50% of children who dropped out in 2016 reported that since dropping-out their main activity has been staying

at home and supporting with household chores; an additional 29% mention that their main activity is working either on the family farm/business or for an external employer. Only about 5% of children reported entering a technical training course after they dropped out of school. Similar patterns are found in other years.

Dropping out is associated with a rapid increase in the proportion of children who work. Controlling for age, gender, and other factors of interest, we find that dropout during the school year in 2016 is associated with a 12-percentage point increase in the proportion of children who work outside the household.¹⁸ These children might have dropped out in order to work, hence the association between dropout during the school year and working outside the household, but the responses of both children and their parents to questions about the reasons for dropping out suggest that work was a consequence rather than a cause of dropout.

Working for an external employer or household is an issue that affects boys much more than girls; this remains true both before and after children drop-out of school. Boys aged 13 to 18 or above are on average 9 percentage points more likely to work for an external employer or household than girls.¹⁹ For both boys and girls, the proportion of children that report working for an external employer or household increases with age and peaks after the age of 15.

Whilst boys are more likely to work outside the household, girls take on a greater chores-burden. This is true both before and after dropout. A similar number of boys and girls engage in household chores, but girls conduct more chores on average. This can be confirmed using both the child and parental surveys. Based on the child surveys we find that in a typical week girls aged 6 to 18 conducted 5.2 different types of chores in a week, compared to 4.7 for boys. Parental surveys also confirm that girls conduct more chores on average and spend more hours on chores in a given day: 2.7 hours on average for girls, versus 2.2 hours for boys.²⁰

KEY MESSAGES:

- *The data unequivocally shows that the education level of the household head, or whether the household head knows how to read and write, matters for the education of the child and is correlated with dropout. Children in households where the parents have higher levels of education are less likely to drop out of school*
- *Controlling for the wealth of the household, and other relevant factors, we find that the education of the household head nevertheless remains a significant predictor of dropout.*
- *Both parents play an important role in the education of their children. What matters within a household is not the maximum level of education of one of the parents, but the combined education levels of the two parents.*
- *Dealing with the death of a parent is a shock that affects older children and children from the poorest household disproportionately. This is important in the context of schooling because the death of a parent is associated with a higher incidence of dropout. We find that children who report having lost a parent are 5 percentage points more*

¹⁸ The increase is statistically significant at the 1% level.

¹⁹ Difference is statistically significant at the 1% level.

²⁰ A small but, statistically significant difference.

likely to have dropped out of school at some point during their education. Children in the poorest households are more likely to have to step in to take over the responsibilities of the lost parent

- *We find no evidence to suggest that children with the highest chore or work burdens are more likely to dropout out in subsequent years. Only a small share of children and parents identified work, chores and/or caring for other family members as the main reason for dropout*
- *Cost, illness, and the dislike of school were cited much more often as the main reasons for dropping-out*
- *What can be stated with greater certainty, is that after dropping-out, the chore and work-burden of children increases significantly*
- *Dropping out is associated with a rapid increase in the proportion of children who work. Controlling for age, gender, and other factors of interest, we find that dropout during the school year in 2016 is associated with a 12-percentage point increase in the proportion of children who work outside the household*
- *Boys are more likely to work outside the household, girls take on a greater chores-burden. This is true both before and after dropout. A similar number of boys and girls engage in household chores, but girls conduct more chores on average.*

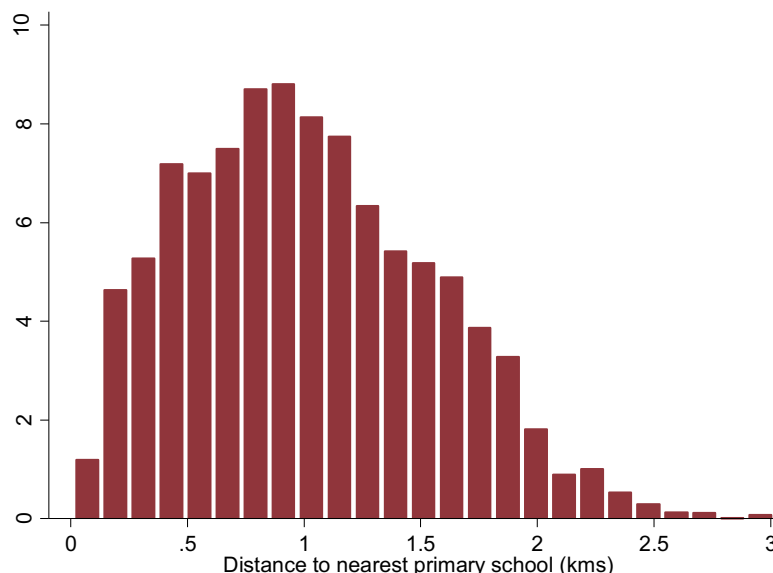
4.1.3 School Characteristics

4.1.3.1. Proximity to school – “does proximity to school affect dropout?”

a. Children of primary-school-age

One factor that can influence access to education is the presence or not of a school in the vicinity of where a child lives. In this study, we are able to measure with a relatively high degree of accuracy – using GPS data collected for this study and data from MINEDUC’s EMIS database – the distance from a child’s home to the nearest school and from the child’s home to the school that he or she actually attends.

Access to primary school, in geographic terms in Rwanda, is high. Evidence suggests that close to 100% of children in our sample live within 3kms of a primary school; about 50% of children live within 1km of a primary school (see Figure 4.19). The density of the school network is higher in urban areas, where children on average live about 340 meters closer to a school than children in rural areas (significant at the 5% level). As a result, Kigali Province is the region with the lowest average distance to a primary school. Children in Kigali live on average 640 meters from a primary school, compared to 850 meters in the Western Province, 1.1kms in the Southern and Northern Provinces, and finally 1.2kms in the Eastern Province.

Figure 4.19 Distance from home to nearest primary school (2017)

We find that proximity to a primary school matters when it comes to dropout rates for children aged 7 to 12. Evidence suggests that children of primary school age, in rural areas, who live in a village where there is a primary school, are less likely to experience dropout than children that live in villages where there is no school. In our data, in 2017 about 20% of children aged 7 to 12 in rural areas lived in villages that had a primary school. These children were on average less likely to drop-out. In 2016, the dropout rate for children of primary school age living in rural villages without a school was 3.1%, compared to 1.7% for children living in rural villages with a school. Similarly, children that in 2016 went to school in their own village were about 2 percentage points less likely to dropout than children that went to school in a different village. These differences of one to two percentage points might appear small, but are statistically significant at the 5% level and hold controlling for child, household and location-related factors. Moreover, we find that these patterns are repeated at the Cell (and Sector) levels. For example, children aged 7 to 12 living in rural Cells where there are either no schools (just 4% of Cells) or just one school (41% of Cells), were on average 2.2 percentage points more likely to dropout in 2016, than children living in Cells with multiple schools (about 45% of Cells).

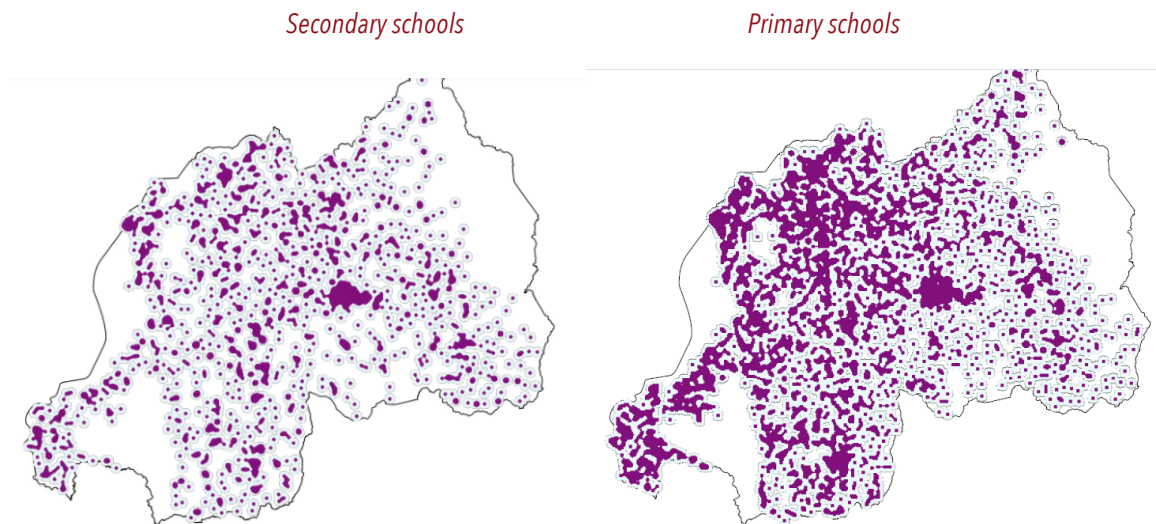
b. Children of secondary-school-age

While MINEDUC has prioritized expansion of the network of secondary schools in the country secondary schools remain more sparsely distributed than primary schools, resulting in reduced geographic access at the secondary level. This relative scarcity of secondary schools is visualized in Figure 4.20, which maps all primary and secondary schools in Rwanda.²¹ An estimated 25% of children in our sample live within 1km of a secondary school, compared to 50% of children that live within 1km of a primary school (see Figure 4.21). As is the case for

²¹ We use the latest available data on school location from MINEDUC which is for 2014; as such, density may have increased since then.

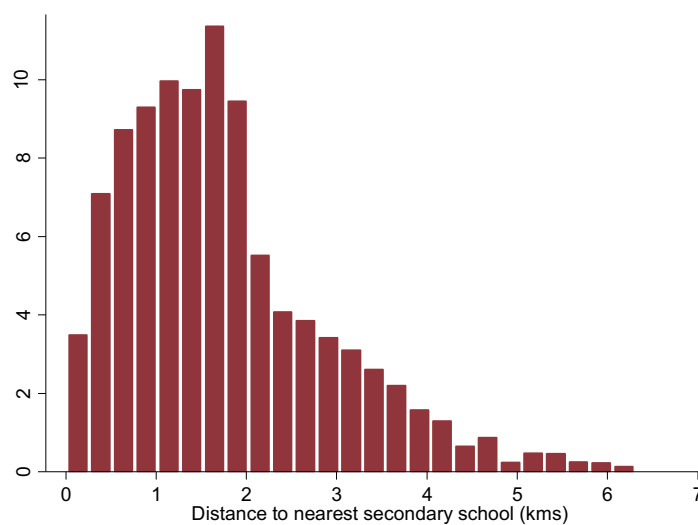
primary schools, the network of secondary schools is denser in urban areas. Children in urban areas live on average 740 meters closer to a secondary school, compared to children in rural areas, a difference that is significant at the 5% level. The average child in Kigali lives approximately 1km from the nearest secondary school. This compares to 1.4kms in the Northern Province, 1.5kms in the Western Province, 2.1kms in the Eastern Province and 2.2kms in the Southern Province. The density of the secondary-school network appears to be significantly lower in the Western and Eastern Provinces.

Figure 4.20 Geographic coverage of primary and secondary schools in Rwanda, 2017



* Each school in the country has a 2km radius around it and is colored purple. The darker the purple, the more dense the number of schools in a particular location

Figure 4.21 Distance from home to nearest secondary school, 2017



KEY MESSAGES:

- *Access to primary school, in geographic terms in Rwanda, is high. Evidence suggests that close to 100% of children in our sample live within 3kms of a primary school; about 50% of children live within 1km of a primary school*
- *The density of the school network is higher in urban areas, where children on average live about 340 meters closer to a school than children in rural areas*
- *Children in Kigali live on average 640 meters from a primary school, compared to 850 meters in the Western Province, 1.1kms in the Southern and Northern Provinces, and finally 1.2kms in the Eastern Province*
- *Children of primary school age, in rural areas, who live in a village where there is a primary school, are less likely to experience dropout than children that live in villages where there is no school.*
- *These patterns are repeated at the Cell (and Sector) levels. For example, children aged 7 to 12 living in rural Cells where there are either no schools (just 4% of Cells) or just one school (41% of Cells), were on average 2.2 percentage points more likely to dropout in 2016, than children living in Cells with multiple schools (about 45% of Cells).*
- *Secondary schools remain more sparsely distributed than primary schools, resulting in reduced geographic access at the secondary level*
- *As is the case for primary schools, the network of secondary schools is denser in urban areas. Children in urban areas live on average 740 meters closer to a secondary school, compared to children in rural areas.*
- *The average child in Kigali lives approximately 1km from the nearest secondary school. This compares to 1.4kms in the Northern Province, 1.5kms in the Western Province, 2.1kms in the Eastern Province and 2.2kms in the Southern Province*

4.1.3.2. Schooling Costs – “are costs associated with attending school reducing access?”

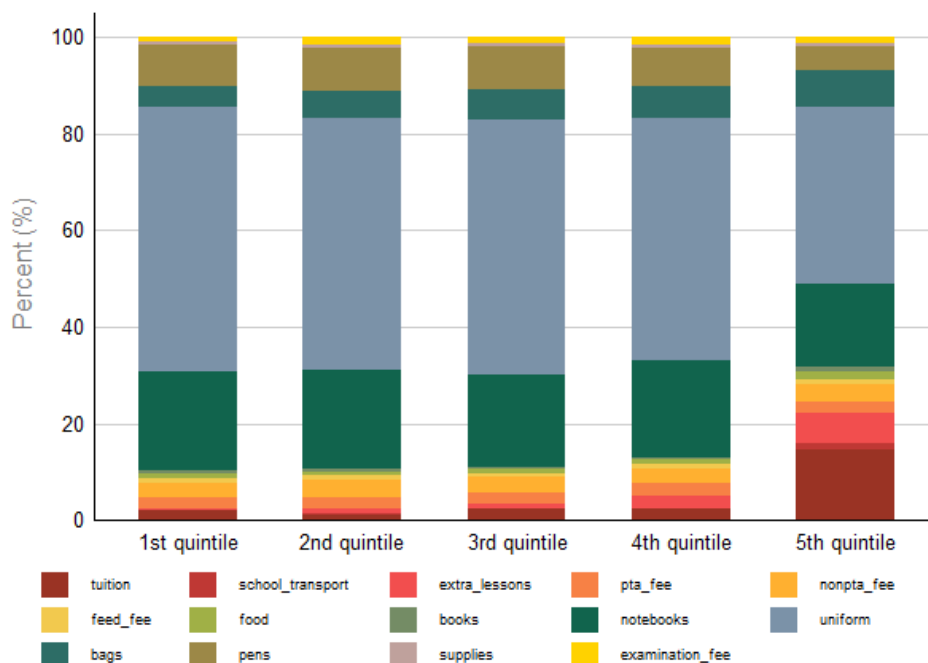
We estimate that the median cost of having a child enrolled in primary school is about RWF6,900 per child per year.²² With multiple children in school, and significantly higher costs in urban areas, the cost of education can quickly become difficult, particularly for parents from the poorest households, to meet.

While most children in Rwanda attend Public or Government Aided schools, free of tuition, there are other associated costs with education that may prevent a household from being able to afford to send a child to school or continue her education. For example, the cost of materials such as notebooks, pencils, pens, as well as uniforms, transportation expenses, and other associated fees and tuition. Expenses on different kinds of schooling materials comprise most of the share of household expenditures on education. On average, the highest education-related expense that Rwandan households need to cover is the cost of uniforms, representing around 50 percent of total household

²² Our household survey included a module that asked parents about all school-related expenditures (e.g. materials, voluntary fees, uniforms, tuition, etc.) for children in primary and secondary school (if they had any child enrolled in those levels) during the 2016 school year. Information was asked in the aggregate, for each school level (so it was not possible to link specific costs to specific children in the household). This allowed us to calculate average expenditure per child per year per level at the household level.

expenditure in education. This is followed by the cost of other materials such as notebooks, which accounts for between 17 and 21 percent of total household expenditure in education.

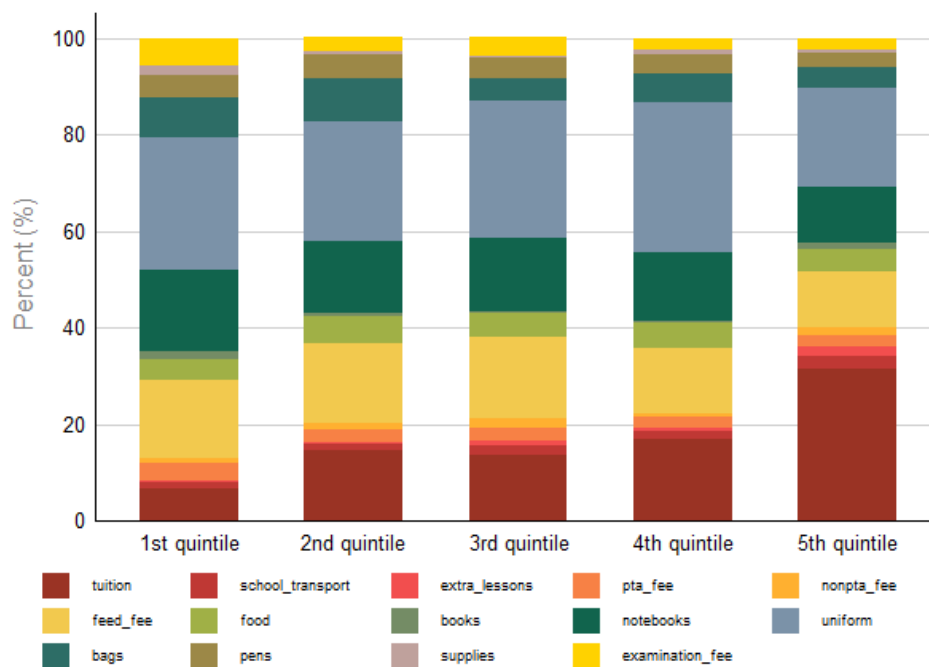
Figure 4.22 Costs associated with primary school education, by wealth quintile (2016)



Sending a child to secondary school is considerably more expensive. The median cost of having a child enrolled in secondary school is about RWF33,500 per child per year in lower-secondary school and RWF136,000 per child per year in upper-secondary school.²³ The costs associated with education between primary and secondary education in Rwanda are quite steep. The increase is consistent for all types of expenditures both tuition and non-tuition expenses are higher in secondary school compared to primary school. Furthermore, the composition of expenses between primary and secondary education changes as well. For example, comparing the share of total median household expenditures on educational costs in primary school (see Figure 4.22) and lower-secondary school (see Figure 4.23), it is clear that both tuition and non-tuition fees become more relevant.

²³ Our household survey included a module that asked parents about all school-related expenditures (e.g. materials, voluntary fees, uniforms, tuition, etc.) for children in primary and secondary school (if they had any child enrolled in those levels) during the 2016 school year. Information was asked in the aggregate, for each school level (so it was not possible to link specific costs to specific children in the household). This allowed us to calculate average expenditure per child per year per level at the household level.

Figure 4.23 Costs associated with lower-secondary school education, by wealth quintile (2016)



Costs associated with education represent a barrier to access to education and seem to correlate with the probability of dropping out of school. While costs during primary education tend to be much lower and more affordable for households, the costs of secondary education, as we will later see, represent an important barrier in terms of economic access. This increase in costs coincides – and, as we will see in the next chapter, is closely related to – the increase in dropout rates in the transition between primary and lower-secondary education. As expected, these costs affect children from the poorest households the most, as these households struggle to manage to afford sending their children to school

KEY MESSAGES:

- We estimate that the median cost of having a child enrolled in primary school is about RWF6,900 per child per year
- On average, the highest education-related expense that Rwandan households need to cover is the cost of uniforms, representing around 50 percent of total household expenditure in education. This is followed by the cost of other materials such as notebooks, which accounts for between 17 and 21 percent of total household expenditure in education
- Sending a child to secondary school is considerably more expensive. The median cost of having a child enrolled in secondary school is about RWF33,500 per child per year in lower-secondary school and RWF136,000 per child per year in upper-secondary school
- Costs associated with education represent a barrier to access to education and seem to correlate with the probability of dropping out of school

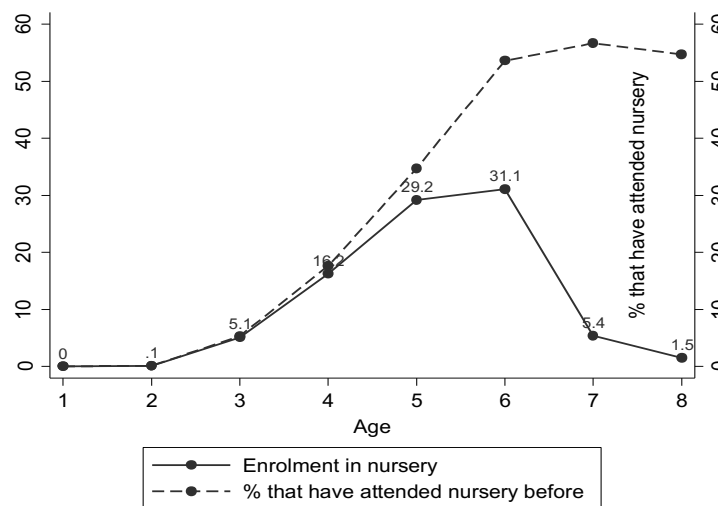
4.1.3.3. Pre-primary education – “does attending pre-primary school reduce dropout?”

A fundamental part of the educational trajectory of children, is pre-primary school attendance. We find that pre-primary school attendance is positively correlated with lower dropout. Pre-primary school attendance in Rwanda is higher than official statistics imply. This is because MINEDUC-supported pre-primary schools, co-exist with more informal structures at the community level as well as a network of early childhood development centers, supported by NGOs and international agencies (for example UNICEF). By age 6, in 2017, an estimated 58.9% of children had attended some form of pre-primary school.

Household-level data shows that enrollment rates in pre-primary school increase from about 4% at the age of 3, to 30% of children by ages 5 and 6. Importantly, as shown in Figure 4.24, a large gap emerges between enrollment levels and the share of children that had attended pre-primary school before. By age 6, almost 60% of children had attended pre-primary school before, compared to just 30% of children that were still enrolled. This implies that children do not stay in pre-primary school for very a long period of time. While most children are attending some form of pre-primary school for a period, their enrollment does not necessarily result in a fluid transition from enrollment to primary. In many cases, children attend pre-primary, leave and spend time out of the system before enrolling in Primary.

Girls are also more likely to be enrolled in pre-primary school than boys. Average enrollment rates in pre-primary school for girls and boys are quite similar between the ages of 4 to 6. However, in 2017, girls were significantly more likely to be enrolled at age 3: 7.1% of girls were enrolled versus just 3.2% of boys. In terms of the aggregate number of children that have attended pre-primary school before, we find very small differences between genders from ages 4 through to 8, with the exception of children aged 7. In 2017, girls aged 7 are more than 10 percentage points more likely to have attended pre-primary school than boys.

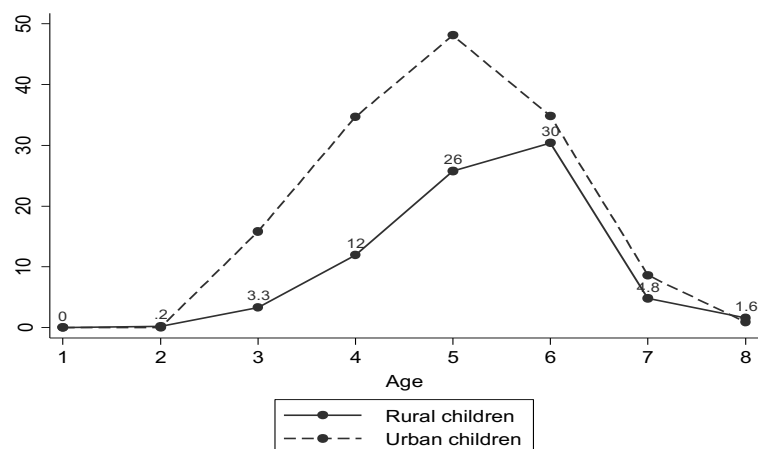
Figure 4.24 Pre-primary enrollment rates, based on parental data, by age in 2017



Equity imbalances in children's education starts from age 3 onwards between rural and urban settings.

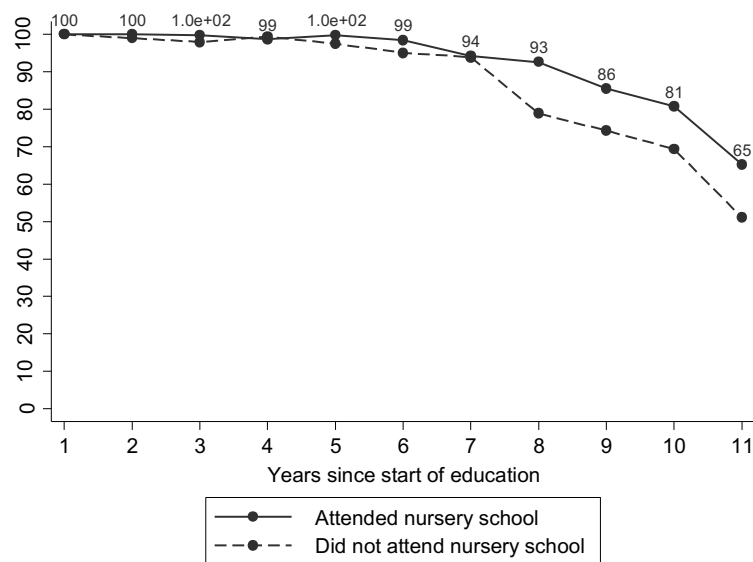
Evidence shows that there are very large urban/rural gaps in pre-primary school enrollment rates (see Figure 4.25). The gap starts to emerge from age 3 onwards, but significantly narrows by age 6, after which many children that were previously enrolled in pre-primary school transition into primary school. At age 5, children in urban areas are almost two times more likely to be enrolled in pre-primary school than children in rural areas: almost 50% of children aged 5 in urban areas attend pre-primary school, versus about 25% in rural areas. The divergence in learning between children in urban and rural areas is large and starts well before primary school, with urban children much better prepared for primary school.

Figure 4.25 Pre-primary enrollment rates, based on parental data, by age and location in 2017

**Examining the link between attending pre-primary school and survival in the education system, the conclusion is: children that attended pre-primary are more likely to survive within the education system**

(see Figure 4.26). Between their 8th and 11th year of education, children that attended pre-primary school were 13 percentage points more likely to be enrolled, than children that did not attend pre-primary school. The difference is statistically significant and holds when controlling for wealth, location and other factors of interest. Moreover, attending pre-primary school is linked to starting school on time. Children that attended pre-primary school are also 13 percentage points less likely to enroll in primary school late, a very large and statistically significant difference.

Figure 4.26 Enrollment rates, by years since start of education, comparing children that attended pre-primary school to children that did not, 2017 data



KEY MESSAGES:

- We find that pre-primary school attendance is positively correlated with lower dropout
- Girls are also more likely to be enrolled in pre-primary school than boys. Average enrollment rates in pre-primary school for girls and boys are quite similar between the ages of 4 to 6. However, in 2017, girls were significantly more likely to be enrolled at age 3: 7.1% of girls were enrolled versus just 3.2% of boys
- Equity imbalances in children’s education starts from age 3 onwards between rural and urban settings. Evidence shows that there are very large urban/rural gaps in pre-primary school enrollment rates. The gap starts to emerge from age 3 onwards, but significantly narrows by age 6
- Examining the link between attending pre-primary school and survival in the education system, the conclusion is: children that attended pre-primary are more likely to survive within the education system

4.1.4 Community Characteristics

4.1.4.1. Type of Locality (Rural/Urban) – “is dropout more prevalent in rural or urban communities?”

Is the risk of dropout affected by geography? Here, we examine the dynamics of geography and dropout both for primary-age and secondary-age children and focus on rural/urban divides as well as regional imbalances across the country.

a. Children of primary-school-age

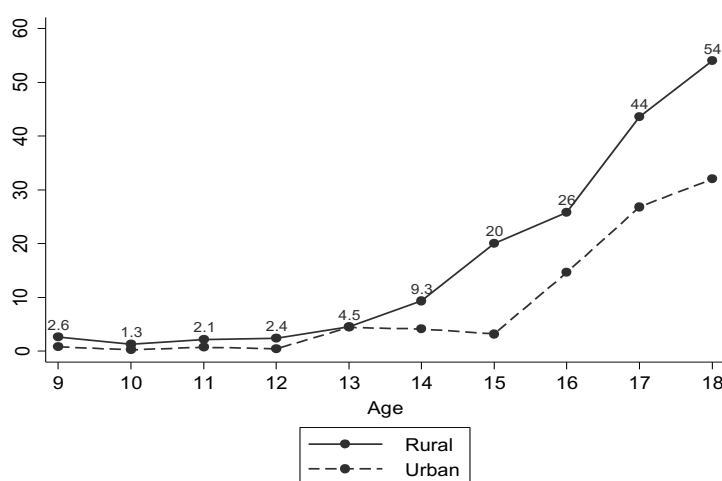
The estimated differences between the two are not statistically significant, although the dropout rate is slightly higher in rural areas than it is in urban areas. In 2016, an estimated 2.8% of children aged 7 to 12 dropped-out of school in rural areas, compared to 1.7% of children in urban areas. Similar differences are found in previous years, with rural children of primary-school-age about 0.6 to 1.7 percentage points more likely to drop-out between 2011 and 2015.

b. Children of secondary-school-age

The link between geography and dropout becomes much more pronounced for children of lower and upper secondary-school-age. This is the age when equity in the education system breaks along the lines of regional imbalances. The schooling trajectories of children in rural and urban areas start to diverge rapidly after the age of 13. In early 2017, and at age 13, an almost identical number (4.5%) of children in both urban and rural areas were out-of-school (see Figure 4.27). By age 15, an estimated 20% of children in rural areas were out-of-school, compared to just 3% of children in urban areas, a difference of 17 percentage points.

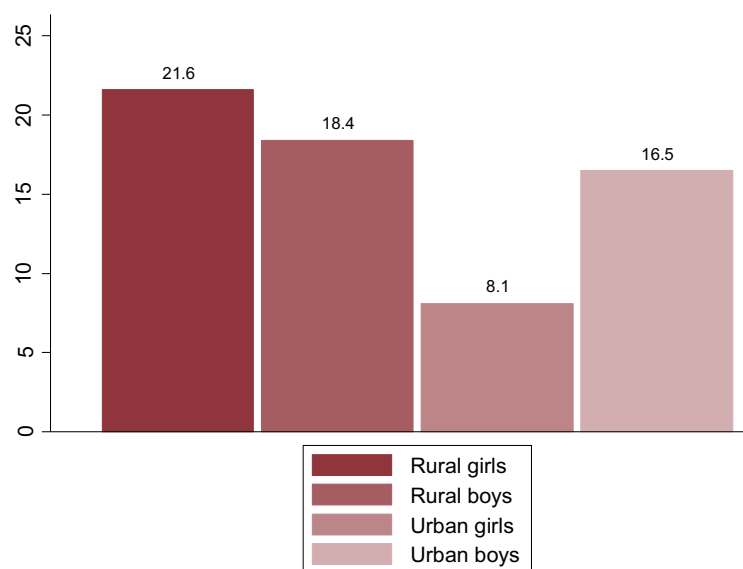
Children of lower secondary-school-age that live in urban areas see their out-of-school rates stagnate and even reduce between the ages of 13 to 15; on the contrary, children in rural areas see them more than quadruple. One of the major drivers of this gap is lower transition rates to lower secondary school in rural areas. In 2016, an estimated 75% of children enrolled in Primary 6 in rural areas transitioned to lower secondary school, compared to 86% of children in urban areas.

Figure 4.27 Percent of children that are out-of-school, by location and age (at the start of 2017)



For children of upper secondary-school-age (ages 16 to 18) – which is the age when dropout rates start to increase rapidly in urban areas - important location/gender patterns start to emerge. These are highlighted in Figure 4.28. Four key trends stand-out: (i) differences in dropout rates by gender are much larger in urban areas (difference of 8 percentage points) than they are in rural areas (difference of 3 percentage points); (ii) girls of upper-secondary-school-age living in rural areas are slightly more likely to drop-out of school than boys, but the difference is not statistically significant; (iii) boys of upper-secondary-school-age living in urban areas are more than two times more likely to drop-out of school than girls of the same age living in urban areas; and (iv) the difference in dropout rates between rural and urban areas appears to be largely driven by differences in the dropout rates of girls (about 13.5 percentage points, versus just 2 percentage points for boys). These are very large and significant differences that reflect on the different socio- economic responsibilities and opportunities of boys and girls living in rural and urban areas.

Figure 4.28 Dropout rates for children aged 16-17, by location and gender, in 2016



KEY MESSAGES:

- *The link between geography and dropout becomes much more pronounced for children of lower and upper secondary-school-age. This is the age when equity in the education system breaks along the lines of regional imbalances.*
- *For children of primary-school-age, living in an urban or rural area does not appear to be a strong predictor of dropout*
- *The schooling trajectories of children in rural and urban areas start to diverge rapidly after the age of 13*
- *Children of lower secondary-school-age that live in urban areas see their out-of-school rates stagnate and even reduce between the ages of 13 to 15; on the contrary, children in rural areas see them more than quadruple. One of the major drivers of this gap is lower transition rates to lower secondary school in rural area*

- For children of upper secondary-school-age (ages 16 to 18) – which is the age when dropout rates start to increase rapidly in urban areas - important location/gender patterns start to emerge. For children of upper secondary-school-age (ages 16 to 18)
- Four key trends stand-out: (i) differences in dropout rates by gender are much larger in urban areas (difference of 8 percentage points) than they are in rural areas (difference of 3 percentage points); (ii) girls of upper-secondary-school-age living in rural areas are slightly more likely to drop-out of school than boys, but the difference is not statistically significant; (iii) boys of upper-secondary-school-age living in urban areas are more than two times more likely to drop-out of school than girls of the same age living in urban areas; and (iv) the difference in dropout rates between rural and urban areas appears to be largely driven by differences in the dropout rates of girls (about 13.5 percentage points, versus just 2 percentage points for boys).

4.1.4.1. Geography – “which areas have higher dropout rates?”

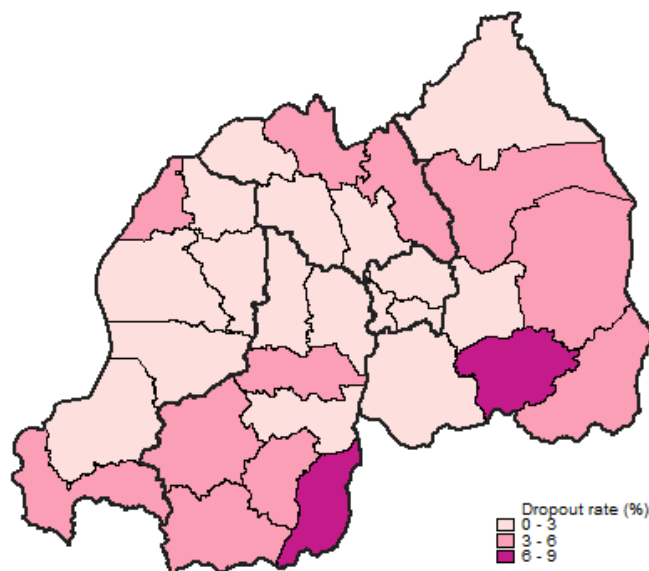
Is the risk of dropout affected by geography? Here, we examine the dynamics of geography and dropout both for primary-age and secondary-age children and focus on rural/urban divides as well as regional imbalances across the country.

a. Children of primary-school-age

Historically, the dropout rates for children of primary-school-age have been slightly higher in the Southern and Eastern Provinces. This can be seen in Figure 4.29, which maps the average dropout rate for children aged 7 to 12 by District between 2011 and 2016 (several years of data are used to obtain a greater level of precision by District). The map shows that the certain Districts in the Eastern Province – Ngoma in particular – as well as in the Southern Province – where Gisagara stands out - are amongst the Districts with the highest dropout rates for children of primary-school-age. There is evident variation in the dropout rates observed by District, varying from 0.9% on average in Gasabo to 6.7% in Gisagara. What is notable in 2016 is that there was a sharp increase in dropout rates for children of primary-school-age in the Eastern Province. In 2016, an estimated 4.5% of children aged 7 to 12 dropped-out of school in the Eastern Province, compared to 2.8% in the Southern Province, 1.8% in the Northern Province, 1.7% in the Western Province and 1.1% in the Province of Kigali.²⁴

²⁴ This might have been caused by a shock that disproportionately affected the Eastern Province, for example the drought experienced by the region in 2016, but there is not sufficient statistical power to explore the drivers of this increase in more detail.

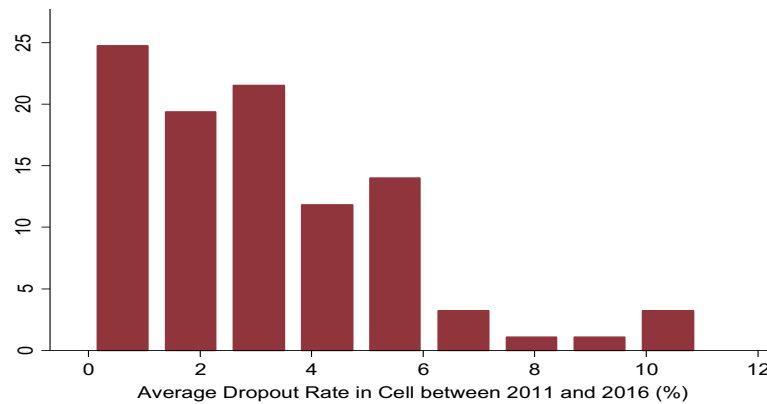
Figure 4.29 Average dropout rates between 2011 and 2016 for children of primary-school-age, by District*



* Please note that the purpose of this map is to provide the reader with a sense of the geographic patterns of dropout, but we do not have sufficient statistical power to provide accurate estimates of dropout rates by District.

Taking the analysis a couple of administrative levels down, to the Cell level, we find that the majority of Cells have historically had relatively low levels of dropout for children in the 7 to 12 age group, but some Cells have consistently experienced higher levels of dropout. As can be seen in Figure 4.30, the distribution of average dropout rates for children aged 7 to 12 between 2011 and 2016 by Cell follows a distribution with a relatively long tail. This signals that in most locations dropout at a young age is a marginal issue, but that there are a few key locations where it is much more of a problem. These few locations drag up the average dropout rate for children of primary-school-age. This is an important point from a policy perspective, because it suggests that bringing down the dropout rates for children of primary-school-age will require policy solutions that address system-wide issues, but also that there is a need for more localized interventions, tailored to the specific challenges at certain schools or locations. Later in this report, we will attempt to explore in more detail what the characteristics are of schools and communities in locations with high dropout rates.

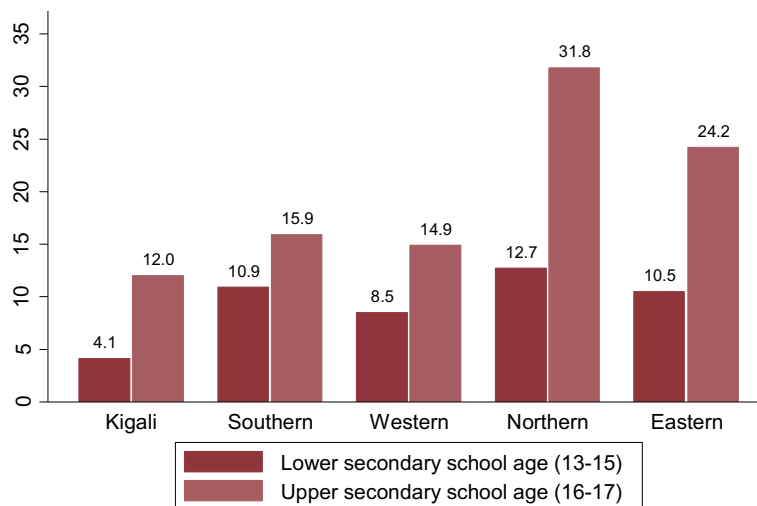
Figure 4.30 Histogram of average dropout rates by Cell, for children of primary-school-age, between 2011 and 2016



b. Children of secondary-school-age

The large gaps between urban and rural areas throughout secondary-school-age translate into equally large regional imbalances - with Kigali City as the Province with the lowest dropout rates and Northern and Eastern Provinces with the highest. Kigali City stands out as the Province with - by far - the lowest dropout rates for children of secondary-school-age. In 2016, the average dropout rate for children aged 13 to 15 in Kigali Province was 4.1%; this compares to between 8.5% and 12.7% for children of lower secondary-school-age in other Provinces. For children of upper secondary-school-age, the dropout rate in Kigali increases to 12%, compared to between 14.9% and 31.8% in other Provinces. Evidence points to the fact that for this age group, the Northern and Eastern Provinces suffer the largest dropout problem. At 32%, the average dropout rate for children of upper secondary-school-age in the Northern Province was more than double that of the Western and Southern Provinces. These imbalances are also reflected in the statistics obtained by Cell, where the estimated dropout rate for lower and upper secondary school children ranges from 0% to 35%.

Figure 4.31 Average dropout rates between in 2016 for children of lower secondary-school-age, by Province*



KEY MESSAGES:

- *Historically, the dropout rates for children of primary-school-age have been slightly higher in the Southern and Eastern Provinces.*
- *In 2016, an estimated 4.5% of children aged 7 to 12 dropped-out of school in the Eastern Province, compared to 2.8% in the Southern Province, 1.8% in the Northern Province, 1.7% in the Western Province and 1.1% in the Province of Kigali*
- *The large gaps between urban and rural areas throughout secondary-school-age translate into equally large regional imbalances - with Kigali City as the Province with the lowest dropout rates and Northern and Eastern Provinces with the highest.*
- *In 2016, the average dropout rate for children aged 13 to 15 in Kigali Province was 4.1%; this compares to between 8.5% and 12.7% for children of lower secondary-school-age in other Provinces. For children of upper secondary-school-age, the dropout rate in Kigali increases to 12%, compared to between 14.9% and 31.8% in other Provinces*

4.2 Profiles of Children Who Repeat

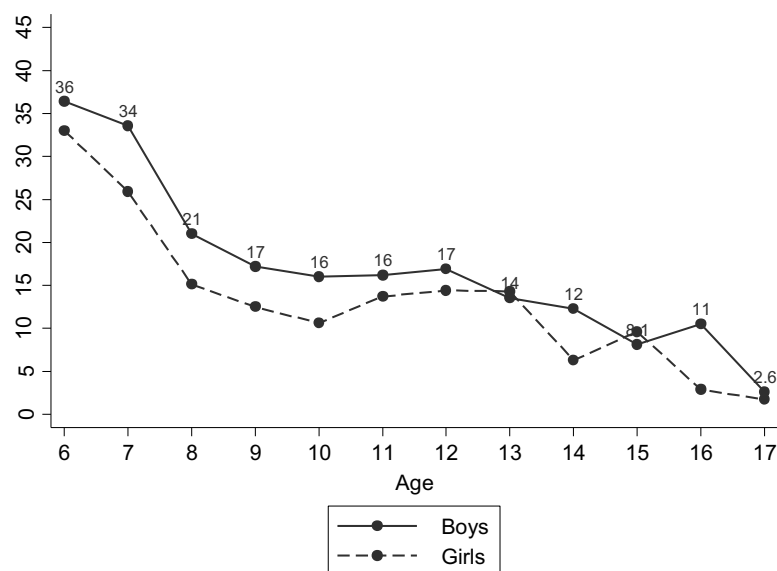
As demonstrated in Chapter 3, repetition is a prevalent event in Rwanda’s education system with most students repeating at least once in the past. We also know that repetition and future dropout are correlated and that repetition is more pronounced for primary-school-age children. In this section, we provide information about the child-level characteristics of repeaters, as well as profile some of the most salient characteristics of the households, schools and communities they live in.

4.2.1 Child Characteristics

4.2.1.1. Age – “at what age(s) are children repeating?”

Repetition patterns in 2016 show that new entrants face the highest risk of repetition (see Figure 4.32). An estimated 35% of boys and girls aged 6 repeat in their first year of education; similarly, an estimated 30% of enrolled children aged 7 repeat. Repetition rates drop to 18% by age 8 and then remain steady at about 15% through to the age of 12. Repetition rates start dropping steadily thereafter as children progress through to Primary 6 and secondary school, where the average repetition rates are much lower. High repetition rates affect children most in their first year of education, signaling that school readiness is an issue of concern.

Figure 4.32 Repetition rates for children aged 6 to 17 that are enrolled, by age and gender (2016)



a. Children of primary-school-age

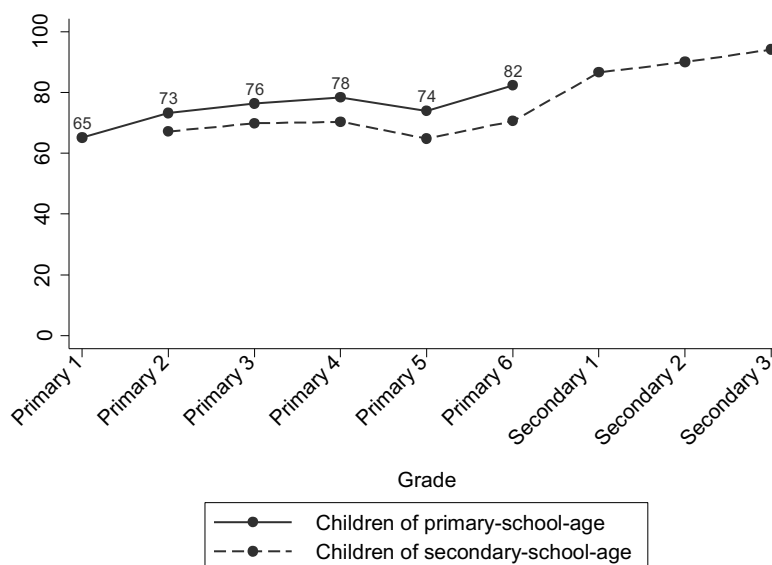
Repetition rates are highest for children of primary-school-age. An estimated 17% of children between the ages of 7 and 12 repeated in 2016, compared to about 9% of children of secondary-school-age (13 to 18).

The average repetition rate for children of primary-school-age is driven up by children who enter primary school for the first time. Children in their first year of education face by far the highest repetition rates. At an average rate of 37%, more than one-out-of-three pupils entering the education system for the first time in 2016 repeated. This is more than double – or about 20 percentage points more than – the average repetition rate in the second year of children's education, which at 17% is still higher than during any subsequent period. Between 2010 and 2015, repetition rates for children in their first year of education were even higher, at about 50% of new entrants. These high repetition rates are not an isolated issue, but rather are reflective of a structural challenge in Rwanda's education system. A very high risk of repetition in a child's first year of education, when most children are 6 or 7 years old, could signal that: (i) school readiness at ages 6 and 7, when children enter the education system, is low; and (ii) that the primary education system fails to teach foundational literacy and numeracy skills to a high proportion of new entrants. We discuss the link between repetition, school readiness, learning and school-related factors in more detail in Chapter 5

b. Children of secondary-school-age

Repetition rates are lower for children aged 13 and above. This happens because: (i) children of secondary-school-age that are still enrolled in primary school are much more likely to drop-out of school rather than repeat grade; and (ii) children aged 13 or above that make it through to secondary school are on average better students, and thus, less likely to repeat. A good starting-point to understand repetition rates for children of secondary-school-age is to study promotion rates by grade and age group. (see Figure 4.33) In primary-school, children aged 13 or above, do worse on average than children aged 7 to 12 who attend the same grade. On average, between Primary 2 and Primary 6, promotion rates for children of secondary-school-age were 10 percentage points lower in 2016 than they were for children aged 7 to 12. Children aged 13 or above who are still enrolled in primary school are more likely to have either dropped-out of school or repeated, and are less likely to move through to the next level.

Figure 4.33 Average promotion rate by grade in 2015 and 2016, comparing primary-school-aged children to secondary-school-aged children²⁵



The difference in promotion rates between the two age-groups is explained almost entirely by dropout. Once children who dropped-out are removed from the equation, we find that there are virtually no grade-based differences in the repetition rates for children of primary - and secondary - school ages. This can be seen in Figure 4.35, which shows that between Primary 2 and Primary 6, the repetition rates for children that did not drop-out are almost identical between the two age groups.

Despite having repeated frequently in the past, children of secondary-school-age that are still enrolled in primary school underperform compared to their younger peers. This suggests that repeating multiple times has not been a successful mechanism to improve learning amongst children who lag behind.

KEY MESSAGES:

- *Repetition patterns in 2016 show that new entrants face the highest risk of repetition (see figure 4.26). An estimated 35% of boys and girls aged 6 repeat in their first year of education; similarly, an estimated 30% of enrolled children aged 7 repeat.*
- *Repetition rates are highest for children of primary-school-age. An estimated 17% of children between the ages of 7 and 12 repeated in 2016, compared to about 9% of children of secondary-school-age (13 to 18).*

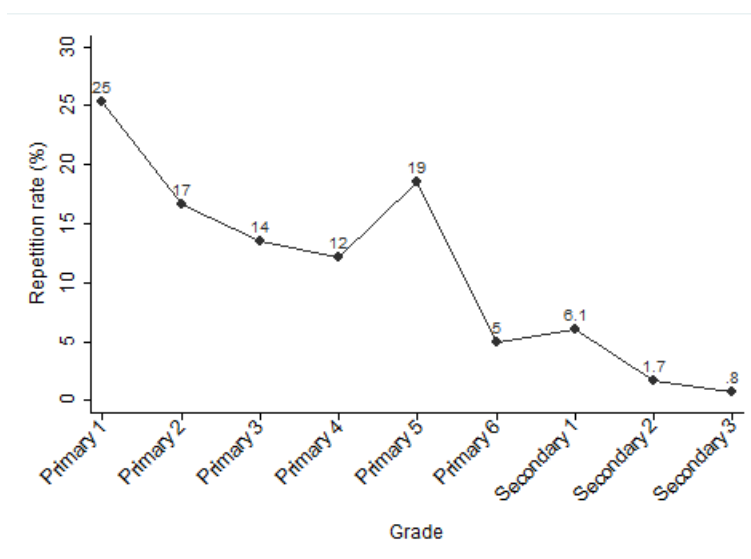
²⁵ We use two years of data to obtain more sampling power by grade. Doing this does not in any way alter the message of this graph. Also note that for 2015 we only have education data for 6 to 16-year-olds; to ensure the data is comparable with 2016, we limit the sample to only include 6 to 16-year-olds.

- Repetition rates are lower for children aged 13 and above. This happens because: (i) children of secondary-school-age that are still enrolled in primary school are much more likely to drop-out of school rather than repeat grade; and (ii) children aged 13 or above that make it through to secondary school are on average better students, and thus, less likely to repeat.

4.2.1.2. Grade – “are children in certain grades more likely to repeat?”

Repetition rates are highest for Primary 1 and follow a very clear declining trend. However, repetition rates for Primary 5 stand out of this trend. The average repetition rate for children of primary-school-age was 17% in 2016; the corresponding repetition rate in primary education was of 16.5% in that same year (2016).²⁶ Repetition rates in Primary 1 stood at 25% in 2016 and go down with each grade to about 0.8% for Secondary 3 (see Figure 4.34). The grade with the second-highest repetition rates after Primary 1 is Primary 5, with a repetition rate of 19% in 2016.

Figure 4.34 Repetition Rate by Grade (2016)

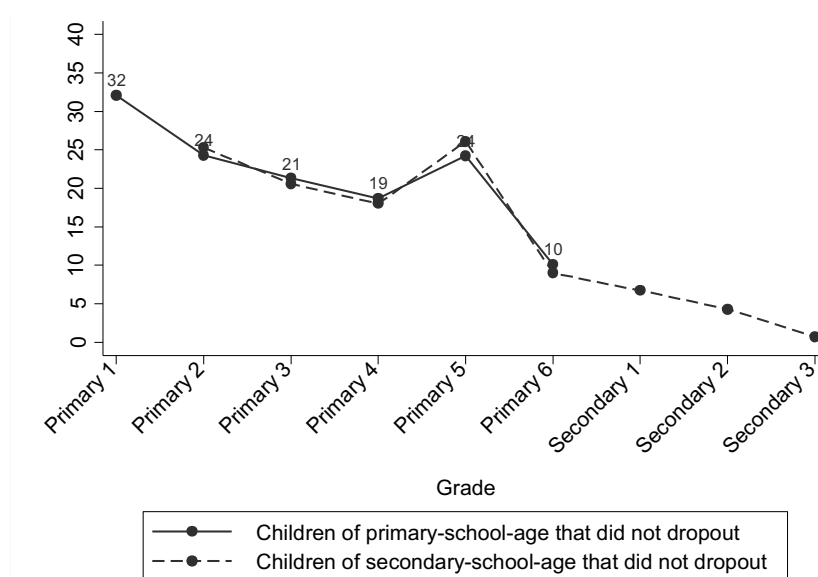


When we look at repetition by grade, it is important to note that Primary 5 is an outlier for children of both primary-school-age and secondary-school-age children. The repetition rate in Primary 5 runs counter to the declining trend in repetition by grade. High repetition rates in Primary 5 is a trend that has been documented in the past, including in the 2014 Education Statistical Yearbook prepared by MINEDUC, and was confirmed during the inception stage of this project using EICV 4 data for 2013/2014. The leading hypotheses as to why repetition rates are so high in

²⁶ On the other hand, the average repetition rate of children of secondary-school-age was of 9% in 2016, and the average repetition rate for secondary school was 3.2%. Note that this estimate for secondary school is based on our child survey data. As such, it is only representative of children in our sample's age range in secondary school. Thus, it may under- or over-estimate the true repetition rate in secondary school (which would include children older than 18 due to overaging) depending on whether children enrolled in secondary school above the age of 18 repeat more or less than children of ages 13 to 18 who are in secondary education.

Primary 5 is that national examinations take place in Primary 6, and that either: (i) children or their parents are holding children back to improve their chances of a better score in the national P6 exam, which plays an important role in the assignment of pupils to secondary schools; or (ii) schools are holding pupils back to score better school-level rankings on the national exam. The fact that repetition rates are high for both primary-school-age and secondary-school-age children is striking (see Figure 4.35). We will look into the reasons behind the high repetition rates in Primary 5 in Chapter 5.

Figure 4.35 Average repetition rate by grade in 2015 and 2016, comparing primary-school-aged children to secondary-school-aged children (excluding dropouts)²⁷



KEY MESSAGES:

- Repetition rates are highest for Primary 1 and follow a very clear declining trend. However, repetition rates for Primary 5 stand out of this trend. The average repetition rate for children of primary-school-age was 17% in 2016; the corresponding repetition rate in primary education was of 16.5% in that same year
- When we look at repetition by grade, it is important to note that Primary 5 is an outlier for children of both primary-school-age and secondary-school-age children. The repetition rate in Primary 5 runs counter to the declining trend in repetition by grade.

²⁷ We use two years of data to obtain more sampling power by grade. This does not in any way alter the message of this graph. Also note that for 2015 we only have education data for 6 to 16-year-olds; to ensure the data is comparable with 2016, we limit the sample to only include 6 to 16-year-olds. We exclude children who dropped out of school however, the grade profile of repetition rates is not altered and the same pattern holds. Also, note that given the sharp reduction in repetition rates in 2016, averaging rates between 2015 and 2016 leads to higher grade-specific repetition rates compared to those reported in Figure 3.1.

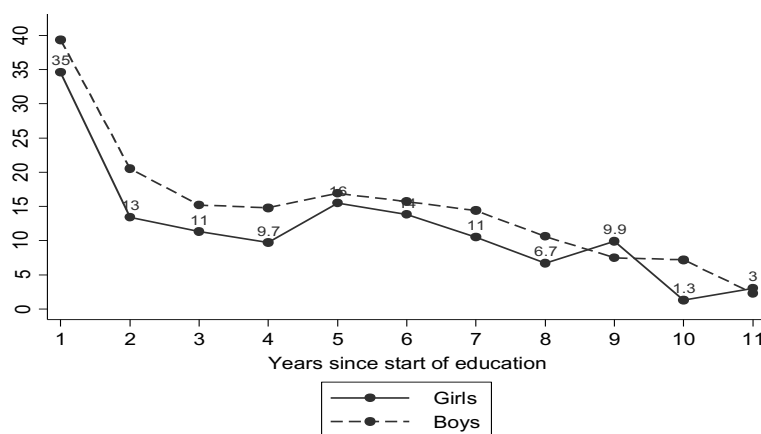
4.2.1.3. Gender – “is repetition more prevalent amongst girls or boys?”

At all ages, girls are less likely to repeat than boys, a difference that holds true throughout their education.

The only exceptions are ages 13 and 15, where girls are slightly more likely to repeat than boys; the difference in these two age groups is minimal however (see Figure 4.36). The difference in repetition rates between girls and boys who are enrolled is highest between the ages of 6 to 10: 22.6% on average for boys, versus 17.2% for girls, a statistically significant difference of about 5.4 percentage points. The result of these differences in repetition rates is that the share of girls in the education system increases by grade in the primary education system. In 2017 an estimated 43% of children enrolled in Primary 2 were girls, compared to 55% in Primary 6.

From the moment that they enter the schooling system, the educational trajectory of boys and girls starts to diverge due to, in large part, differences in their repetition rates. By age 9 in 2017, an estimated 40% of girls had reached Primary 3 (the grade that corresponds to that age) versus just 28% of boys. By age 12 in 2017, an estimated 15% of girls had made it to Primary 6 (the grade children are expected to be in by age 12), compared to just 6% of boys. These are very large and significant differences in the educational trajectories of girls and boys. When it comes to repetition or dropout, the educational statistics for primary-school-aged children are more favorable for girls than they are for boys.

Figure 4.36 Repetition rates by years since start of education and gender in 2016



KEY MESSAGES:

- At all ages, girls are less likely to repeat than boys, a difference that holds true throughout their education
- The difference in repetition rates between girls and boys who are enrolled is highest between the ages of 6 to 10: 22.6% on average for boys, versus 17.2% for girls
- From the moment that they enter the schooling system, the educational trajectory of boys and girls starts to diverge due to, in large part, differences in their repetition rates. By age 9 in 2017, an estimated 40% of girls had reached Primary 3 (the grade that corresponds to that age) versus just 28% of boys. By age 12 in 2017, an estimated 15% of girls had made it to Primary 6 (the grade children are expected to be in by age 12), compared to just 6% of boys

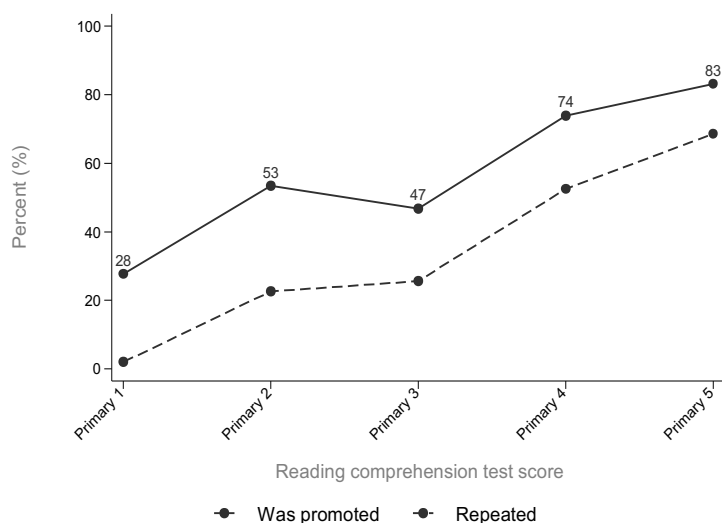
4.2.1.4. Performance in School – “do children who repeat perform as well as their peers?”

Children who repeat have much greater learning difficulties, on average, than children that get promoted.

We assess this using: (i) results from the reading comprehension and numeracy assessments in our child survey; and (ii) by studying how children perceive the ease of school and their own abilities to learn. Differences between children who repeat and who are promoted are large and statistically significant.

On all the assessments and across all grades, children who were promoted scored significantly better than children who repeated. The gap in learning between children who got promoted and children who repeated is large and statistically significant.²⁸ We illustrate this gap in Figure 4.37, which presents test scores on reading comprehension by grade, comparing children who were promoted and children who repeated in 2016. The difference in test scores between these two groups of children was 25 percentage points, on average, across all grades. Similar results are found for all other tests, be it addition, subtraction, multiplication, division or the ordering of numbers.

Figure 4.37 Average reading comprehension test score by grade, comparing children who were promoted and children who repeated, for children aged 6 to 18 (2016)



In Primary 1, one-time repetition is associated with a slight increase in test scores. One-time repeaters in Primary 1 had improved reading comprehension and numeracy test scores, compared to new entrants (see Table 4.5). This suggests that repetition, at least in the early grades, can lead to some catch-up in learning.

While one-time Primary 1 repeaters performed better than new entrants on average, two-time repeaters performed worse than new entrants on reading comprehension and underperformed on all numeracy metrics compared to one-time repeaters. Repeating Primary 1 twice or more is a sign of major learning difficulties and a lack of foundational skills.

²⁸ At the 1% level

Insights from our FGDs with primary school teachers seem to validate this finding. In those discussions participants mentioned that repetition in Primary 1 seems like an effective strategy to help struggling students improve their learning before continuing on to other grades. Some teachers even mentioned that, even when their schools were ascribing to the 5% maximum repetition rate per grade, they would ignore such rule in Primary 1 due to the benefits they perceived that repetition had in that particular grade.

Table 4.5 Average reading comprehension and numeracy test score for children in Primary 1 in 2016, by number of times repeated (2016)

Number of times repeated P1	Reading comprehension	Addition	Subtraction	Ordering of numbers
Never	20.2%	29.6%	22.6%	40.0%
Once before	24.7%	35.1%	25.2%	48.2%
Twice before	13.4%	33.7%	24.8%	44.6%

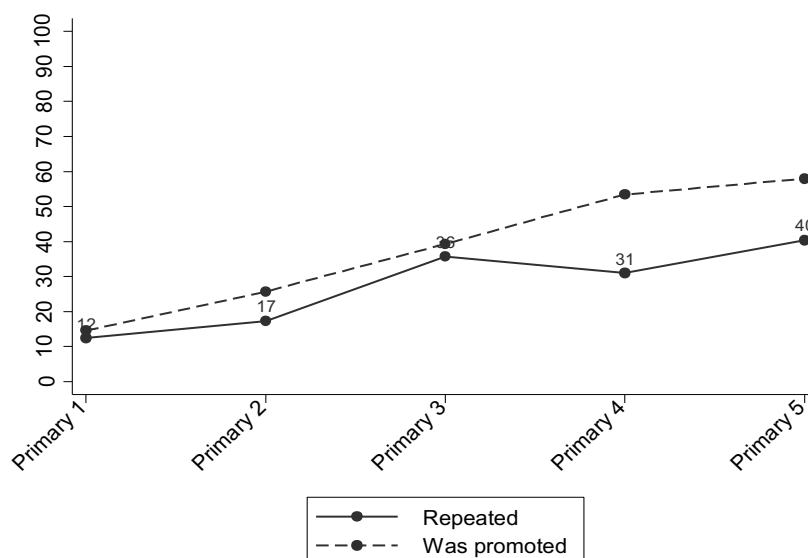
In grades other than Primary 1, children who have repeated several times were more likely to score lower on the reading comprehension and numeracy assessments than children who have never repeated or repeated fewer times. We illustrate this using the example of the Primary 4 assessments for children who were enrolled in Primary 4 in 2016. On each test, more frequent repetition in the past is associated with lower test scores. These patterns hold after controlling for other variables of interest and are significant in the cases of the reading comprehension, subtraction and multiplication tests. The link between repetition frequency and assessment scores suggests that while repetition in the short term can be beneficial, children who have repeated multiple times are at an academic disadvantage and therefore also at a higher risk of either repeating again or dropping out.

On average, children who repeated were much more likely to perceive classes as being difficult, compared to children who were promoted. The fact that repeaters have greater learning difficulties compared to children who are promoted can also be seen when studying how children assess the perceived difficulty of school and their own ability to learn. The difference in the perceived difficulty of classes between repeaters and children who were promoted is statistically significant in lower primary, but widens substantially in the switch from lower- to upper-primary school (see Figure 4.38). This might be because of the added difficulty of English in upper-primary school. We find similar patterns when we look at children's perceptions about their own ability to grasp difficult concepts.

Table 4.6 Average reading comprehension and numeracy test score for children in Primary 4 in 2016, by number of times repeated (2016)

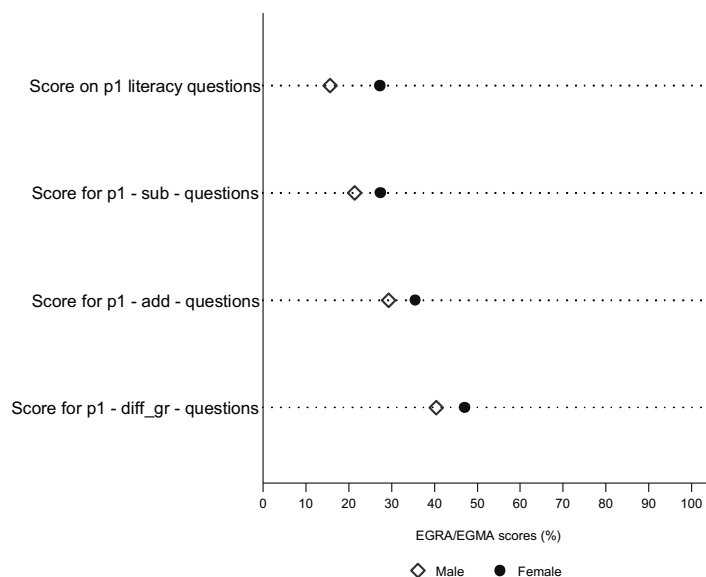
Number of times repeated (any grade)	Reading comprehension	Addition	Subtraction	Multiplication	Division
Never	79.8%	73.0%	54.0%	45.6%	25.5%
Once before	74.9%	67.5%	46.3%	40.2%	22.9%
Twice before	69.6%	65.4%	43.5%	39.5%	22.5%
Three times before	59.6%	65.4%	44.1%	40.3%	18.8%

Figure 4.38 Percent of students that find classes easy, by grade and whether children repeated or got promoted to the next grade (2016)



Girls appear to be better prepared for school than boys. We observe this using the reading comprehension and numeracy tests for Primary 1, which show that girls score better than boys on all metrics. Differences in test performance – especially on literacy-related questions – are statistically significant after controlling for a series of child-level, household-level and location-level variables of interest. The biggest difference in the abilities of girls and boys in Primary 1 appears to be in reading comprehension. Although it is not advisable to compare scores across tests, these differences between girls and boys on test scores go down with each consecutive grade.

Figure 4.39 Primary 1 reading comprehension and numeracy test scores, by gender, for children in Primary 1 in 2016



Children’s attitudes, behavior and perceptions about school are associated with their performance, although it is unclear to what extent these factors drive performance or vice-versa. Children who care a lot about doing well at school are on average less likely to repeat. During the survey children were asked whether they agreed with the statement that “doing well at school” was very important for them. Almost all children agreed, but some more than others. An estimated 45% of children aged 6 to 18 “strongly agreed” that doing well at school was very important for them. These children were on average 3 percentage points less likely to repeat.²⁹ This variable does not capture anything in very concrete terms, but is interesting in that it provides a proxy for how much children value school, something that is difficult to measure.

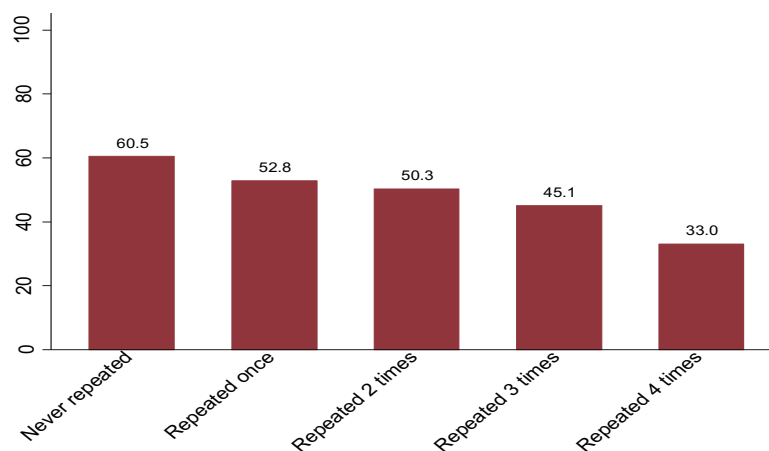
The perceived importance of doing well at school is significantly higher in urban areas. On average, keeping other factors constant, children in urban areas were about 7 percentage points more likely to express that doing well at school was very important for them. Similar results are found when looking at the value parents place on the education of their children. These patterns might reflect the fact education is more relevant in urban areas when it comes to jobs and other opportunities after the completion of education.

The perceived importance of doing well at school is also shaped by experience. Children who have repeated many times are significantly less likely to “strongly agree” that doing well in school is very important for them. This can be seen in Figure 4.40 below, which compares the proportion of children in Primary 6 in 2016 that strongly agreed that doing well at school matters a lot to them, by how many times they have repeated. The more children have repeated, the less likely they are to

²⁹ A statistically significant difference at the 5% level that holds, controlling for grade, child, household and location indicators

place an equal level of importance on school. The more children repeat, the more discouraged they become about school, and the more likely they are to repeat or eventually drop-out.

Figure 4.40 Percent children who strongly agree that doing well at school is very important to them, by number of times repeated, for children in Primary 6 in 2016



KEY MESSAGES:

- *Children who repeat have much greater learning difficulties, on average, than children that get promoted*
- *On all the assessments and across all grades, children who were promoted scored significantly better than children who repeated.*
- *In Primary 1, one-time repetition is associated with a slight increase in test scores. One-time repeaters in Primary 1 had improved reading comprehension and numeracy test scores, compared to new entrants. This suggests that repetition, at least in the early grades, can lead to some catch-up in learning.*
- *In grades other than Primary 1, children who have repeated several times were more likely to score lower on the reading comprehension and numeracy assessments than children who have never repeated or repeated fewer times*
- *On average, children who repeated were much more likely to perceive classes as being difficult, compared to children who were promoted*
- *Girls appear to be better prepared for school than boys. We observe this using the reading comprehension and numeracy tests for Primary 1, which show that girls score better than boys on all metrics.*

4.2.1.5. Disabilities – “do disabilities increase the chance of repetition?”

As was the case with dropout, certain forms of disability are linked with significantly higher repetition rates. Two types of disabilities stand out: (i) difficulties in speaking and being understood by people

outside the household; and (ii) behavioral control issues.³⁰ Children with difficulties in speaking and being understood were 15 percentage points more likely to have repeated at least once before. The difference on this metric is large and statistically significant at the 1% level, controlling for child, household, and location and other factors of interest. Speaking difficulties appear to have a much larger impact on repetition rates on average, compared to some of the other disabilities that were examined, including learning difficulties, difficulties making friends, or difficulties related to eyesight or self-care. The sample of children with speaking difficulties might be small, but the effect is large with clear implications for the targeting of remedial support for children with speaking disabilities.

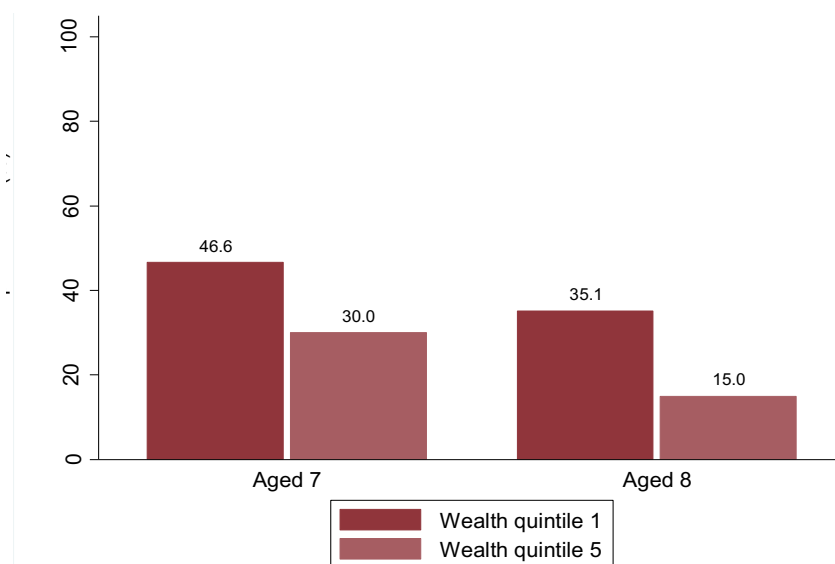
Children with behavioral control issues were about 9 percentage points more likely to have repeated at least once in the past. This also is a statistically significant difference, controlling for child, household and location and other related factors. Behavioral control problems are more widespread than some of the other disabilities that were examined. An estimated 4.4% of children aged 6 to 18 in our sample faced behavioral control issues, compared to an estimated 1.2% with speaking difficulties. According to the parent survey, the proportion of children with behavioral control issues is relatively stable by age, location and household status, but tends to affect boys slightly more than it does girls.

4.2.2 Household Characteristics

4.2.2.1. Poverty – “are children from poor households more likely to repeat?”

Similar to dropout, we find that household poverty is very closely correlated to repetition. Children from the poorest households are the ones who repeat the most and from the earliest ages. Repetition patterns in Primary 1 confirm this. We illustrate this in Figure 4.41, which averages repetition rates for children aged 7 and 8 in Primary 1 between 2014 and 2016 (data from three consecutive years is used to gain greater statistical precision). Between 2014 and 2016 an estimated 46% of 7-year-olds from households in wealth quintile 1 repeated, compared to 30% of 7-year-olds from households in wealth quintile 5. A similar pattern is observed for 8-year-olds. While school readiness is a systemic issue, it is even more of a concern for children from the poorest households.

³⁰ Note that, as previously explained, all disabilities are self-reported.

Figure 4.41 Repetition rates in Primary 1, by age and wealth quintile, for children aged 7 to 8 between 2014 and 2016

4.2.2.2. Home Environment – “is repetition higher in households with less parental support or less supportive home environments?”

The education of parents of course impacts the educational performance of children, but it is important to remember that most of the parents of children aged 6 to 18 in Rwanda have either never attended school or studied beyond primary school. An estimated 30% of household-heads reported never having attended school, an additional 58% attended or completed primary school and only 12% made it through to secondary school or above.

We do not find any difference in the repetition rates of children in households where the parents had never attended school or only attended primary school. A strong reduction in repetition rates is observed in households where at least one parent made it to secondary school or beyond. Interestingly, in two parent households, it is the education of the mother that is associated with the greatest reduction in repetition rates.

What seems to matter most when it comes to parents, is not simply their education level, but rather the level of educational support they are able to provide to their children. Living in a household that provides an enabling environment for learning makes a difference in terms of educational outcomes, and several indicators point in that direction. We focus here on support for homework as a proxy for the level of support that children receive from parents.

Children that live in households where they are not encouraged to do homework - or not able to do homework - are more likely to repeat. Only about 7% of children reported not doing any homework outside of school, but these children - mostly aged 6 to 8 - were significantly more likely to repeat (about 6 percentage points more likely on

average). One might argue that not conducting homework is an issue that reflects the lack of motivation of the child, but evidence suggests it is more of a household-level issue. By far the most common reason for not doing homework was household chores. Other issues reported by children included the lack of a light at home, the absence of someone to help with the homework, or work.

Having someone to support with homework, in particular both parents makes a difference. The household members that are the most likely to support children with their homework are the siblings. An estimated 44% of children that do homework mentioned that their siblings would help them. The very important role that siblings play in the education of their brothers and sisters is something that is often overlooked in education programs and interventions. About 22% of children seek support from their mothers, and only an estimated 16% mentioned their fathers. All in all, about 30% of children who reported doing homework get support from their parents. Children are the least likely to repeat when both their mothers and fathers help them with homework (about 10% of children). For children that do not get support from both parents however, the support of the mother is the one that is the most closely related with a reduction in repetition rates. Children whose mothers support them with homework are about 3.6 percentage points less likely to repeat.³¹ Support from the father alone is on average not associated with lower repetition rates.

A relatively high proportion of children, about 24%, did not have anyone in or outside the household to turn to for support with their homework. These children were on average 3 percentage points more likely to repeat than children that could get support from at least one family member or friend. The difference is statistically significant at the 5% level controlling for grade, child, household and other factors of interest.

KEY MESSAGES:

- *Household poverty is very closely correlated to repetition. Children from the poorest households are the ones who repeat the most and from the earliest ages.*
- *We do not find any difference in the repetition rates of children in households where the parents had never attended school or only attended primary school. A strong reduction in repetition rates is observed in households where at least one parent made it to secondary school or beyond.*
- *What seems to matter most when it comes to parents, is not simply their education level, but rather the level of educational support they are able to provide to their children.*
- *Children that live in households where they are not encouraged to do homework – or not able to do homework – are more likely to repeat. Having someone to support with homework, in particular both parents makes a difference*
- *A relatively high proportion of children, about 24%, did not have anyone in or outside the household to turn to for support with their homework. These children were on average 3 percentage points more likely to repeat than children that could get support from at least one family member or friend*

³¹ A difference that is statistically significant at the 5% and holds for after including child, household and location controls.

4.2.3 School Characteristics

4.2.3.1. School characteristics – “are children in schools with certain characteristics more likely to repeat?”

School-level factors matter when it comes to repetition. Children in schools with lower performance metrics - be it in terms of pupil to teacher ratios, teacher care or teacher absenteeism - are more likely to repeat. This association between school-level factors and child-level repetition is likely to be the result of two re-enforcing dynamics: (i) the fact that schools in the most disadvantaged areas are also the most resource constrained; and (ii) the fact that limited teaching resources and bad teaching practices are a direct cause of repetition.

The type of school that children attend - public, private or government aided - matters when it comes to repetition. Children that are enrolled in private schools perform better on average than children that are enrolled in either public or government-aided schools. Although only 2.3% of children in the sample were enrolled in a private school - which implies that statistical power to infer anything about these schools is low - being enrolled in a private school between P1 to P5 was associated with a statistically significant 14 percentage point drop in repetition rates. Repetition rates were very similar on average in public and government aided schools, controlling for individual, household and location factors.

The data suggests there is a strong link between reported teacher-to-pupil ratios in Primary 1 and Primary 2 (as compiled during the head-teacher surveys) and repetition in the corresponding grade. For the schools where we were able to match children to their schools (about 50% of cases), we find that belonging to a school where the pupil-to-teacher ratio is high is associated with higher repetition rates. The difference holds when controlling for various child, household and location factors, and is not driven by outliers. For example, in Primary 1, an estimated 45% of students were in schools where the pupil-to-teacher ratio for Primary 1 was higher than 80 students per teacher. In these schools, the average repetition rate in Primary 1 was 33% in 2016, compared to 20% in schools with a lower pupil-to-teacher ratio. This difference is large and statistically significant. We find similar results for Primary 2, where an estimated 34% of students were in schools with a pupil-to-teacher ratios for P2 above 80. In these schools the average repetition rate in Primary 2 was 20%, compared to 15% for children in schools with lower pupil-to-teacher ratios. We do not find a similar association from Primary 3 onwards. This is partly due to sample sizes, but probably also to the fact that pupil-to-teacher ratios reduce significantly from one grade to the next.

4.2.3.2. Teacher behavior – “does teacher behavior affect repetition?”

Evidence suggests that teacher-absenteeism and repetition are associated. Children who reported that their teachers were absent on a regular basis in 2016 were also much likely to have repeated in 2016. The association is statistically significant at the 5% level and holds when controlling for grade, child, household and location factors. We consider this statistic to be a relatively good proxy for teacher absenteeism, as there are no self-explanatory

reasons to believe that repeaters would have a more biased perception of teacher absenteeism. It is important to note that this association does not directly imply that there is causal link between teacher absenteeism and repetition. It does however underline the fact that in one way or another school-level factors, such as teacher professionalism, matter when it comes to repetition.

There is a very strong link between children reporting getting punished by their teachers for bad behavior and repetition. The link between punishment and repetition might reflect the fact that attitude and behavioral issues within a classroom context matter, hence we include this discussion in this section. It is important to also point out however that punishment by teachers on a regular basis can also be a signal of bad teaching practices, signaling not a child issue but a quality of teaching issue as well.

Controlling for grade and other child, household and location factors, we find that children who reported having been punished by their teachers often were on average 7 percentage points more likely to repeat. The coefficient obtained is very strong which suggest that bad teaching practices in the classroom can affect the likelihood that a child repeats.

KEY MESSAGES:

- *School-level factors matter when it comes to repetition. Children in schools with lower performance metrics - be it in terms of pupil to teacher ratios, teacher care or teacher absenteeism - are more likely to repeat*
- *The data suggests there is a strong link between reported teacher-to-pupil ratios in Primary 1 and Primary 2 and repetition in the corresponding grade*
- *Teacher-absenteeism and repetition are associated. Children who reported that their teachers were absent on a regular basis in 2016 were also much likely to have repeated in 2016*
- *We find that children who reported having been punished by their teachers often were on average 7 percentage points more likely to repeat.*

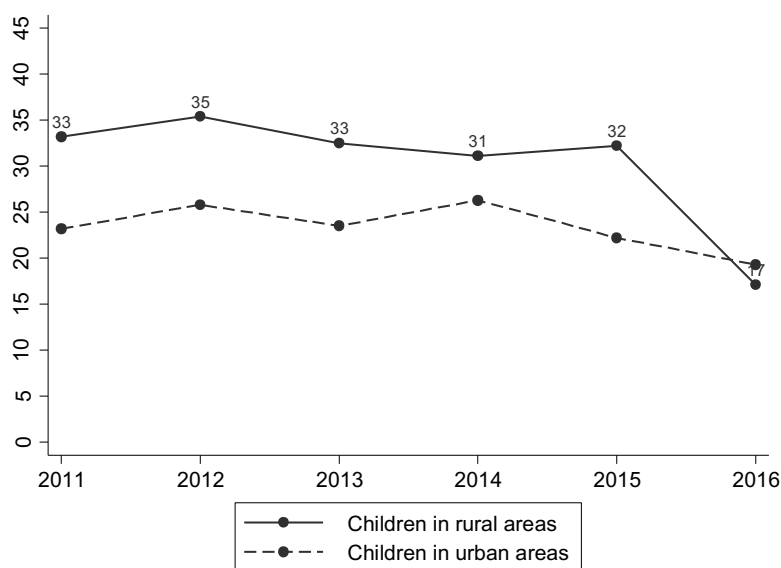
4.2.4 Community Characteristics

4.2.4.1. *Type of Locality (Rural/Urban) – “is repetition more prevalent in rural or urban communities?”*

Between 2011 and 2015, primary-school-age children in rural areas were on average about 10 percentage points more likely to repeat than children from urban areas. As a result of the very large drop in repetition rates observed in 2016, primary-school-age children in rural were about 2 percentage points less likely to repeat than children in urban areas. This drastic reduction in repetition rates happened across all ages and all grades

in 2016 (note that the repetition rate in 2016 refers to children that were enrolled in the same grades in 2016 and 2017).³² We illustrate this sharp reduction in repetition rates by looking at repetition rates for children of primary-school-age, however, it is worth noting that the reduction in repetition rates also affected children of secondary-school-age.³³ Figure 4.42, plots average repetition rates for children of primary-school-age over time in rural and urban areas. Remarkably, the reduction in repetition was much steeper in rural areas than in urban areas. Between 2011 and 2015, children in rural areas were on average about 10 percentage points more likely to repeat than children from urban areas, leading to a rapid divergence of educational outcomes between children in rural and urban areas. In 2016, repetition rates for primary-school-age children in rural areas almost halved, dropping a full 15 percentage points, from 32% to 17%. While repetition rates in urban areas also fell, the drop was much smaller. As a result, in 2016, primary-school-age children in rural were about 2 percentage points less likely to repeat than children in urban areas, a stark reversal compared to the 2011-2015 period. As mentioned in previously, this reduction in repetition rates in 2016 seems to be related to schools enforcing a directive that caps the maximum repetition rate per grade at 5%.

Figure 4.42 Repetition rates by location (rural/urban) and year, for children aged 7 to 12, (2011-2016)



The repetition for secondary-school-age children in rural areas and urban areas is roughly similar (2016).

While the repetition rate for secondary-school-age children in rural areas (9.5%) was about 2.5 percentage points higher than in urban areas (7%), the difference is not statistically significant. Moreover, when looking at the difference in repetition rates by age for this age group, there is no clear pattern; for some ages repetition rates in rural areas are higher than in urban areas, while for other ages the opposite is true.

³² This is confirmed by data in both our household and child surveys.

³³ Our school trajectory data only allows us to calculate time trends from 2011 to 2016 for children in the 7 to 12 age range as in 2011 today's 18-year-olds were only 12 years old.

KEY MESSAGES:

- *Between 2011 and 2015, primary-school-age children in rural areas were on average about 10 percentage points more likely to repeat than children from urban areas.*
- *As a result of the very large drop in repetition rates observed in 2016, primary-school-age children in rural were about 2 percentage points less likely to repeat than children in urban areas.*
- *The repetition for secondary-school-age children in rural areas and urban areas is roughly similar (2016).*

4.3 Profiles of Children Who Start Late

In Chapter 3, we have shown that children of primary school age (7-12) who are not in school are overwhelmingly children who have never enrolled in school and who will very likely enroll in school in the future (late starters), as opposed to children who have dropped out of school. In this section we provide a profile of the main individual-level, household-level, school-level and community-level characteristics of these late starters.

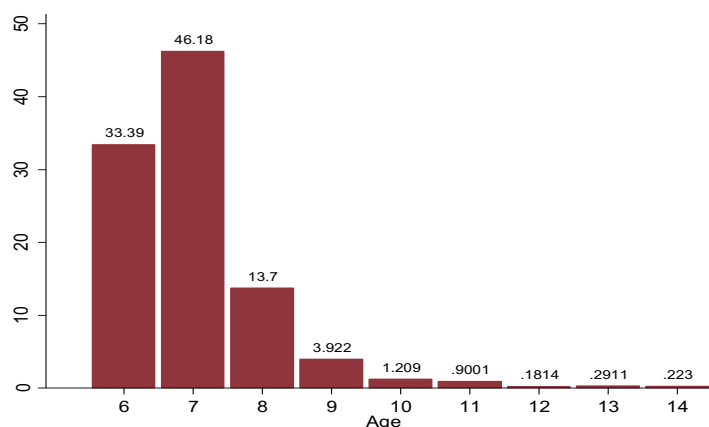
Late start for children aged 7 to 12 is approximately five times more prevalent than dropout. The estimated net enrollment rate for children of primary-school-age in 2017 was about 95.2% (with a margin of error of +/- 1.4 percentage points). Of the remaining 4.8% of children aged 7 to 12 that were out-of-school, more than 80% had never attended school and were therefore late-starters; fewer than 20% were out-of-school because they had dropped-out. This corresponds to only about 0.8% of children of primary-school-age in 2017 that were out-of-school because they dropped-out.

4.3.1 Child Characteristics

4.2.1.1. Age – “at what age(s) are late starters joining the education system?”

In 2017, an estimated 20% of children who entered the education system for the very first time were late starters. Most late starters entered the education system with a delay of only one year. About one out of three late starters were aged 9 or above, which corresponds to about 6.2% of all children who started school for the first time in 2017. The age composition of new entrants into Primary 1 in 2017 is represented in Figure 4.43.

Figure 4.43 Age composition of new entrants into Primary 1, in 2017

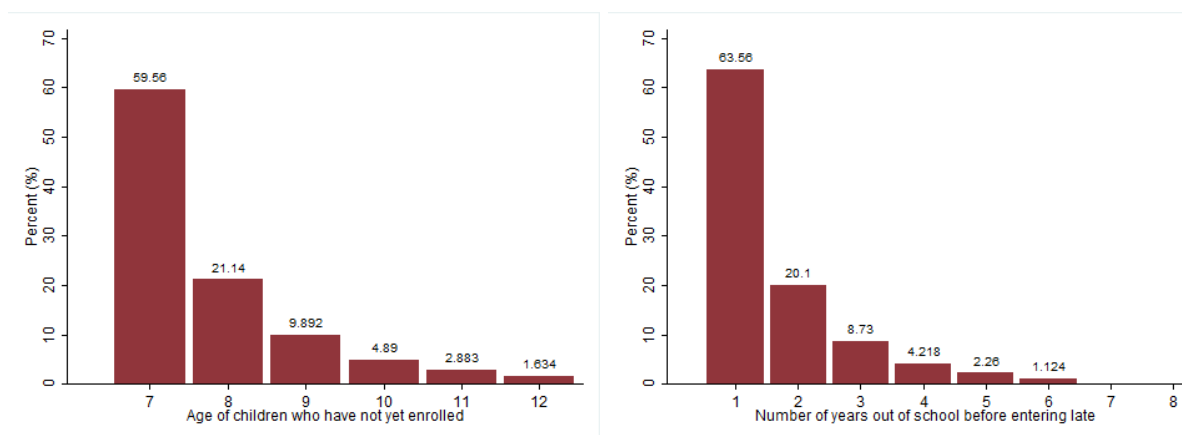


It is the youngest among the primary school-aged children who are out of school, which is consistent with the notion that being out-of-school at primary school age is a problem of late start. Panel A of Figure 4.44 shows that the majority (about 60 percent) of out-of-school children were 7-year-olds and that, approximately 91 percent of primary school age children who have never enrolled in school are 9 years old or younger. In Panel B of Figure 4.44, we show the average number of years children have been out-of-school before enrolling (where the baseline is age 7). As we can see in that graph, most children will spend one year out of school prior to enrolling for the first time, and the majority of children who have never enrolled in school will be out of school from 1 to 3 years before ever enrolling.

Figure 4.44 Age breakdown and number of years out of school for primary age children who have never enrolled in school, 2011-2017

(A) Age breakdown of primary-school age children who have never enrolled in school

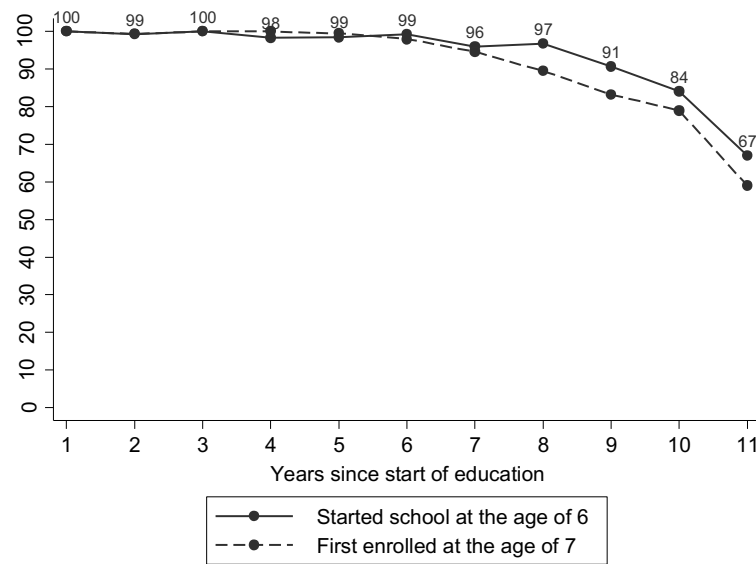
(B) Number of years out of school prior to enrolling for the first time for late starters



These observations are important since a late start to school can have a considerable effect on the likelihood that a child may repeat or drop out of school – with special consideration needed for younger children. Children who start their schooling late are starting their educational path at a significant disadvantage. The age breakdown of late starters is also important from a policy perspective. Any policy aiming to reduce late entry into primary education should target lower primary aged children (7-9) and, in particular, those children aged 7 who – despite being old enough to start primary school – typically do not enroll until they are 8 or 9.

While late start remains a concern, another clear pattern emerging from this study is that a non-negligible group of children start school early, at age 6 – and early start has a positive relationship with survival rates. An estimated 33% of children who started primary school for the first time in 2017 were 6 years old. In Rwanda’s education system, there are more early starters on average than there are late starters. Early start is associated with improved educational outcomes. We show this in Figure 4.45, by comparing the enrollment rates of children that started school at age 7 versus age 6 over time. The graph reveals that early start has the opposite effect of late start: children that enrolled at age 6 are more likely to survive in school than children that started their education at age 7.

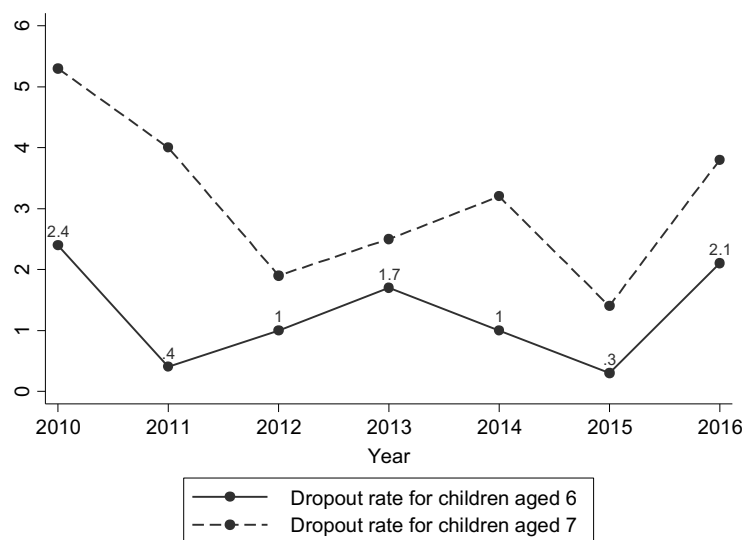
Figure 4.45 Enrollment rates, by years since start of education, comparing early starters aged 6 to on-time starters aged 7, 2017 data



As with late start, we are not able to prove that early start is a root cause of greater longevity in the education system. Early start is more common in urban areas, in households that are economically better-off, in households where the parents have higher levels of formal education, all factors that are also associated to a lower risk of dropout and other positive educational performance metrics. Nevertheless, the association between early start and higher enrollment rates holds when controlling for various child, household, and location factors of interest. This, of course, does not imply that early start is the cause of a greater longevity within the education system, but many patterns that emerge across the data do suggest that children that start school early perform better.

One such example, is that early start is not only associated with lower dropout rates towards the end of a child's educational trajectory, but also in their very first year of education. Historically, from 2010 through to 2016, we observe that children that started school at age 7 consistently experienced slightly higher dropout rates in Primary 1 than children that started school at age 6 (see Figure 4.46). The difference in dropout rates between 6- and 7-year-olds in their first year of education is relatively small (+/- 1 percentage point). It is also a very temporary form of dropout that occurs within the school year; most children that dropout of school in their first year, are re-enrolled in the subsequent year. The difference might be small, but it is consistent over the years and it matters, because dropout at an early age can alter the rest of a child's educational trajectory.

Figure 4.46 Estimated dropout rate for children aged 6 or 7, enrolled between 2010 and 2016



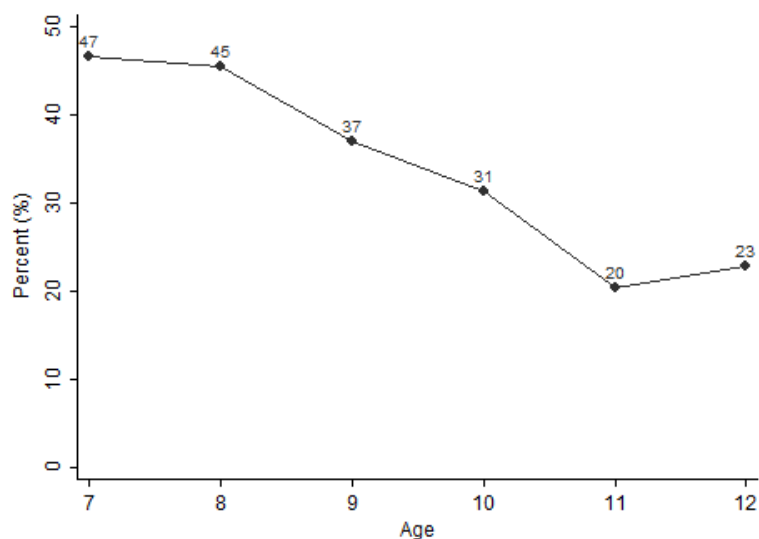
KEY MESSAGES:

- Late start for children aged 7 to 12 is approximately five times more prevalent than dropout.
- In 2017, an estimated 20% of children who entered the education system for the very first time were late starters.
- It is the youngest among the primary school-aged children who are out of school, which is consistent with the notion that being out-of-school at primary school age is a problem of late start.
- The majority (about 60 percent) of out-of-school children were 7-year-olds and that, approximately 91 percent of primary school age children who have never enrolled in school are 9 years old or younger
- While late start remains a concern, another clear pattern emerging from this study is that a non-negligible group of children start school early, at age 6 – and early start has a positive relationship with survival rates

4.3.1.2. Gender – “is late start more prevalent amongst girls or boys?”

Boys are more likely to have never attended school at primary-school age. Between 2011 and 2017, around 57% of those primary school-aged children who had never attended school were male, and only 43% were female, a considerable difference of about 14 percentage points. Figure 4.47 below shows two important stylized facts about gender differences for out-of-school children of primary school age who have never enrolled. First, a slightly larger share of these children are male; while at ages 7 and 8 the difference is relatively small (about 6 to 10 percentage points), the difference grows with age. Second, the share of girls in the total number of primary age children who have never enrolled in school reduces from about 45 percent to around 20 percent between the ages of 8 and 12.

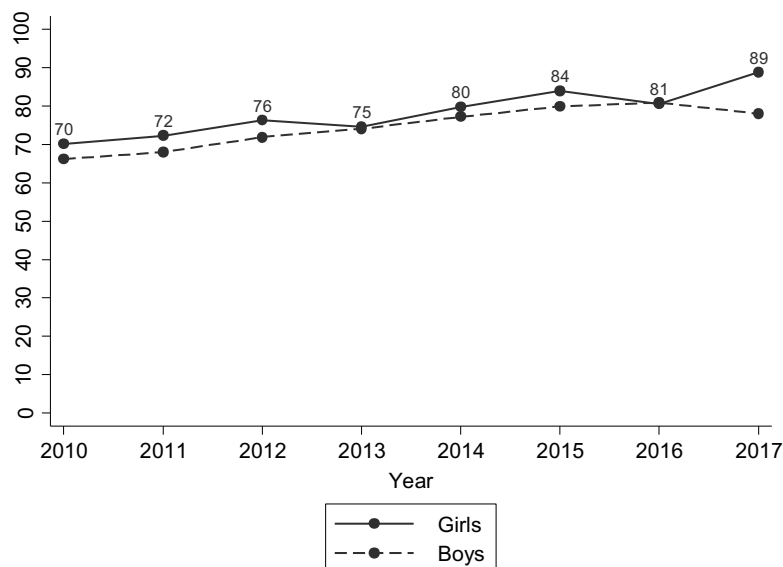
Figure 4.47 Percent of girls of out of school children of primary school age who have never been enrolled in school, 2011-2017



As has been shown in previous sections of this report, late start adds to a myriad of other dynamics that seem to put boys at a disadvantage relative to girls between the ages of 7 and 12. Regardless of what happens to boys later in their education trajectories, this initial gap in enrollment between boys and girls alone already puts boys at risk of dropping out and potentially underperforming in school.

Examining enrollment rates of children aged 7 by gender (see Figure 4.48 below) suggests three important trends: (i) firstly, the challenge of late start seems to have been reducing over time, with gradually increasing enrollment rates for 7-year olds between 2010 and 2017; (ii) historically, girls have been slightly more likely to enroll on time than boys; and (iii) that there is a very unexpected jump in the difference of enrollment rates of boys and girls aged 7 in 2017. In 2017, the difference in estimated enrollment rates between girls and boys aged 7 is about 11 percentage points (89% versus 78%) - statistically significant at the 5% level - versus just 0.3 percentage points in 2016. Girls aged 7 saw their enrollment levels increase by 8 percentage points between 2016 and 2017, while boys experienced a reduction of about 3 percentage points. This gap in enrollment levels between girls and boys aged 7 in 2017 is confirmed in the household dataset. The increase appears to be driven - at least partially - by an increased exposure to some form of pre-primary school. An estimated 50% of girls and boys aged 7 in 2016 reported having attended a formal or informal pre-primary school; this number remains about 50% for boys aged 7 in 2017, but increases to almost 60% for girls. This evidence points towards the existence of an early childhood development intervention that predominantly impacted girls. As we will show in the subsequent section, enrolling in pre-primary school is strongly correlated with starting school on time.

Figure 4.48 Estimated enrollment rates for 7-year olds, by gender, 2010-2017

**KEY MESSAGES:**

- Boys are more likely to have never attended school at primary-school age. Between 2011 and 2017, around 57% of those primary school-aged children who had never attended school were male, and only 43% were female, a considerable difference of about 14 percentage points
- The challenge of late start seems to have been reducing over time, with gradually increasing enrollment rates for 7-year olds between 2010 and 2017

4.3.1.3. Performance in School – “do late starters perform as well as their peers?”

We find no evidence of differences in child performance in school between late starters and children who started their education on time. We ran several tests on the association between late start – after the age of 7 – and a series of performance metrics – measured with our assessments and self-reported ability, controlling for various individual, household and geography variables. In none of our specifications was there a strong nor statistically significant association between late start and any of our child performance indicators.

4.3.1.4. Disabilities – “do disabilities increase the chance of late start?”

After testing the relationship between starting late and a number different self-reported disabilities and impairments, we find no statistically significant relationship between having a disability and starting school late. We ran several models testing the relationship between different types of disabilities – physical, visual,

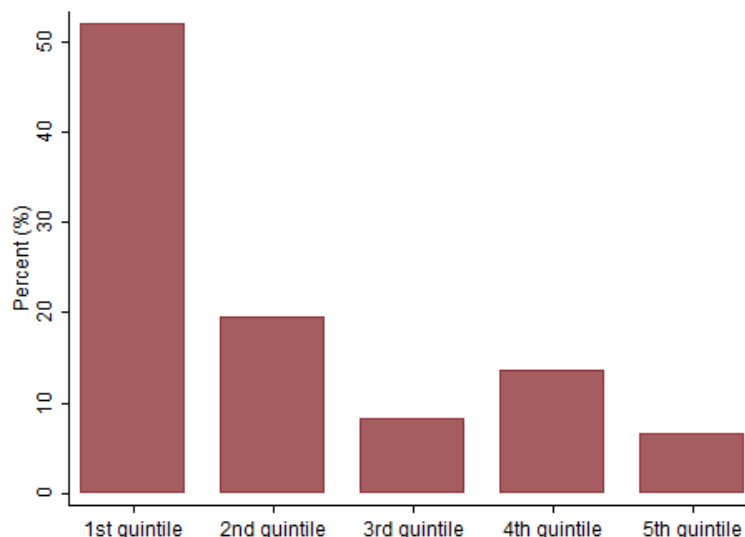
hearing, cognitive and of self-control – and late start, controlling for age, gender, and region and locality variables and found no statistically significant relationship between having a disability and starting school late. As stated before, this does not necessarily imply that there is no relationship between disability and late start, however, if there is a relationship, given the relatively low prevalence of each type of disability, our sample size does not allow us to capture it.³⁴

4.3.2 Household Characteristics

4.3.2.1. Poverty – “are children from poor households more likely to start late?”

There is a clear disparity in the distribution of late-starters across wealth levels - almost three quarters (about 72%) of all primary school age children who have never enrolled in school come from the bottom of the wealth distribution. Figure 4.49 below shows this clearly. Of all primary school age children who have never enrolled in school – and will be late starters – 52% come from the poorest households; a further 20 percent of these children come from the second lowest wealth quintile.

Figure 4.49 Distribution of primary-school-age children who have never enrolled in school by wealth level, 2016-2017



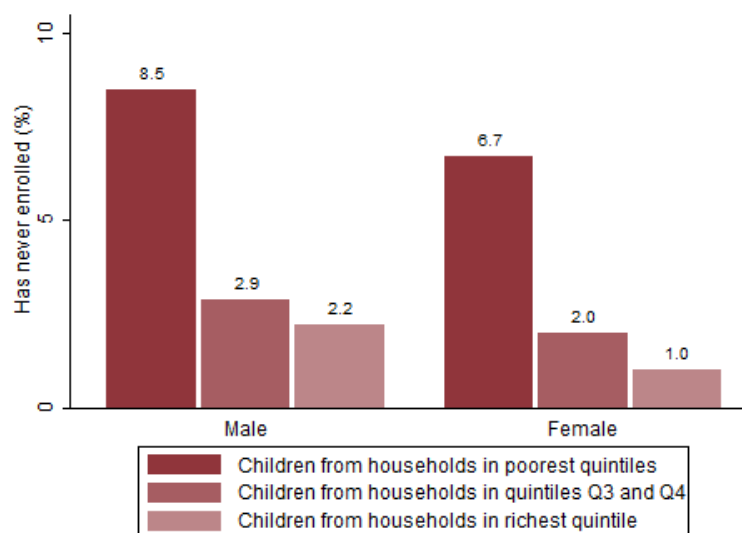
The incidence of late start is by far the highest in the poorest households. In fact, children of primary-school-age from households in the poorest quintile are almost 5 times more likely to have never been enrolled in school compared to children from households in all other wealth quintiles combined. Figure 4.49 above, shows the differences in the percentage of primary school age children who have never enrolled in school by wealth quintile. While there are some

³⁴ We even tested a dummy variable measuring whether the child suffered from any type of disability and even in that case, the negative correlation between late start and having a disability is not statistically significant at any acceptable level.

differences in the rates between all other four quintiles, these are not statistically significant; however, the rate for children from households from the poorest wealth quintile is statistically higher compared to those of children from households in the other wealth quintiles.

Finally, dividing children by gender and household wealth level reveals another important feature of how gender and wealth affect the likelihood of not being enrolled for primary school age children. Figure 4.50 below shows that regardless of wealth level, the likelihood of not being enrolled is slightly higher for boys than girls. That is, for boys and girls of households in a particular wealth quintile group the probability of not being enrolled in 2016 and 2017 is slightly higher for boys than for girls. However, the largest differences in the probability of being out of school for primary school children come from differences in the household’s level of wealth, more than the gender of the child.

Figure 4.50 % of children of primary school age who have never enrolled in school by sex and wealth level, 2016-2017



Our discussion on wealth levels presented above can provide some important insights for policymakers. First, children of primary-school-age and who have yet to enroll in school come disproportionately from the poorest households. Second, the largest differences in the proportion of children of primary-school-age who have yet to enroll in school are driven by differences in household wealth levels more than differences in personal characteristics such as age or gender. It seems then that the design of any policy that aims to address the issue of late start needs to put particular focus on the poorest households, as that is where most of late starters come from.

KEY MESSAGES:

- *There is a clear disparity in the distribution of late-starters across wealth levels - almost three quarters (about 72%) of all primary school age children who have never enrolled in school come from the bottom of the wealth distribution.*
- *The incidence of late start is by far the highest in the poorest households. In fact, children of primary-school-age from households in the poorest quintile are almost 5 times more likely to have never been enrolled in school compared to children from households in all other wealth quintiles combined.*
- *Regardless of wealth level, the likelihood of not being enrolled is slightly higher for boys than girls.*
- *However, the largest differences in the probability of being out of school for primary school children come from differences in the household's level of wealth, more than the gender of the child*

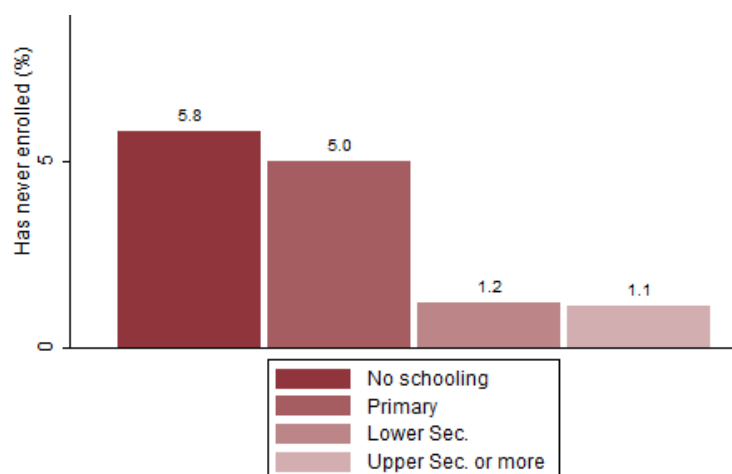
4.3.2.2. Home Environment – “what is the home and family environment of late starters?”

A child’s family, particularly for younger children, can play a very important role in determining the educational outcomes of the child. Family composition, structure and the characteristics of parents and siblings all play a role in a child’s education by either enhancing the child’s potential and increasing her opportunities for cognitive development or, alternatively, dampening a child’s potential and opportunities for learning.

An important determinant of a child’s schooling outcomes is the educational attainment of her parents.

There is some evidence in our data that the education of the household head is an important factor that determines, to some extent, the probability that a child of primary school age will not start late. Figure 4.51 below shows that for households headed by parents with no formal education or who completed primary school only, the chances of his/her child enrolling late are somewhat higher compared to those of children from households headed by parents who completed lower or upper secondary (or higher levels of education).

Figure 4.51 % of primary school age children who have never enrolled by the education level of the household head, 2016



Likewise, other characteristics of the head of the household also seem to be correlated with the probability of starting late – such as female head of household, divorced parent and lack of siblings. For example, children of primary-school-age from households headed by women are marginally more likely to start late. Children of primary school age from households headed by a divorced parent are also more likely to start late than children from households where the parent is not divorced. Interestingly, children of primary school age who have no siblings are marginally more likely to enter late. This is somewhat surprising given that one would expect that the more siblings a child has, the more difficult it may be for her parents to send her to school and/or make sure that she does not start school late.

KEY MESSAGES:

- *An important determinant of a child's schooling outcomes is the educational attainment of her parents. There is some evidence in our data that the education of the household head is an important factor that determines, to some extent, the probability that a child of primary school age will not start late.*
- *Other characteristics of the head of the household also seem to be correlated with the probability of starting late – such as female head of household, divorced parent and lack of siblings.*

4.3.3 School Characteristics

4.3.3.1. Proximity to school – “does proximity to school affect late start?”

We find that children who live in the immediate vicinity of a school (at a distance of less than 500 meters) are much more likely to enroll on time. Living within 500m of a primary school is associated with a 5 percentage-point increase in enrolment rates for children of primary school age (this effect is statistically significant at the 1% level, controlling for location factors). What matters is not how far a child lives from a school, but rather whether the nearest school is in the immediate vicinity of where the child's home is located.

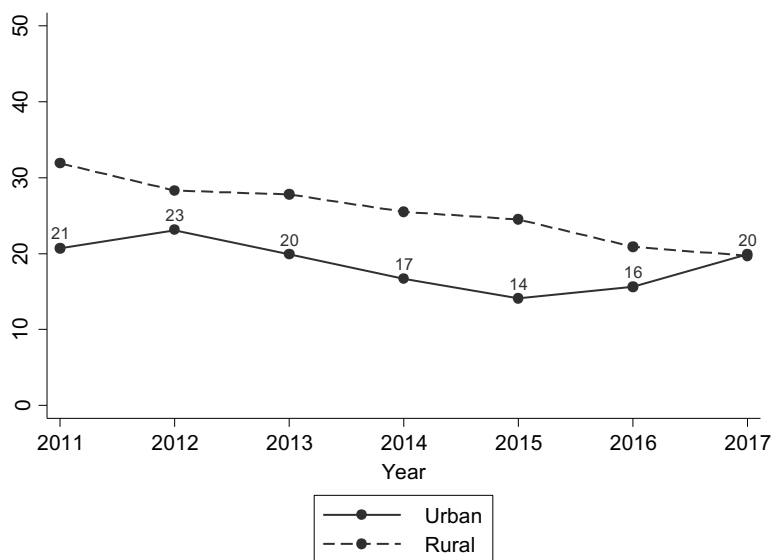
4.3.4 Community Characteristics

4.3.4.1. Type of Locality (Rural/Urban) – “is late start more prevalent in rural or urban communities?”

The community context in which a child lives and goes to school can have important effects on her educational outcomes. For example, remote communities typically face significant challenges in terms of access to schooling that may prevent a child from being able to attend school. Similarly, the level of social cohesion and organization within a community can also help improve the delivery of services (like education) to its members and create an environment more conducive to better educational outcomes.

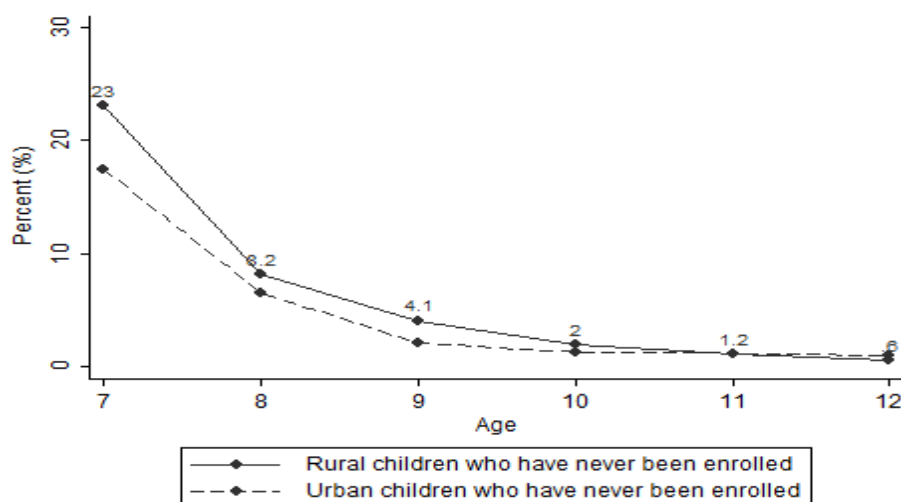
Historically, late start has been much more prevalent in rural areas. However, gaps in late start between urban and rural areas have reduced significantly over time. In 2015 for example, an estimated 25% of new entrants in Primary 1 in rural areas were late starters, compared to 14% in urban areas, a statistically significant difference of more than 10 percentage points. By 2017, due to decreasing late entry in rural areas and a rapid increase in late start urban areas, the gap had disappeared (see Figure 4.52).

Figure 4.52 Proportion of late starters, by urban/rural, between 2011 and 2017 (for children of primary-school-age and below entering school for the first time)



The share of primary school age children who have never enrolled in school in rural and urban areas follows a similar trend with regards to the age. Figure 4.53 below shows that, the share of children who have never enrolled in school within each type of locality is relatively high for age 7 (around 20 percent) and reduces to about 1 percent by age 12. Moreover, the proportion of children in rural areas who have never enrolled in school starts out being about 5-6 percentage points higher than that of children in urban areas at age 7. However, past age 9, the percentage of children who have never enrolled in both localities is small and of similar magnitude.

Figure 4.53 Percentage of primary school age children in rural and urban areas who have never enrolled for rural and urban areas, 2011-2017



While the rural/urban gap has closed, regional differences persist: late entry is highest in Western and Southern while dropout is highest in Northern and Eastern provinces. Despite the number of late starters increasing in urban areas, the Province of Kigali remains the region with the lowest proportion of late starters, at 18.9%. There is a lot of regional variation when it comes to late start, with the proportion of late starters varying between 21% of new entrants in the Northern Province, to 26% in the Eastern Province, 27% in the Western Province and finally 31% in the Southern Province.

KEY MESSAGES:

- *Historically, late start has been much more prevalent in rural areas. However, gaps in late start between urban and rural areas have reduced significantly over time.*
- *While the rural/urban gap has closed, regional differences persist: late entry is highest in Western and Southern while dropout is highest in Northern and Eastern provinces*
- *Children who live in the immediate vicinity of a school (at a distance of less than 500 meters) are much more likely to enroll on time.*

5. Drivers of Dropout and Repetition

Why are children dropping-out of school and/or repeating grades? In previous chapters we identified key points during the educational trajectory of children in Rwanda that increase the likelihood that a child will drop out of school. As we have argued in Chapter 3, key underlying determinants have helped shape the current structure of Rwanda’s basic education system which can be characterized by: (i) overaging; (ii) low primary completion rates, and low transition rates to secondary education; and, (iii) inequality within the basic education system.

In this chapter, we will explore the main reasons why children are dropping-out of school and/or repeating grades at key turning points in their educational trajectory. In Chapters 3 and 4, which focused on understanding trends and profiling children that dropped-out or repeated, several dominant dropout and repetition patterns were identified, including:

- (i) Very high repetition rates in children’s first year of education, pointing to a potential school readiness problem;
- (ii) Unusually high repetition rates in Primary 5, potentially linked to the primary school leaving examination in the subsequent year;
- (iii) High dropout rates in Primary 6, during the transition from primary to secondary school;
- (iv) Differences in performance by gender, with girls out-performing boys on all educational metrics through to age 15, but with girls significantly less likely to re-enroll in school after dropping out and dropping out more frequently after the age of 15;

Our aim here is to better understand why we observe these patterns and identify the key factors that lead to dropout and repetition at these critical points in the education system. This Chapter is structured around four key research questions that are pivotal to understanding the dynamics of dropout and repetition in Rwanda. They try to address the underlying trends driving the dynamics of the education system with the aim to inform policies that can help address those bottlenecks, reduce the incidence of repetition and dropout in Rwanda, and ease the pressure on certain turning points in the education system. The main research questions are listed in Figure 5.1. To the extent possible, and where relevant, each of the four questions will be analyzed through the analytical dimensions of child-level, household-level, school-level and community-level factors.¹

¹ It is worth noting that we do not directly address the issue of late start, however, given that it is an issue closely related to repetition (and dropout) in the first year of education, we do address it indirectly, as many of the underlying factors of one are shared by the other.

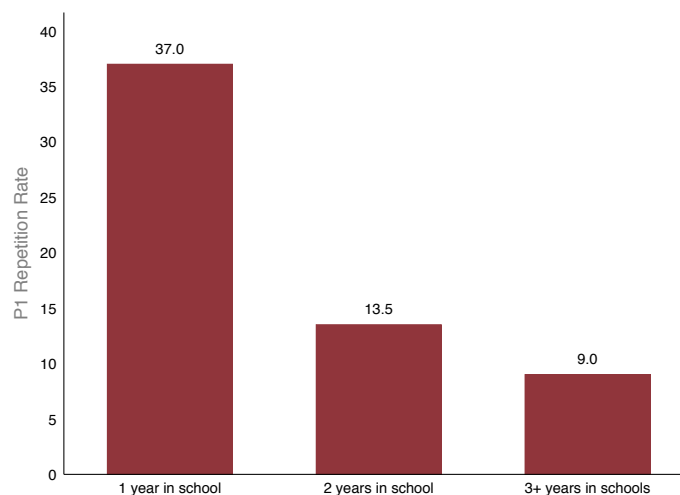
Figure 5.1 Key Research Questions and Analytical Dimensions

Research Questions: Drivers of Dropout & Repetition	Dimensions
1 WHY do children repeat in the first year of their education?	Child-level
2 WHY do children repeat in Primary 5?	Household-level
3 WHY do children dropout in the transition from Primary 6 to Secondary1?	School-level
4 WHY do older girls drop out of school? Gender Barriers	Community-level

5.1 Why do children repeat in their first year of education?

We have established that repetition rates for children in their first year of education (in Primary 1) are very high: in 2016-2017, an estimated 37% of children repeated in their first year of schooling; the corresponding figure in 2015 (before the drop-in repetition rates) was almost 50% of children. Children’s repetition rate in Primary 1, by years since the start of their education, can be seen in Figure 5.2. The first year of education stands out: while the repetition rate for children in Primary 1 in their first year of education was 37%, it quickly drops to 13.5% and 9% for children in their second and third year of education respectively. One of the main occurrences of high repetition rates in Primary 1 is therefore within the first year of education. We focus the analysis in this section on those children that enrol in Primary 1 for the very first time.

Figure 5.2 Repetition rates in Primary 1 by years in school (2016)



5.1.1 Child Factors: “Children that repeat in their first year of education are not school-ready”

School readiness - in terms of literacy, numeracy and socio-emotional development - is a strong determinant of why children tend to repeat in the first year of education. School readiness is a measure of how prepared a child is to succeed in school, cognitively, socially and emotionally. In this sub-section, we examine both academic performance and socio-emotional factors that could be determinants of why children repeat in their first year of education.

To study the question of school readiness, we look at the three key areas of focus:

1. **Foundational literacy skills in Kinyarwanda.** In terms of foundational literacy skills, we study two metrics (i) whether children who have attended Primary 1 can read a short text in Kinyarwanda; and (ii) whether they have a basic understanding of this text. To assess foundational literacy skills, we use part of the Primary 1 Early Grade Reading Assessment (EGRA) tool developed for USAID and tailored to the Rwandan context. This tool enables us to assess the reading comprehension skills of pupils that have attended at least one year of Primary 1. We therefore do not get a snapshot of children’s reading and writing skills at the entry point into the education system (which is what is meant by the term “school readiness”), but only after one year which we use as a proxy for readiness at entry.
2. **Foundational numeracy skills.** Numeracy is evaluated using part of the Primary 1 Early Grade Mathematics Assessment (EGMA), also created for USAID. The numeracy assessment is structured around a number of tasks assessing different mathematical skills. Here we focus on addition, subtraction and number discrimination. The numeracy assessment was delivered as a timed assessment, giving children 180 seconds per section to compute 10 basic questions. It is important to note, that like the literacy assessment, this assessment was only given to children that attended Primary 1 in the previous year. It therefore does not provide a snapshot of numeracy skills at the entry point, but after one year of primary education.
3. **Socio-emotional development.** To measure socio-emotional development we borrow questions from the IDELA framework (International Development and Early Learning Assessment) developed by Save the Children. The IDELA tool measures school readiness based on children’s emotional awareness (e.g. naming one person who takes care of them at home), their peer relations (e.g. being able to identify friends by name), their emotional awareness (e.g. what makes them feel happy or sad), empathy (e.g. their ability to identify whether people look happy or sad, based on a picture), conflict resolution (e.g. what they would do if another child wants to play with their toy), and self-awareness (e.g. what makes them angry and how they can calm down). IDELA questions were only asked of children aged 6 and 7 in 2017, regardless of whether they were enrolled in school or not.

5.1.1.1 Literacy

After one year of primary education, the majority of children cannot read in Kinyarwanda. During the literacy assessment children were given 3 minutes to read aloud a very short text in Kinyarwanda. Enumerators were instructed to identify as “able to read” any child who could read at least one word from the text. Only an estimated 34% of children were identified as being able to read after their first year of education. Meaning that 2/3rds of children could not read aloud even one word from a simple text. After having spent one year in primary school, we already observe sizeable differences between children in rural areas, where an estimated 31% of children were able to read, and urban areas, where more than 50% of children were able to read. Out of children who were able to read, and who attempted to answer the EGRA reading comprehension questions on this short snippet of text, reading comprehension was relatively high (approximately 65% on attempted questions).

The ability to read is what distinguishes children who repeat after one year of education from children who progress to Primary 2. Almost 50% of children who progressed to Primary 2 after one year of schooling were identified as being able to read, compared to just 16% of children who repeated. Looking at aggregate scores on the Primary 1 literacy test, which takes into account the reading comprehension questions, children who got promoted after one year of education scored 30% on the test, compared to just 2.5% for repeaters. This is a very large and statistically significant difference.²

Although pupils who are promoted to Primary 2 obtain a higher score, on average, in the literacy assessment, the majority still lack foundational reading skills. An estimated 64% of the pupils who were promoted after one year of education to Primary 2 scored 0% in the literacy assessment. The fact that children who cannot read in some cases still can get promoted shows that schools apply different standards to promotion decisions. This can be seen by comparing repetition rates with scores on the Primary 1 literacy test by Province. Take for example the cases of Kigali and the Southern Province. In Kigali, the average score on the literacy test for children who had just completed their first year of education was 47%; the corresponding repetition rate in Kigali was about 35%. This compares to a lower repetition rate of 29% in the Southern Province, where nevertheless the average test score on the Primary 1 literacy test was just 15%. In Kigali 75% of children that scored 0% were made to repeat, compared to just 35% of children in the Southern Province. This example shows that there is a clear disconnect between how repetition decisions are made in Kigali versus in the Southern Province.

Results imply that from a literacy perspective, children are not ready for school at entry into the primary education system and that one year of primary school education does not equip the majority of children with the required literacy skills to succeed in primary school. Repeating primary school once helps to improve literacy and numeracy levels, but does not bring performance to the level required for success in school. An estimated 46%

² Controlling for individual factors (gender, age and age squared), household factors (wealth and, gender and education of household head) and location factors (urban or rural status and province).

of children who were repeating Primary 1 for the second time in 2016 were able to read, compared to just 16% of children who were repeating Primary 1 for the first time, during their second year of education. These learning gains are very substantial, but nevertheless insufficient as more than half of the children that repeated Primary 1 are still not able to read after two years in school. This points to the fact that the problem is not only school-readiness at the point of entry into the primary education system, but also the low capacity of the schooling system to adequately provide reading skills to pupils starting their education.

5.1.1.2 Numeracy

After one year of education, most children have also not acquired the minimum numeracy skills required to progress to the next level. Children were assessed on three different sets of P1-level numeracy tasks, including being able to distinguish which number is greater than the other, as well as simple addition and subtraction tasks. We use the example of addition here to show that children after one year of education do not yet have the skills they need. By the end of Primary 1, children are expected to be able to add numbers between 0 and 99, without carrying a term, where the total sum does not exceed 99. As part of the Primary 1 addition test, children were asked to make the following 10 additions: $2+7$, $1+3$, $3+2$, $4+5$, $2+4$, $1+2$, $3+4$, $7+3$, $1+6$, $6+4$. They were given a pen and paper and given 2 minutes to complete the questions. An estimated 45% of children were not able to answer any of the additions correctly in the allocated time, although an estimated 80% of children attempted at least one addition. On average children were able to compute 2.8 questions out of 10, with again large differences between urban and rural areas. In urban areas children were able to correctly calculate 4 out of the 10 questions, compared to 2.5 on average in rural areas. While more than half of children were able to at least compute one addition correctly, which shows that most children are able to recognize numbers, the assessment shows that after one year of education children had not yet acquired the required skills to calculate a sufficient number of Primary 1-level additions within a set period of time.

School readiness, in terms of having the requisite numeracy skills, is also a strong predictor of repetition in Primary 1. On all tests, the difference between children that repeated in their first year of education and children that got promoted is large, but the strongest signal is obtained when looking at the discrimination task, which involves identifying the largest amongst two numbers. We find that scores on the addition and subtraction tests are highly correlated with the discrimination task, as it is necessary to first understand the order of number before a pupil can add or subtract. On average children who were promoted to the next level after their first year of schooling scored about 50% on the number discrimination task, compared to about 20% for children that repeated.

Evidence suggests that across numeracy tests, repetition leads to improved learning outcomes; however, while the learning gains are substantial they are still insufficient. The average score of children enrolled in Primary 1 and who were repeating Primary 1 for the second time was much higher than for children who had just completed their first year of education and were repeating Primary 1 for the first time: addition scores increases from an average of 13% for children who just repeated Primary 1 after their first year of education to 36% for children who just completed their

secondary year in Primary 1; subtraction scores increase from 7% to 26%; and number discrimination scores from 19% to 49%. The impact of one year of additional schooling is really very large, but still not sufficient to fully prepare pupils for the subsequent grades.

From a numeracy perspective as well, children enter and leave Primary 1 without sufficient preparation for subsequent grades. Schools make children with the lowest scores repeat. While the learning gains of repetition are very large, they are insufficient to prepare children.

5.1.1.3 Socio-emotional Development

This study used parts of the IDELA assessment tool, to measure the socio-emotional development of children entering the primary education system. Children were asked twelve questions focused on their emotional awareness, empathy, conflict resolution skills and self-awareness. These questions were administered to children aged 6 and 7 in 2017 (see Table 5.1), regardless of their schooling status.

Table 5.1 Survey questions

Question	Indicator
Please tell me the name of one person who takes care of you at home	Self-awareness
Think for a moment and tell me what makes you feel sad	Emotional awareness and regulation
What do you do to feel better when you are feeling sad?	Emotional awareness and regulation
What else do you do to feel better when you are feeling sad?	Emotional awareness and regulation
Think for a moment and tell me what makes you feel angry	Emotional awareness and regulation
What do you do to calm down or feel better when you are feeling angry?	Emotional awareness and regulation
Now tell me, what makes you feel happy?	Emotional awareness and regulation
The child identifies that girl in charts is feeling sad, hurt or upset	Empathy
What would you do to help the sad/hurt girl feel better?	Empathy
Is there anything else you would do to make the sad/hurt girl feel better?	Empathy
Another child wants to play with your same toy. What would you do?	Conflict resolution
Is there anything else you would do when a child wants to play with your toy?	Conflict resolution

Although it is difficult to establish a benchmark of “school-readiness” with socio-emotional data, the IDELA scores measured as part of this study suggest that the majority of children aged 6 and 7 are ready for school when it comes to their socio-emotional development. On average, the share of correct responses across all questions

was two out of three.³ Scores were highest on the conflict resolution skills, self-awareness and empathy; scores were slightly lower on emotional awareness and regulation, but not below 60% of correct responses per question. Only 1.5% of children scored 0% across all IDELA questions; an estimated 25% scored below 50%. We conclude that while most children were “school-ready” from an emotional development perspective, according to the IDELA method about one out of four children were not yet fully emotionally prepared for primary school.

Socio-emotional development metrics are positively associated with both test scores on the numeracy and literacy tests and repetition rates. Students who perform better on any IDELA dimension also tend to perform better at school. Figure 5.3 corroborates the negative correlation between the IDELA score and repetition, indicating that the probability of repeating P1 decreases with school readiness via better socio-emotional development. Children who have better socio-emotional development scores are also more likely to perform better at school, as demonstrated by Figure 5.4, which looks at the link between IDELA and an aggregated P1 test score, combining literacy and numeracy results into one score. The socio-emotional development score therefore captures something very real about the “school readiness” of children.

Interestingly, the socio-emotional development of children is also positively correlated with whether children engage in household chores or not. Evidence from this study convincingly shows that, children who report doing chores at home, also have much higher IDELA scores.⁴ This might be because of higher self-awareness or because children that are comparatively more mature are given greater responsibilities in the household. In the first year of children’s education, we therefore observe a very positive link between household chores and IDELA, literacy, numeracy and Primary 1 promotion rates. Asking children about what household chores they engage in appears to be a good substitute for IDELA, as it appears to capture something fundamental about the school readiness of children.

³ Children’s responses were assessed by enumerators on the spot, and categorized into three groups: 0 (incorrect/I don’t know), 1 (correct), 2 (refused). For example, if a child was able to mention the name of someone who takes care of them at home, they were considered to have responded correctly.

⁴ Controlling for age, gender, and other location factors of interest.

Figure 5.3 Share of correct answers to IDELA questions by P1 repetition (2016)

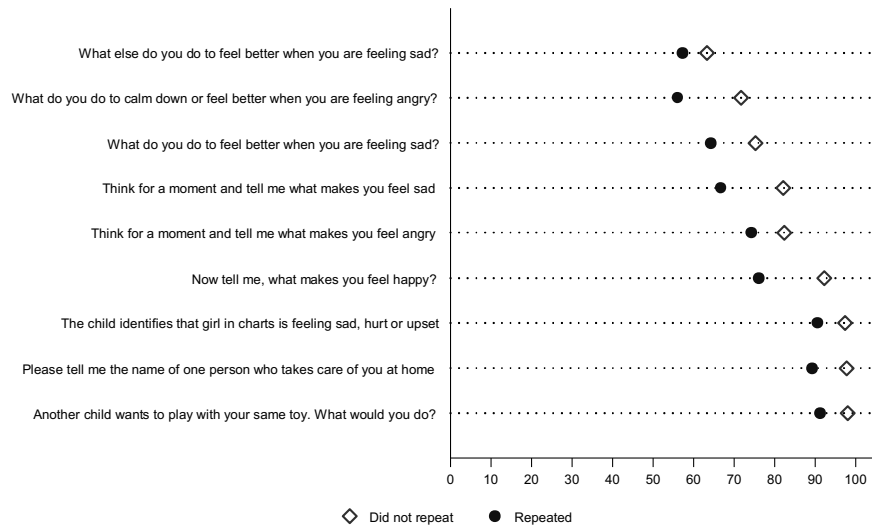
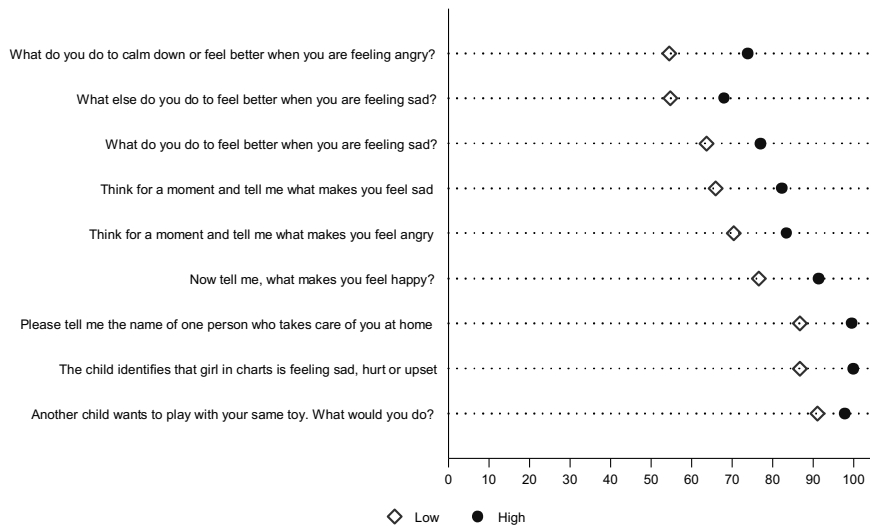


Figure 5.4 Share of correct answers to IDELA questions by P1 assessments combined scored (literacy and numeracy) (2016)



Qualitative interviews with parents and teachers confirmed that school readiness, be it from a literacy, numeracy or socio-emotional perspective, is a major concern at the point of entry into the primary education system:

“As some of my colleagues said, [repetition is highest] the first year because children enter primary 1 without knowing anything. The teacher of primary 1 is often the first person who will give them skills, he teaches children how to take a pen, he teaches them everything. “ (Primary school teacher, Ngoma)

“It is difficult for a child who is going to school for her first time in P1 to be mentally prepared to study. You have to wake him/her up every morning and it takes time before s/he gets used to it.” (Father of five children, Ngoma)

KEY MESSAGES:

- *Repetition in Primary 1 is a “school readiness” problem. Children who repeat in their first year of education are in school without possessing the necessary (literacy, numeracy and socio-emotional development) skills to succeed in an educational environment*
- *Numeracy and literacy skills are very low for children entering the system. Pupils repeat in Primary 1 as a catch-up mechanism to be ready for school*
- *While the learning gains from repetition are very large, the majority of children exit Primary 1 without having the foundational literacy and numeracy skills in order to be able to succeed in subsequent grades*

5.1.2 Household Factors: “the education of parents”

Low school readiness in numeracy and literacy is tied to low education levels in the household, in particular in rural areas. There is a very strong association in rural areas between children’s assessment scores on the literacy and numeracy assessments and the educational background of their parents. After their first year of primary school education, children coming from households in rural areas where at least one parent had been to school, were on average 11 percentage points more likely to be able to read, 13 percentage points more likely to have attempted at least one addition questions and an estimated 14 percentage points more likely to have attempted one subtraction question. These are very large and statistically significant differences.⁵ Whether a child’s parents ever attended school is a good predictor of whether this child has the minimum numeracy and literacy skills required to at least attempt questions. It is not a good predictor, however, of the aggregate score of children on the numeracy and literacy tests. There, the education level of the parent matters. Children from households in rural areas where the household-head had achieved at least secondary school level scored significantly better. After their first year of education, children in rural areas from households where the household-head had achieved at least secondary school scored on average 25 percentage points higher on the Primary 1 literacy assessment, 24 percentage points higher on the addition assessment and 31 percentage points higher on the subtraction test.

There are multiple mechanisms through which the education of the parents affects the future educational prospects of children. A few key examples of how the education of parents also shapes the educational trajectory of children are listed below (note that all the differences described are statistically significant):

Parents who have been to school have much higher educational aspirations for their children. For example, an estimated 80% of parents who had attended school, hoped their daughters would attain University level education; compared to about 70% of who had never attended school.

⁵ They hold controlling for relevant child, household and location factors, including the wealth of the household.

They hold different beliefs about how to best educate their children. For example, data from the household surveys suggests that about 46% of parents who had never attended school agree that punishment is essential to a good upbringing, education, compared to 37% of parents in households where at least one parent attended school.

Parents who have attended school also take greater ownership of the education of their children. When interviewed during the survey, an estimated 83% of parents that had attended school said they were responsible for making sure their children completed their homework, compared to 73% of parents who had not attended school. On all questions related to who in the household is responsible for ensuring that a child attends school, does his/her homework, and prepares for exams, parents with no formal education are more likely to shift the responsibility to the spouse.

Parents who have been to school play a much more active role in the education of their children. This is especially true when it comes to reading, mathematics and helping with homework. An estimated 65% of parents with no education “never” help their children improve their reading skills, compared to 37% of parents with education. Seventy percent of parents with no education mention “never” helping their children improve their mathematical skills, compared to 45% of parents that have been to school. Finally, an estimated 67% of parents who had never attended school mentioned that they “never” helped their children with homework, compared to 43% of parents that had attended school. These are really very large differences that without doubt shape the school readiness of children.

Parents who have been to school are also much more likely to send their child to pre-primary school. In 2017 an estimated 55% of children entering primary school for the first time and from households where one of the parents had been to school, had previously attended pre-primary school. This compares to 43% of children from households where neither of the parents had ever been to school. Parents who have been to school are much more likely to realize early on the potential benefits of pre-primary school. They are of course also more likely to be able to afford it as education strongly links to household income.

Through its effect on school readiness, the low education level of parents appears to be one of the main reasons repetition rates in the first year of children’s primary education are high. This is a generational challenge that will be alleviated in the future, as the proportion of parents with education increases substantially. Today, in Rwanda, virtually all children who enter adulthood have attended school before. This is one of the major achievements of the past decade, which has seen enrolment rates increase very rapidly. School readiness is poised to improve through the effect of much more highly educated parents.

KEY MESSAGES:

- *There is a very strong association in rural areas between children’s assessment scores on the literacy and numeracy assessments and the educational background of their parents.*
- *There are multiple mechanisms through which the education of the parents affects the future educational prospects of children. Parents who have attended school have higher educational aspirations for their children, different*

perceptions about how to best educate them, take greater ownership of the education of their children and play a much more active role in their education (supporting them with reading, maths, homework, etc).

5.1.3 School Factors: “the importance of pre-primary school”

Low levels of school readiness are also explained by the fact that only about 54% of children entering the primary education system in 2017 had previously been enrolled in a formal or informal pre-primary school.

There is both theoretical and empirical evidence that pre-primary education has a very positive impact on primary education. Studies from psychology and neuroscience conclusively show that it is easier to acquire knowledge at an early age and that cognitive stimulation is critical for long term skill development (Berlinski, 2009). We define pre-primary education as any type of formal or informal education that happens before a child is formally enrolled in Primary 1.

Attending pre-primary school improves school readiness on all accounts and significantly reduces repetition and dropout rates in children’s first year of education.

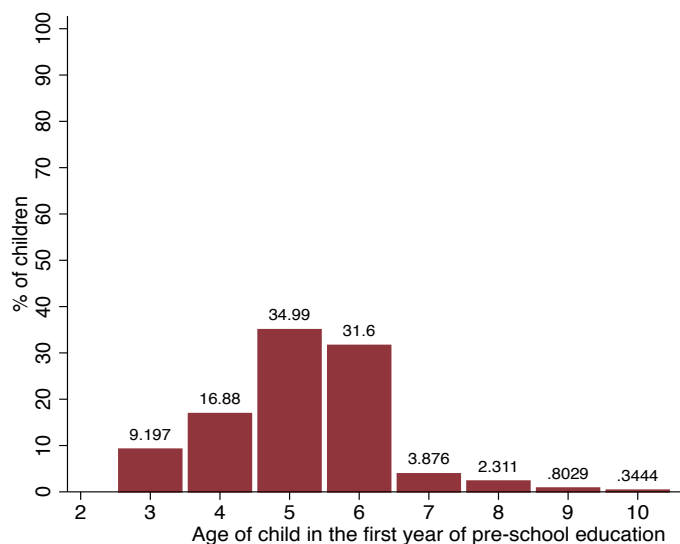
Attending pre-primary school is associated with a 12-percentage point reduction in repetition rates, an association that holds when controlling for relevant child, household and location factors. An estimated 31% of pupils who had previously attended pre-primary school repeated in their first year of education in 2016-2017, compared to about 43% for children who had not attended pre-primary school. This is a very large and significant difference, that is augmented by the fact that attending pre-primary school is also associated with a 5 percentage-point reduction in dropout rates for children in their first year of education. One of the vectors through which pre-primary school impacts educational outcomes is through improved numeracy, literacy and emotional development skills. Attending pre-primary school is associated with higher literacy, numeracy, and IDELA scores. However, these effects are not significant when controlling for household education. Indeed, household education is strongly correlated with whether children enrol in pre-primary school or not, so it is difficult to distinguish between the effects of the two.

It is important to emphasize that these results imply that even informal pre-primary school, for a short period of time, can lead to significantly improved educational outcomes.

The current cohort of children entering the education system started pre-primary school late and only stayed in pre-primary school for a short period of time (see Figure 5.5). Figure 5.5 shows that most children enrolled in pre-primary school at the ages of 5 or 6. Most children only attended pre-primary school for one year, before making the transition to primary school. Furthermore, many of these children were enrolled in informal schools and not in the formal pre-primary education provided by MINEDUC, for which net enrolment rates in 2016 were about 17.5%⁶. Despite undergoing a very incomplete pre-primary education, attending pre-primary school still has a very real impact on the school readiness of children entering the education system.

⁶ MINEDUC, *Education Statistical Yearbook*, 2016

Figure 5.5 Age at which children joined pre-primary school, number



Qualitative interviews confirmed these insights. During focus group discussions, teachers emphasized the importance of pre-primary school and how it impacted repetition rates in Primary 1:

“I teach at a school located in the rural areas, our school has nursery but parents do not bring their children there, and like that we receive some students who studied in nursery and others who did not. The student who has been in school before will be strong, but the other one who did not pass by nursery, it will take time for him to be integrated, and children will not be on the same level.” (Primary school teacher, Ngoma)

“[...] When a child has been to nursery school she starts the first year with some basic knowledge. The teacher will say let me teach ‘aaa’ and the student will reply that we are already done with ‘aaa’, then you will see another student who does not even know how to draw a line.” (Primary school teacher, Ngoma)

KEY MESSAGES:

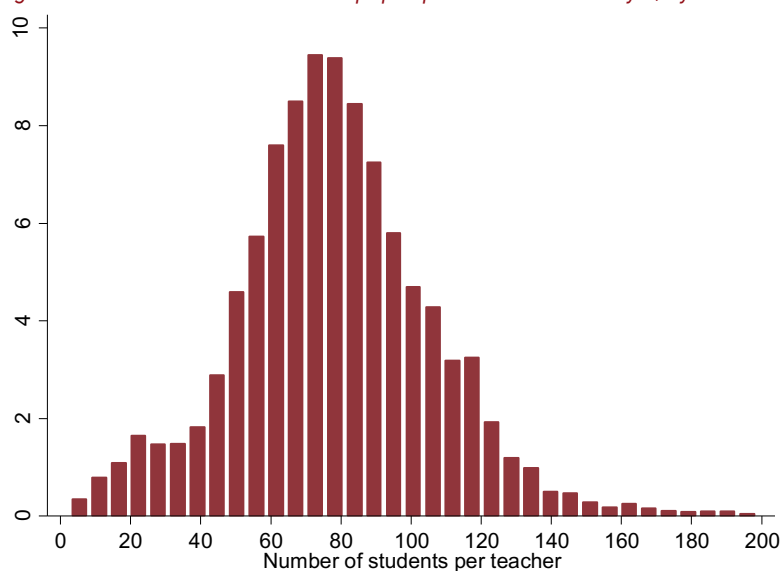
- Pre-primary or pre-primary education reduces repetition and dropout rates Primary 1
- Pre-primary school is an effective method to improve the school readiness among pupils who enrol in school for the first time
- This holds true, even though many children experience an incomplete pre-primary education, starting late and not staying in pre-primary school long enough

5.1.4 School Factors: “resource constraints in Primary 1”

Primary 1 is arguably one of the most important grades in a child’s educational trajectory. Primary 1 is the grade during which children should learn the foundational reading and numeracy skills that will set them up for the rest of their education. It is also a grade that plays a fundamental role in their educational trajectory. Through very high repetition rates, challenges in Primary 1 serve as a key source of over-aging and future dropout. We have seen in the previous section that children attending Primary 1 significantly improve their numeracy and literacy skills on average. However, the data also shows that most children that exit Primary 1, do so without the required literacy and numeracy skills to succeed later in their education.

Despite being so important, Primary 1 is comparatively under-resourced. It is the grade with the highest pupil-to-teacher ratios, where the strain on teachers and over-crowding in classrooms is the largest. We show this using estimates derived from a representative sample of schools from the 2015 EMIS dataset. Please take note that because this is a sample, there is variation around the mean, and these statistics cannot be taken to be precise estimates of national level data. What is important here are the trends that are being discussed, not the exact figures. Based on calculations using a sample from the EMIS dataset for 2015, we find that in schools there were an estimated 77 students for each teacher allocated to Primary 1 (teachers can be allocated across multiple grades and in most schools take children in two shifts, so approximately 38.5 pupils per teacher and per shift); this number drops to 72 by Primary 2, 68 by Primary 3, reaching 36 pupils per teacher by Primary 6. While the average drop from one grade to the next might seem small, it is important to keep in mind that when it comes to education the margins matter and that the average conceals a high degree of variation by school. We show this in Figure 5.6, which shows that the number of pupils-per-teacher in Primary 1 follows a normal-looking distribution. While on average teachers in Primary teach about 77 pupils per day, there are schools where this figure is significantly higher. In 2015, the pupil-to-teacher ratio was higher than 100 pupils per teacher in about 17% of schools.

Figure 5.6 Distribution of number of pupils-per-teacher in Primary 1, by school



Focus group discussions with teachers also concentrated on the problem of over-crowded classrooms in

Primary 1. A number of teachers made a direct link between classroom sizes in Primary 1 and repetition rates:

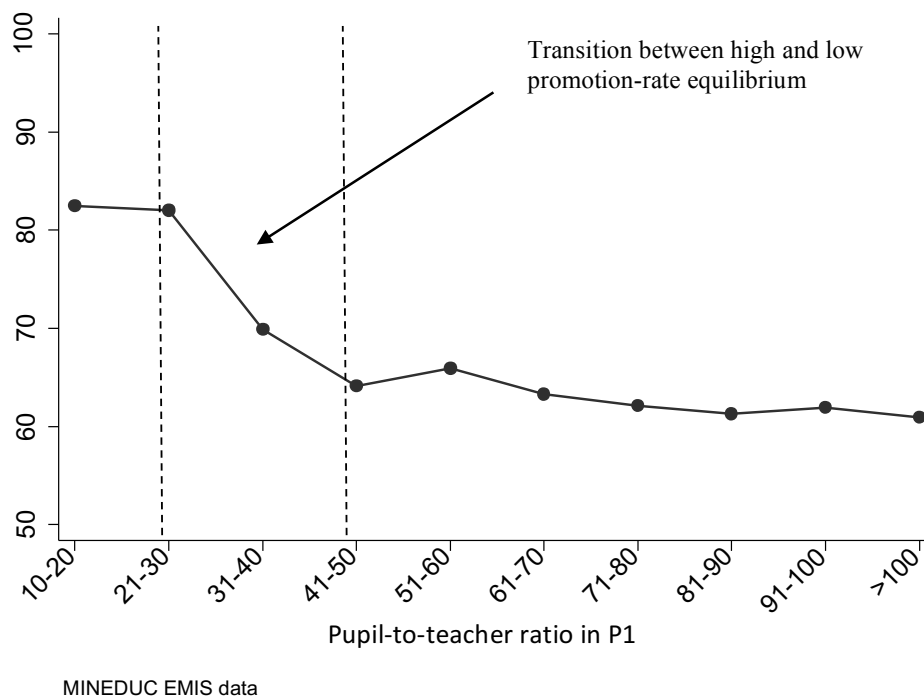
“Teaching children in the first year what they should have been taught before is a problem. What I want is that they study nursery, then go in the first year with many teachers, rather than having a class of 120 students.” (Primary school teacher, Ngoma)

“I think the other reason for repetition [in Primary 1] is the high number of children in classes. That forces the teacher to continue with those who understand and he/she does not get time to explain others who do not understand.” (Primary school teacher, Ngoma)

“As my colleagues said in public schools there are a big number of students. You find some of them do not have notebooks and they cannot memorize all that the teacher says, and the teacher is teaching like sixty students, and he spends like forty minutes only. Will the teacher reach to each student in these forty minutes he is given? What does that student who did not understand anything bring back home? That child will go back home with nothing.” (Primary school teacher, Ngoma)

Resource constraints in Primary 1 are strongly linked to promotion rates. When plotting promotion rates against pupil-to-teacher ratios by school in 2014-2015 (see Figure 5.7), we can see that promotion rates drop significantly from about 80% in schools with fewer than 30 pupils per teacher, to somewhere between 60% and 65% for schools with more than 50 pupils per teacher. What is interesting is that there is a transition phase separating a high promotion-rate equilibrium from a low-promotion rate equilibrium. This “window of opportunity” occurs between 30 and 50 pupils-per-teacher. Reducing pupil-to-teachers ratios below 30 does not seem to yield many gains in terms of average promotion rates. Similarly, above 50 pupils-per-teacher, promotion rates appear to be relatively stable, declining from about 65% for children in schools with 50 to 70 pupils per teacher, to 60% for schools with more than 100 pupils per teacher in Primary 1. These patterns seem to suggest that if teacher-to-pupil ratios in Primary 1 could be brought below the 50 mark – which is already the case in Primary 6 - it could yield substantial benefits from a learning perspective.

Figure 5.7 Promotion rate (%) in Primary 1, by teacher-to-pupil ratio, in primary schools in Rwanda in 2014-2015



Primary 1 appears to be the grade with the greatest issues when it comes to teacher attendance and professionalism, pointing to the possibility that schools might not be allocating their highest performing teachers to Primary 1. The problem of teachers absenteeism appears to disproportionately affect children in P1, where almost 50% of children (regardless of their age) reported that their teachers were often absent. With each passing grade, teacher absenteeism is cited less frequently as a regular occurrence. By Primary 6, fewer than 20% of children mentioned that their teachers were often absent. As with pupil-to-teacher ratios, the odds seem to be stacked against children in Primary 1, where class sizes are bigger, and teachers are also more likely to be absent.

Table 5.2 Perception on teacher absenteeism, as reported by pupils, by grade (2016)

Grade	Agree or strongly agree that teachers often absent	Neutral or disagrees that teachers often absent
Primary 1	49.1%	50.9%
Primary 2	42.7%	57.3%
Primary 3	37.0%	63.0%
Primary 4	31.6%	68.4%
Primary 5	25.0%	75.0%
Primary 6	18.6%	81.5%

Primary 1 is also the grade where children are punished the most. This might be because of low socio-emotional preparedness, but could also signal bad teaching practices. An estimated 22% of boys and 15% of girls in Primary 1 in 2016 reported getting punished regularly; this compares to 10% of boys and 3.5% of girls in Primary 6. Behavior issues and frequent punishment are not marginal issues in early grades, and affect a relatively large minority of children.

Table 5.3 Percent of children reporting being punished by teachers, as reported by pupils, by grade (2016)

Grade	% of boys that were often punished	% of girls that were often punished
Primary 1	22.0%	15.3%
Primary 2	20.2%	16.2%
Primary 3	17.4%	8.3%
Primary 4	12.8%	10.2%
Primary 5	12.5%	8.0%
Primary 6	10.1%	3.5%

5.2 Why do children repeat in Primary 5?

We have established that Primary 5 is an outlier due to unusually high repetition rates at that level. An estimated 18.5% of children below the age of 18 repeated Primary 5 in 2016, compared to a much lower repetition rate of 12% in Primary 4. Repetition rates in Primary 5 have consistently been higher than in any grade except Primary 1 over the past few years, raising the possibility that either schools are purposefully holding children back in Primary 5 in order to increase success rates on the Primary 6 leaving examination in the subsequent year, or that children are holding themselves back in order to be better prepared for the examination and maximize their chances of being accepted to a good secondary school. In this section we show that on balance the evidence favours the school-side of the story.

5.2.1 School Factors: “The pressure of the Primary 6 national examinations”

Evidence suggests that one of the main reasons repetition rates increase in Primary 5 is because schools continue to apply higher promotion standards in Primary 5, with the objective of securing better school-level results in the national primary school leaving examination in the subsequent year. This is an issue that has been on the radar of the Ministry of Education and the Rwanda Education Board for a few years. Steps have been taken to reduce competition between schools and to take the stigma away from school-level performance in the Primary 6 leaving examination. One of the steps taken by the Rwanda Education Board was to stop the publishing of school-level rankings in the Primary 6 leaving examination in order to reduce competition between schools. Despite these efforts, data suggest that the primary school leaving examination continues to create unintended consequences when it comes to repetition rates in Primary 5.

Although there are no national-level incentives around the average performance of schools in the national examination, there appear to be clear incentives at a more decentralized level. An estimated 85% of head-teachers interviewed during the school survey reported that their “*imihigo*” targets included a minimum national examination pass-rate for their schools (the majority of head-teachers reported having signed a “*imihigo* contract”). In the current Rwandan context, “*imihigo* contracts” refer to binding performance contracts that form the basis on which the performance of Government entities/actors, including schools, is measured. The main purpose of *imihigo* contracts is to ensure that priorities at a more decentralized level of government are aligned with broader strategic objectives, to increase accountability across government and to monitor the performance of government entities in the delivery of these strategic targets. As such, *imihigo* contracts provide a powerful incentive that commits head-teachers to achieve a certain target for their schools. In most schools, the reported target pass-rate was an average of 90% or more on the National Examination.

One of the most immediate tools schools have at their disposal to increase pass-rates in the primary school leaving examination is to manage the flow of students that get promoted into Primary 6. Increasing student outcomes through improvements to the quality of education are very difficult to achieve at the individual school level due to teacher, financial and material resource constraints. By being more selective in Primary 5, schools can achieve three key

objectives: (i) give the chance to children that are not yet ready for Primary 6 to better prepare through repetition; (ii) ensure that the pool of children that get promoted into Primary 6 are more likely to succeed in the national examination; and (iii) improve the learning environment in Primary 6 by reducing the number of pupils per classroom.

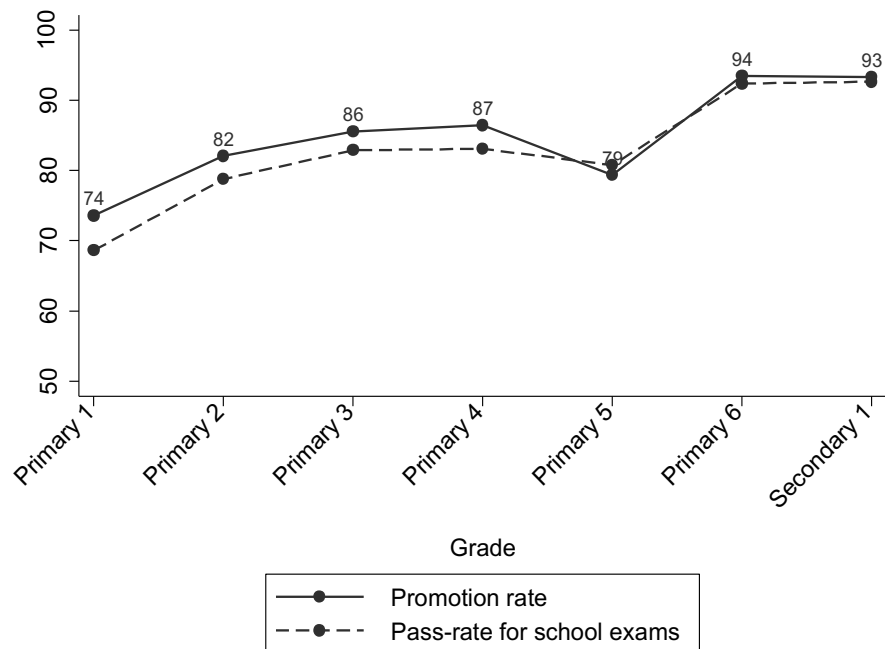
Schools appear to be taking this approach. Three pieces of evidence point in this direction:

First of all, from the view-point of children, decisions about repetition in Primary 5 are more likely to be made by schools, rather than by pupils or their parents; this is not the case in other grades for children aged 9 or above⁷. In 2016, we find that the proportion of children aged 9 or above who believed that either they themselves or their parents had made the decision that they should repeat reduces by about 20 percentage points between Primary 3 and Primary 5, from 57% to 36% of children who repeated. At the same time, the proportion of children that reported that the school – and not they themselves or their parents – had made the decision increases from 34% in Primary 3 to 47% of children that repeated in Primary 5. The situation completely reverses again in Primary 6, with children more likely to say that they were the ones that made the decision to repeat. These trends confirm that the balance of decisions about children's education swings towards schools in Primary 5.

Second, evidence shows that schools apply stricter standards to promotion in Primary 5 than in previous grades. This can be seen by comparing the proportion of children that get promoted in each grade, versus the proportion of children that reported having met minimum requirements to pass to the next grade. (see Figure 5.8). Each year, children get assessed at the school level and receive final grades, based on a mix of exercises, homework, and tests – we refer to these as “school exams”. There is a cut-off score beyond which children “pass” (note that according to the head-teacher survey this cut-off score can vary by school). In 2016, evidence suggests that more children enrolled in Primary 1 to Primary 4 got promoted to the next level than the proportion of children who met minimum requirements to pass to the next level. This changes from Primary 5 onwards. Schools appear to be much more reluctant to let children in Primary 5 progress to Primary 6 if they do not meet the minimum requirements.

⁷ We make the cut-off at age 9, because before age 9 decisions about repetition are largely driven by age; after age 9 they are more driven by grade.

Figure 5.8 Promotion rates versus school-level exams, by grade, for children aged 6 to 17 that did not drop-out of school, 2016-2017



Finally, a non-negligible proportion of head-teachers explicitly say that the primary school leaving examination plays a role in Primary 5 repetition decisions. When asked during the school survey whether the expected performance of pupils in the Primary 6 Examination was a factor in repetition decisions in Primary 5, about 35% of head-teachers agreed.

Evidence from the qualitative interviews, also support the hypothesis that school-level incentives are the main drivers of repetition in Primary 5:

“It depends on the school, but primary five has the highest repetition rate because we need [children] to succeed in the national exams of primary six [...] The purpose is to minimize the number of unclassified students in the national exams results. The head teacher decides to promote those who will at least pass the national exams with good grades without unclassified students. [...] Unclassified students are the bottom-of-class students who fail the national exams, giving a bad reputation to the school” (Primary school teacher, Gasabo District)

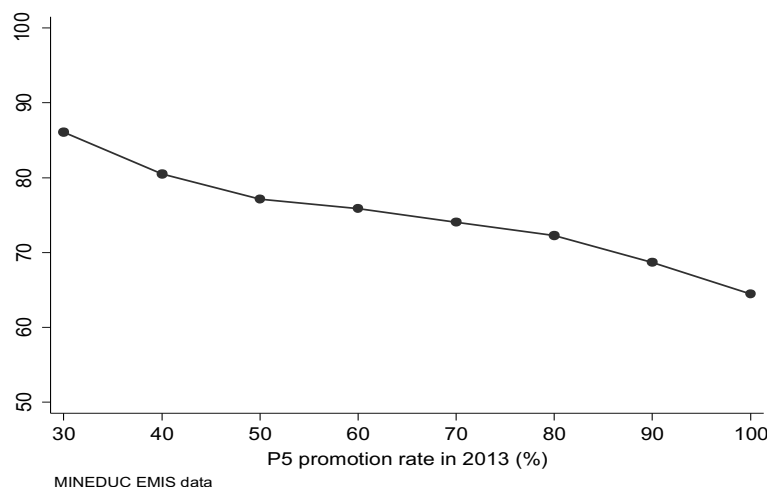
When asked by the moderator during a focus group discussion with teachers in Gasabo District, whether parents would request for students to repeat Primary 5, even though schools had decided to promote them, teachers responded no:

“That used to happen many years ago. Currently, parents have stopped caring about the learning of their children. We use the repetition technique in P5 to increase the chance of passing the national exams, but parents ask that their children be promoted. In addition, parents often say that they know the objective is to study in nine years basic education, so there is no need to waste time in primary school.” (Primary school teacher, Gasabo District)

Finally, by increasing repetition in Primary 5, some participants argued that schools deliberately reduce classroom sizes in Primary 6, thereby increasing the quality of preparation for the national examination:

“The other reason [for repetition in Primary 5] is limited seats, there are many students per desk in P5. Fortunately, [children] sit very comfortably in P6 [...] They sit very well for a better supervision. That is why they repeat in P5 to reduce the number of the students in P6, and it is so easier for teachers to evaluate the students.” (Primary school teacher, Gasabo District)

The strategy of applying stricter standards in Primary 5 pays-off: schools with higher repetition rates in Primary 5 score better results in the national examination in the subsequent year. This can be seen using EMIS data for the 2012-2015 period. Consistently between 2012 and 2014 (and the transition to 2015), there is a negative association between Primary 5 promotion rates at the school-level in one year and national examination success rates in the subsequent year. Figure 5.9, which plots school-level examination success rates in the national primary school leaving examination in 2014, against Primary 5 promotion rates in 2013, shows that schools with higher promotion rates in the previous year, scored worse on the national examination, on average. This is consistent with the notion that stricter passing standards in Primary 5, leads to better results in Primary 6 and in the primary school leaving examination. While the strategy of applying higher standards in Primary 5 works in the short term – it leads to better results in Primary 6 in the next year – it is inefficient: a 10 percentage point decrease in the promotion rate in Primary 5 is only associated with a 2 percentage point increase in the national examination success rate in the next year.

Figure 5.9 Exam success rate in 2014-2015 by Primary 5 promotion rate in previous year

5.2.2 Child Factors: “The cost of the P6 exam: repetition in P5”

The stakes of the national examination in Primary 6 are high not only for schools but for pupils themselves.

The primary school leaving examination is key in determining which secondary school pupils will qualify for. Competition for the best secondary schools, especially schools with boarding facilities, is high and there is massive anticipation in the lead-up to the results each year, with pupils around the country eagerly awaiting the outcome. While the results are not binding for transition into secondary school, the national examination is the main allocation mechanism of pupils to the best secondary schools.

Dropout rates in P6 are the highest while repetition rates are the lowest. Being well prepared for Primary 6 is important because most children tend to only get one shot at the primary school leaving examination. The repetition rate in Primary 6, estimated at 5% in 2016, is by far the lowest of all grades in primary school. This is due to two competing dynamics: (i) the fact that the population of students that make it to Primary 6 are comparatively better and are much more likely to pass the national primary school leaving examination; and (ii) the fact that students that fail to make the transition to secondary school or fail to sit the exam, tend to drop-out of school rather than repeat Primary 6. It is not a coincidence that dropout rates in Primary 6 are the highest and repetition rates the lowest; the same children that would have repeated in a different grade, dropout in Primary 6. This might be because schools are reluctant to give pupils that failed in Primary 6 a second chance, or because pupils self-select out of the education system after Primary 6; either way, most children only get the opportunity to attempt the primary school leaving examination once.

Children have real incentives to repeat Primary 5, including:

- To improve their preparation for primary school leaving examination; and/or,

- To extend their schooling. Many children might know already in Primary 5 that they will not make the transition to secondary school. Given low repetition and high dropout rates in Primary 6, repeating in Primary 5 might be the last opportunity for these children to extend their schooling by at least one year.

Despite these incentives, there is little evidence in the data to support the child side of the story to repetition in Primary 5. This is evident from the fact that children feel that they or their families had less agency in repetition decisions in Primary 5 and that only 2% of repeaters in Primary 5 in 2016 explicitly mentioned – unprompted - that they repeated to better prepare for the national examination in the subsequent year.

On balance the evidence favours the school-side of the story, namely that schools are holding children back in Primary 5 in order to obtain better school-level results on the national examinations. This implies that the Primary 6 leaving examination comes at a high cost for the education sector. The cost of the exam includes not only all the logistics that go into preparing, deploying and grading the examination, but also the cost of significantly increased repetition rates in Primary 5. This raises the question of whether the Primary 6 leaving examination is the most cost-effective mechanism to allocated the best students to the top secondary schools in the country.

KEY MESSAGES:

- *One of the main reasons repetition rates increase in Primary 5 is that schools appear to apply higher promotion standards in Primary 5, with the objective of securing better school-level results in the national primary school leaving examination in the subsequent year*
- *There are 3 ways in which schools achieve this: (i) schools, rather than children or parents, overwhelmingly make the decisions about repetition in P5 compared to any other grade; (ii) they apply stricter passing criteria at P5 compared to other grades; and (iii) head-teachers explicitly state the P6 exam as a main driver of their decisions to have students repeat in P5*
- *Children also have incentive to repeat P5 but we have little evidence to prove the child-side of the story to repeat*
- *There is an inherent cost of the P6 exam which has affected the education system: high repetition in P5*

5.3 Why do children dropout during the transition from Primary 6 to Secondary 1?

The transition point from primary to secondary school is where dropout rates are the highest. In this section we argue that there are four key challenges that prevent children from making the transition to secondary school: (i) learning barriers – many children do not have the required numeracy and literacy skills, in particular English, to make the transition successfully; (ii) the cost of secondary school education for poor households, which evidence shows is significantly higher than primary education despite the successful implementation of the 9- and now 12-years of basic education policy; (iii) a growing opportunity cost for children and households; and (iv) finally a supply-side problem, with too few teaching resources in secondary school to accommodate the very large population of children currently enrolled in primary school and gradually making its way to the transition point. While supply does not seem to be the binding constraint to the transition to secondary school at the moment, resource constraints in secondary school will in the near future put a very high strain on transition rates to secondary school and learning outcomes in lower secondary school.

5.3.1 Child Factors: “Learning barriers to transition”

One of the key reasons children fail to make the transition to secondary school is because of learning barriers. In terms of numeracy and literacy abilities, many of the children enrolled in Primary 6 are not yet ready for secondary school. Data from the EGRA and EGMA-type tests, conducted during the child surveys, shows that many children entering Primary 6 have yet to fully assimilate the curriculum of previous grades. These children are at the highest risk of underperforming on the national examination and subsequently dropping-out of school. We show this by first studying numeracy-related results for children enrolled in Primary 6 at the start of 2017, before looking at reading comprehension in Kinyarwanda and English.

“I was personally convinced that I couldn’t pass the national examination; I therefore decided to drop out and earn some money [...] I felt that I was not bright enough to pass [...] I believed that the money that parents would pay for me would be useless. [...]”
(Child in Gicumbi District, dropped out after Primary 6, after deciding not to register for the national examination)

5.3.1.1 Numeracy

Results from the EGMA-type tests suggest that children in Primary 6 have, to a large extent, assimilated the Primary 4 curriculum when it comes to addition and subtraction-related tasks, but they continue to struggle with more difficult calculations involving multiplication, and in particular, division and fractions. In terms of multiplication, the EGMA assessment conducted during the child survey reveals that about two out of five children in Primary 6 have not yet acquired the necessary skills to compute multiplications involving single or two-digit numbers in the

required period of time. Children in Primary 6 were assessed on multiplication tasks involving calculations with single or two-digit numbers, such as 2×4 , 3×3 , 5×2 , 7×3 , 4×6 , 5×10 , etc. These form the basis of standard multiplication tables and are taught between Primary 1 and Primary 3 in the old curriculum (see Table 5.4). On average, children enrolled in Primary 6 in early 2017 attempted slightly more than 7 out of the 10 questions within the allocated time (2 minutes), with an accuracy level of around 80% per attempted question. Accuracy-levels were slightly lower for multiplications such as 4×6 (approx. 60%) or 7×3 (approx. 72%) that did not involve the numbers 2 or 5. On average, children were able to answer about 60% of the questions correctly. On aggregate, about 20 percentage points were lost due to inaccuracies in calculations and a remaining 20 percentage points due to the slow pace of calculation. This shows that a non-negligible minority of children in Primary 6 have not yet developed the required skills to compute one – and two – digit multiplications within a short period of time.

Table 5.4 EGMA results on multiplication assessment, for children in Primary 6, 2017

Question	Task	Attempted	Accuracy if attempted	% of children providing correct answers
1	2×4	98.6%	95.0%	93.7%
2	3×3	98.8%	93.0%	92.0%
3	5×2	97.9%	92.2%	90.3%
4	5×10	92.5%	87.5%	80.9%
5	7×3	85.7%	72.3%	61.9%
6	4×6	75.0%	59.9%	44.9%
7	15×2	61.3%	75.6%	46.3%
8	20×10	52.4%	68.5%	35.9%
9	6×5	43.2%	77.5%	33.5%
10	12×10	37.2%	82.9%	30.8%
Overall		74.30%	80.60%	61.00%

Children in Primary 6 continue to struggle with division and fraction-related concepts introduced in previous grades. We examine here the case of division. In the old curriculum, division was first introduced in Primary 2, where children were expected to be able to divide a number of 3 digits, by a number of 1 digit, with a remainder of 0. In Primary 3, the curriculum introduced the concept of a remainder. By the end of Primary 4, children were expected to be able to conduct divisions of whole numbers smaller than 100,000 by a number of two digits or more. Data from the survey suggests that children in Primary 6 scored below 50% on average on ten division-related questions that relate to the Primary 2 to Primary 4 curriculum, either because questions were not attempted in the allocated time, or because children responded incorrectly (see Table 5.5). Children attempted about 6 out of 10 questions on average, with an average accuracy of about 68% of each question attempted. Questions where the accuracy was the lowest included questions involving double-digit divisions, for example $50/10$ (accuracy of about 50%) and $55/11$ (accuracy of about 45%), which link to the

Primary 4 curriculum. These patterns show that more than half of children in Primary 6 still struggle with certain numeracy concepts that were taught in previous grades and might not be academically ready to make the transition to the next level.

Table 5.5 EGMA results on division assessment, for children in Primary 6, 2017

Question	Task	Attempted	Accuracy if attempted	% of children providing correct answers
1	9 / 3	94.2%	78.7%	74.1%
2	4 / 2	94.7%	92.0%	87.1%
3	24 / 6	74.7%	50.2%	37.5%
4	10 / 2	78.1%	84.3%	65.9%
5	15 / 3	66.7%	64.8%	43.2%
6	50 / 10	54.2%	50.8%	27.5%
7	20 / 5	44.8%	60.4%	27.1%
8	55 / 11	31.1%	45.8%	14.3%
9	70 / 1	31.2%	78.6%	24.5%
10	200 / 2	27.9%	80.1%	22.3%
Total		60.0%	67.6%	42.4%

5.3.1.2 Literacy

Children in Primary 6 score high on Primary 4-level reading comprehension questions in Kinyarwanda, but English literacy remains a key concern for at least two thirds of children, especially in rural areas. Children in Primary 6 were assessed on their reading comprehension skills in English using the following text, which they were given 3 minutes to read:

“My name is Kalisa. I like to take care of my body. I drink clean water and eat healthy food. I like to eat fresh fruit and vegetables. It is important to wash your hands before you eat. I like to play games and read books. Sleeping is good for you. It helps your body rest.”

They were then asked five questions about this text. Responses were given verbally, with no limit on the time it took children to respond. Responses to the reading comprehension questions reveal real difficulties with foundational English skills at Primary 6 level. Although an estimated 90% of children could read the text, the average score on the reading comprehension questions was approximately 30% (see Table 5.6). Slightly more than 60% of children attempted the questions, with an average accuracy level of about 50% on each question attempted. English appears to be a key constraint for learning in upper primary school and a potential barrier to promotion to secondary school.

Table 5.6 English assessment results, for children in Primary 6, 2017

Question	Task	Attempted	Accuracy if attempted	% of children providing correct answers
1	Question: Who is talking in the story?	61.0%	71.9%	43.9%
2	Question: What does Kalisa do to take care of his/her body?	68.7%	63.9%	43.9%
3	Question: According to Kalisa, what should you do before eating?	60.8%	21.4%	13.0%
4	Question: What does Kalisa like to do?	59.1%	25.6%	15.1%
5	Question: Why is sleeping good?	65.5%	62.3%	40.8%
Total		63.0%	51.2%	31.3%

Gaps in the performance on the English assessment are very large between rural and urban areas, driving a wedge in the educational prospects of children depending on where the live. Children enrolled in Primary 6 in urban areas scored two times higher on the English assessment than children in rural areas. The average score on the reading comprehension questions was about 54% in urban areas, compared to just 27% in rural areas. These statistics suggests that more than two-thirds of children enrolled in Primary 6 in rural areas are not functionally literate in English. As a point of comparison, gaps on other topics were much smaller: in the Kinyarwanda literacy test, the average score in urban areas was 90% for children in Primary 6, compared to 82% for children in rural areas; on multiplication, children in urban areas scored 65%, versus 60% in rural areas; in terms of division the average score was 52% in urban areas, against 40% in rural areas, and so forth. This difference between rural and urban areas is also apparent in questions about whether children felt they could follow everything the teacher was saying when he/she spoke in English. An estimated 25% of children in urban areas strongly agreed with the statement that they could follow everything in English, compared to 16% of children in rural areas.

The English language barrier is closely associated to dropout in the transition from primary to secondary school. Children enrolled in Primary 6 in 2016 who disagreed with the statement that they could follow everything the teacher was saying when he/she spoke in English, were much more likely to dropout than children who agreed with the statement. An estimated 33% of children who strongly disagreed with the statement that they could follow classes in English dropped-out of school in the transition to secondary, compared to 17% of children who strongly agreed.

5.3.1.3 Low Levels of Preparedness for Secondary and the Impact of National Exams

Low performance in Primary 6 - and by extension in the national examination - is strongly linked to dropout. In 2016, an estimated 60% of children who reported having failed to meet school-level requirements for Primary 6 dropped-out in the transition from primary to secondary. The worst performers in schools were also the most likely to skip the Primary 6 leaving examination, whether by choice or because schools discouraged them from sitting the examination. Only an estimated 56% of children who failed the school-exams went on to take the Primary 6 leaving examination, compared to 96% of children that did not fail to meet school-level requirements.

Low academic performance in Primary 6 is masked by high pass rates in the Primary 6 leaving examination (85% in the 2016 edition). The pass rate in the national examination conceals high levels of variation in underlying test scores and a low minimum threshold for passing the exam. Children take exams on 5 topics in the national examination: mathematics, elementary science and technology, social studies, English and Kinyarwanda. Test scores on the national examination are obtained in four steps:

- **Step 1 - Individual grading of exam papers.** Test papers for each of the subject matters are first scored out of 100.
- **Step 2 - Translation of test scores into relative grading system.** Scores on test papers are then translated into a grading system, from 1 to 9, where 1 is the best and 9 the worst. The correspondence between the 1 to 9 grading system and the 0-100 score varies each year, depending on the performance of the pool of candidates. This is the point where test-scores are re-calibrated to match the performance of candidates. One pupil's test score is determined in relation to another student's score, not directly to whether or not the pupil meets academic expectations. This relative scoring ensures that year-on-year results from the national examination are comparable and that the distribution of scores is relatively similar.
- **Step 3 - Aggregation of test scores.** Scores from each of the subjects are then added together to create an aggregate test score. When combined across topics, scores range from 5 (for the highest-performing pupils) to 45 (for the worst performing pupils).
- **Step 4 - Classification into divisions.** Children's performance on the Primary 6 leaving examination is then classified into 5 groups: division I to IV (which all lead to a "pass") and unclassified (which corresponds to a "fail"). The correspondence of scores to divisions is described in Table 5.7. This correspondence table demonstrates that the threshold to fail is very low: children can score the worst grade in four out of the five tests, and still get a "pass".

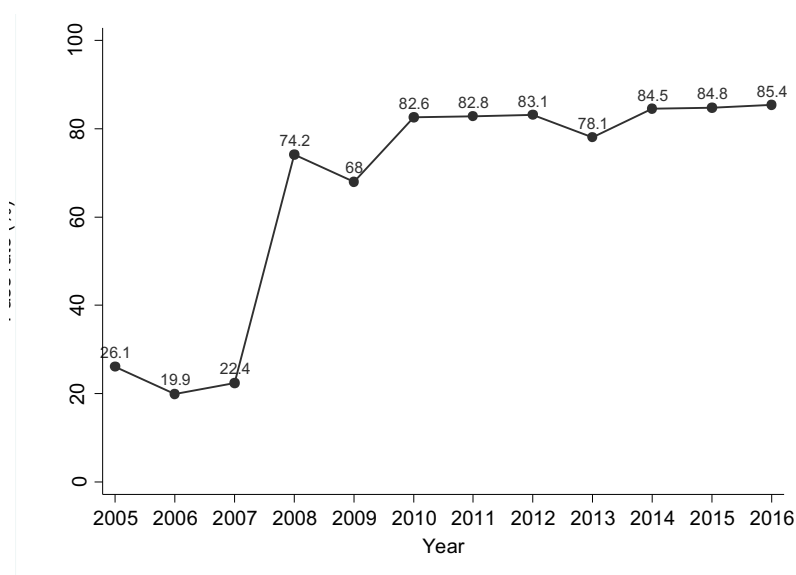
Table 5.7 Classification of candidates by aggregate score on primary school leaving examination

Aggregate scores	Division
5-15	Division I
16-30	Division II
31-37	Division III
38-41	Division IV
42-45	Unclassified

Source: Rwanda Education Board (2009 classification system)

The effect of this classification mechanism on pass rates can be seen by looking at historic data on pass rates in the primary school leaving examination (see Figure 5.10). The new classification mechanism was first introduced in 2008 and further adapted in 2009. Before 2008, children used to receive a grade out of 100 which would determine whether they qualified to pass the examination or not. In 2007, before the reform, the pass rate was 22% of children that sat for the examination; this figure jumped to 74% in 2008 after the change. It has remained at above 82% since 2010 (except a small dip in 2013).

Figure 5.10 Pass rates on the primary school leaving examination, 2005-2017



Source: MINEDUC, *Education Statistical Yearbooks, 2011-2016*

The Primary 6 leaving examination is an allocation mechanism of the highest performing children to the top secondary schools in the country; in its current form, it should not be used or considered by policy makers as an assessment tool that measures the secondary-school readiness of children. Top performers in the national examination, in Divisions I and II, are eligible to obtain admission into one of the country's top secondary schools, with boarding facilities. For children outside of the top two divisions, the test is not binding. Children can, in theory,

progress to secondary school, without having passed the exam, but in practice a large proportion of children who fail or fail to register for the exam drop-out of school after Primary 6.

Another important point to note about the primary school leaving examination - and about educational performance in Primary 6 in general - is that it contributes to cementing the learning gap between rural and urban areas. The dropout rate in rural areas was almost 25% in the transition to secondary school in 2016-2017, compared to 13% in urban areas. Out of those children that progress through to secondary school, children in urban areas make it to the best schools. According to data from the household survey over 60% of children enrolled in boarding school in secondary 1 were from urban areas (only 15% of children of Secondary 1 school-age live in urban areas). Some of these children might be in a private boarding school because they can afford it, but many will have been allocated to public and government-aided boarding schools through the primary school leaving examination. The primary school leaving examination has been designed as a fair, performance-based, mechanism to allocated the highest performers to the top school. However, because children in urban areas have such a large learning advantage, the primary school leaving examination contributes to deepening the future educational prospects of children in urban and rural areas.

5.3.2 Household Factors: “The cost of transition to secondary school”

5.3.2.1 Cost of Education

According to households and children, the biggest barrier to entry into secondary school remains the aggregate cost of education, despite successful implementation of the 9/12-year basic education policy.

Cost is mentioned as a leading cause of dropout across grades, but there is a notable jump in Primary 6 in the proportion of children that identified the cost of education – including costs such as the cost of school materials, uniforms, school feeding – as one of the main reasons that they dropped-out. In 2016, an estimated 70% of children who dropped-out in the transition to secondary school mentioned cost as one of the main reasons they dropped-out. This compares to about 42% on average for children that dropped-out between Primary 1 and Primary 5. The proportion of children that mention cost as barrier to entry is higher in the poorest households.

“The main reason [that children do not transition to secondary school] is poverty. If I had the financial ability, I would certainly send them there. But judging from my financial position now, I don’t think that I would be able to support it. Sometimes, it is hard to even afford their shoes. So I don’t think I would be able to send them [to secondary school].”
(Mother, in household with absent father, Ngoma)

Data on the education-related expenditures, collected as part of the household survey, confirms that there is a very clear jump in the cost of education between primary and secondary education. On average, tuition fees paid by households increase from an average of RWF300 per year per child in primary school to RWF5,500 in lower secondary school. This increase in fees is explained by a higher proportion of children in private schools - approximately 14% of children in

secondary school, compared 5% in primary school⁸ - and by the fact that the proportion of children enrolled in boarding schools increases substantially. The largest increase, however, is on non-tuition education expenditures, which triple on average between primary and secondary school (see Table 5.1). We observe this: (i) because costs are higher in lower secondary schools - in particular, costs associated to the school feeding program; and (ii) because children that make it through to lower secondary school are more likely to come from households that are more inclined to spend on the education of their children. Indeed, the composition of households who have children in lower secondary versus only in primary school changes – households are more likely to be urban, to come from higher wealth quintiles, etc.

Table 5.8 Comparison of average per child and per year non-tuition related expenditure in primary and lower secondary school, for households in wealth quintiles 1 to 5, excluding outliers

Cost item	Primary	Lower Secondary	Change
Uniform	3,776	7,927	+4,151
School feeding program fee	58	3,129	+3,071
Notebooks	1,265	3,619	+2,354
Transport to school	13	787	+774
Bags	413	934	+521
Pens	471	967	+496
PTA fees	170	380	+210
Other supplies	54	199	+146
Books	34	100	+65
Voluntary contributions	187	213	+26
Total	RWF 6,440	RWF 18,254	+RWF11,814

As shown in Table 5.8, the transition from primary to lower secondary school creates a whole new set of non-tuition related education expenses for children and their households. New costs, that children did not face in primary school, include much higher transportation costs (arising from the fact that there are fewer secondary schools and children have to travel longer distances) and, much higher food costs, related to the school feeding program.

The school-feeding program in secondary schools creates a de-facto new fee for children transitioning from primary to secondary school (even though it is subsidized in boarding schools by Government). There is no double shifting in lower secondary school in Rwanda. With much longer school days and longer distances to cover from home to school, children often cannot return home to eat. To deal with the issue of lunch in secondary schools, the Government of Rwanda has launched and implemented a national school feeding program, which aims to make lunch available to students in all secondary schools in the country. This program is a home-grown solution designed to improve

⁸ MINEDUC, Education Statistical Yearbook, 2016

nutritional and educational outcomes, provide a strong incentive to keep children in school and stimulate the local economy by procuring food from local farmers.

While the program has been a success in terms of the speed of its scale-up to the national level – all lower secondary schools in our sample reported providing lunch to students – it has created new costs for students attending secondary school and complex management issues to deal with at the school-level. School feeding is subsidized by the Government of Rwanda, but subsidies are not sufficient to cover the costs of school feeding and households need to contribute as well. The mandatory contribution varies by school, depending on the idiosyncratic cost-structure of each school and the level of subsidies obtained. MINEDUC’s target for 2017 – as stated in its *imihigo* target – is for the school feeding program to reach about 350,000 students enrolled in secondary school with a budget of about RWF4.5bn. A back-of-the-envelope calculation suggests that this corresponds to a maximum average subsidy of about RWF60 per serving (assuming 1 serving per day and an academic year of 215 days – in practice, the number of servings and days will be higher because of children in boarding school). Assuming the bare minimum cost of a serving is RWF125 per pupil (which corresponds to the commercial cost of 1 cup of milk), we would expect that households would have to contribute a minimum of RWF65 a day per child of schooling, RWF1,400 for every month of schooling or RWF14,000 for every school year to contribute a sufficient amount to the school feeding program. This is a cost that can be quite significant for households in rural areas, especially households with multiple children in school. Parents in lower secondary school that contributed some money towards the school feeding program reportedly contributed on average RWF7,500 per child per year (note that parents did not necessarily contribute consistently to the school feeding program, which means that the figure of RWF7,500 does not reflect the full cost of contributing to school feeding each year; also note that this figure is higher than the average reported in table 5.9 because many households do not contribute to school feeding fees). Non-payment towards school feeding is a considerable concern. Currently only 45% of households that have at least one child aged 18 or below enrolled in lower secondary school reported contributing to the school feeding program in 2016. An estimated 80% of head-teachers interviewed during the school survey, from schools that included lower-secondary classes, also confirmed that parents often failed to pay school feeding fees.

During qualitative interviews, the most frequent reason cited by children and parents alike for drop-out after Primary 6 was the cost of the school feeding programs. The interviews confirm that school feeding is a *de facto* fee and that the policy on how to deal with children or parents that cannot pay varies from school to school. Some verbatim statements from parents and pupils highlight the scale of the challenge:

“The biggest challenge for us as parents is the money we are being charged during school meetings for the kids to have lunch at school.” (Parent of current S1 student, dropped out and re-entered)

“We used to give RWF 15,000 and ten bowls of beans and RWF 3,000 bonus. When the child is sent away from school because she has not paid the bonus or when she is told that ‘you are eating food which other children paid for and you have paid nothing’ and

she comes home and tells a parent that, the parent says 'Stay anyway, I have no money.'"
(Parent of current S1 student)

"They don't allow them to come back home to eat because they say when they go home for the break at noon and come back to class because of hunger some fall asleep in class and don't follow the lesson. That is why they say you should pay and eat in school. The only exception is for children that live around 1km or a few meters away from school, those ones are allowed to go and eat and come back...so for the other children if they have not paid, they send them home and when a child is sent home no one follows up to know why the child was sent home. That is why I say the government should assist children say they cannot afford school and try to understand, did they leave school because of lack of interest or did they leave school because they truly had no money, they should understand why the child actually left school?" (Parent of current S1 student)

"For one week we pay RWF 1000. You just pay according to how much you have and if you are unable to pay you are not allowed to eat...Yes, they pass the day without eating because they not allowed to go eat at their homes unless you flee from school." (Male, current S1 student)

A parent who has children in early secondary school and another child who dropped out after S1 said she is worried children won't finish because of school feeding costs.

"Sometimes they tell me, 'I won't go to watch others eat [...] If you haven't paid they usually chase you away or sometimes they let you watch others eat. Last year they used to say if you have no money bring beans but to me it's all the same because sometimes it's a bad season and the harvest is not good and I can't get those beans.'" (Parent of child aged 17, out of school)

Another child also attributed the dropout rates in P6 to the cost of the meal programs and the high costs in secondary school. She noted that in her area they paid RWF 4,000 per month for the school meal program in primary 6 and that...

"...This is a lot. The family thinks... 'we pay RWF 4,000 and there is no food at home and even when they come back home they will still need food'. Sometimes it's allowed to carry sweet potatoes and beans and pay RWF 2,000." (Female pupil, 17, dropped out after Primary 6).

Although it might have substantial benefits in terms of learning, nutrition, and the local economy - potential benefits that cannot be tested using available data - the school feeding program has created a very thorny issue for schools to deal with, which is how to manage with students that cannot or regularly fail to pay the fee. It appears that schools are dealing with this in different ways. In some schools, children that cannot contribute RWF, are allowed to contribute with food or labour in-kind. In some schools, children who cannot pay are not

allowed to attend school. In others, the children who can't pay are allowed to stay, but cannot eat with their peers during lunch break. In others still, schools cross subsidize to ensure that all students can eat regardless of if they are able to pay. If children get banned from eating lunch or staying at school, it defeats the purpose of the program; if they dropout because they cannot afford the fee then this creates unwanted educational outcomes; if on the other hand, children from the poorest household get cross-subsidized by households that are slightly better-off, then it transfers the problem to the community-level. There is a very real possibility that the school feeding program, instead of keeping children at school, is contributing to higher dropout rates for children from the poorest households who simply cannot afford to contribute to the fees, despite the subsidies.

All the evidence in this study points to the fact that the poorest households are very price sensitive. This price elasticity might explain why children – and by extension their parents –self-select out of secondary school when faced with significantly higher education costs.

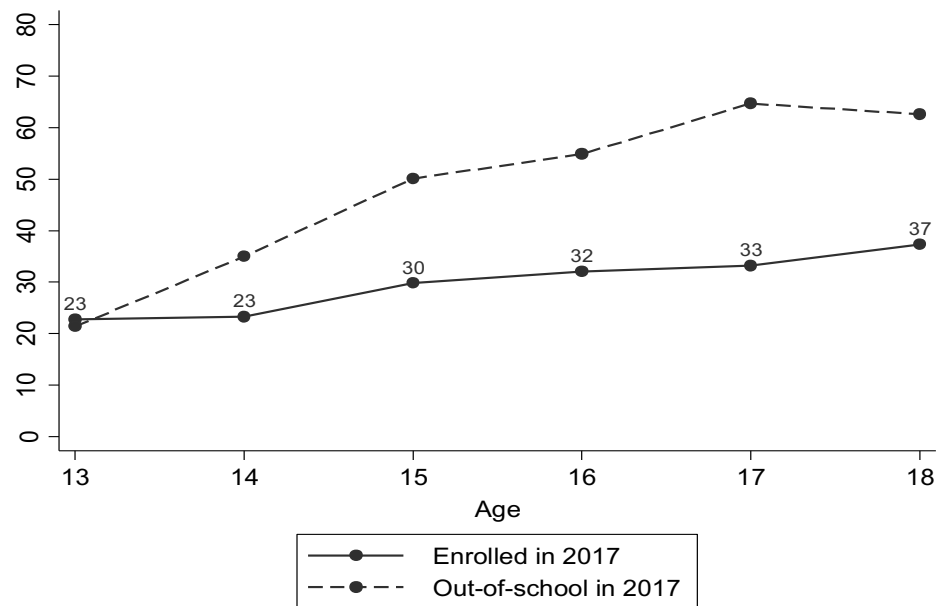
5.3.2.2 The Rising Opportunity Cost of Being Enrolled in School and Over-aging

This discussion on costs is intricately tied with the opportunity cost of children making the transition from primary to secondary school. Children with the highest dropout rates in Primary 6 are over-aged children that have at some point either started school late, repeated multiple times, or dropped-out and re-entered. These children are at the greatest risk of dropout not only because of their poor performance at school, but also because of the increasing opportunity cost of transitioning to secondary school.

The opportunity cost of transitioning to secondary school increases because longer school days imply that children would have to scale-back on existing household responsibilities. Although double shifting is a temporary measure that was put in place to maximize the use of resources within Rwanda's primary education system, it has one considerable benefit which is often overlooked in the policy discourse: it creates a shorter schooling day, thereby providing children with the opportunity to combine school with their responsibilities towards the household. Children are not dropping-out after Primary 6 because they suddenly need to start working on the family farm or take care of younger siblings, and did not so before Primary 6; however, they might be dropping-out because transitioning to secondary school would imply significantly scaling back their current household activities. Attending secondary school is a much more binding commitment: a) the required travel time to reach the nearest secondary school is generally higher (children enrolled in secondary school travel on average 3.3km to reach school, compared to 1.4km for children in primary school); b) children have to commit to much longer school days; and, c) make a significant investment to do homework in after-school hours. These are trade-offs that might not always be compatible with the responsibilities and challenges that children face at home.

The evidence also convincingly shows that the opportunity cost is real: there is a very clear “outside” option for children, which is to support income generating activities for the household. After dropping-out of school, children very quickly transition to work. This can be seen in Figure 5.11, which shows that from age 13 onwards children that are out-of-school are increasingly more likely to be working than their in-school counter-parts. In section 4.2.2b, we show that children do not seem to be dropping-out of school because of work; rather they start working after dropping-out. This seems to suggest that work is a second-best, “outside” option, for children and households. It is an option that becomes more attractive as the costs of going to school increase, both in financial terms and in terms of the time commitment. It is also something that becomes more prevalent with age. With over-ageing so prevalent, many children are making the decision whether or not to transition to secondary school in late adolescence, at a time when they might otherwise be transitioning to the labor market.

Figure 5.11 Percent of children that work (either paid or unpaid), according to the household survey, by age and education status, 2017



Finally, perceptions about opportunity cost are shaped by children’s own perceptions about their future educational prospects. By reaching Primary 6, children have accomplished a major educational outcome: having attended and maybe also passed all grades in primary school. However, children that dropout of school in the transition from primary to secondary school, appear to a) have lost confidence in their own abilities; b) lost confidence in the schooling system; and c) to be surrounded by a social-network that is less supportive of their education. Elements that point in this direction include the following:

- **Own abilities.** Evidence shows that children who dropout after Primary 6 have lost confidence in their own ability to learn compared to children who do not dropout. For example, children who dropped-out after Primary 6 in 2016-2017 were 17 percentage points less likely to strongly agree that they had “a lot of confidence in their own

ability to learn, even the most complicated things”. They were also 12 percentage points more likely to strongly agree that they had “a lot of trouble following what is taught” in class.

- **Education system.** Children who dropout appear to also be more likely to have less confidence in the schooling system. For example, children who dropped-out were on, average 14, percentage points less likely to strongly agree with the statement that their teachers “really cared” about their performance at school.
- **Social-support network.** Finally, the social network of children who fail to make the transition from primary to secondary school is comparatively less supportive of schooling. Children who dropped-out were more likely not have a mentor to talk to about their education and were more likely to have friends who do not perform very well in school.

Over-aging, low self-confidence, reduced confidence in the schooling system and a comparatively less supportive social-network, increase the opportunity cost of transitioning to secondary school. Dropouts might be making the internal calculation that while they have reached the Primary 6 milestone, they are unlikely to reach the next educational milestone in a reasonable amount of time. The opportunity cost of investing in many more years of education is higher for children with uncertain educational prospects than it is for children that are on-track with their education.

In summary, the actual cost of transitioning to lower secondary school and the effect of a much higher opportunity cost, combine to create a situation where children simply cannot afford or have to opt out of transitioning to secondary school.

5.3.3 School Factors: “Supply and access of secondary schools”

Rwanda has invested significantly in expanding physical and human resources in secondary education over the past few years, but the low supply of secondary education remains one of the main factors contributing to the high dropout rates observed in the transition from primary to secondary school. Although there is a direct link between low access to secondary education and the failure to transition from primary to secondary school, the supply-side of the story does not appear to be the most binding constraint to the educational progress of children at the moment. However, future projections, based on educational targets, suggests that insufficient resources in secondary education will very soon become one of the biggest challenges facing Rwanda’s education sector.

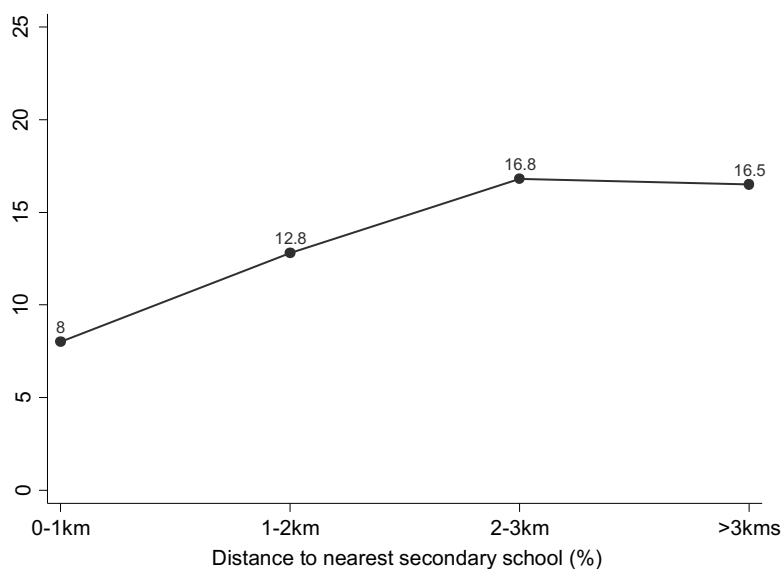
There are currently not enough physical and human resources at the secondary school level to absorb the population of children that are currently enrolled in Primary school. Focusing on lower secondary school there were about 350,000 students enrolled in Secondary 1 to Secondary 3 in 2016, compared to 935,000 pupils between Primary 4 to Primary 6⁹. If only 56% of these children would progress through to Secondary school by 2019, then the secondary education system would need to cope with at least 50% more students, a massive challenge from a resource, logistical and quality perspective. There is unused capacity in Rwanda’s secondary education sector today due an increase

⁹ MINEDUC, *Education Statistical Yearbook*, 2016

in the stock of physical and human resources - combined with stagnating enrolment figures – but not sufficient capacity in the immediate term to deal with this very large population of students currently enrolled in upper primary school. There are three non-mutually exclusive ways to manage this problem: a) apply higher repetition rates in upper primary school to delay the transition of students to secondary school, until the capacity gap is met, at the risk of higher dropout rates due to over-aging; b) expect a significant drop in transition rates to secondary school over the next few years, while investments are made to upgrade resources; and/or c) allow for a significant loss in the quality of education in lower secondary school, by having overcrowded classrooms and over-stretched resources. Neither option is optimal and all options will lead to missed targets and lower educational outcomes.

Low access to secondary schools is directly linked to higher dropout rates. Given that there are fewer secondary schools compared to primary schools, children often have to walk a longer distance to reach the nearest secondary school. Distance to the nearest secondary school is a strong predictor of dropout for children of secondary-school-age.¹⁰ The further away a child lives from a secondary school, the more likely he/she is to dropout. This linear association between dropout and distance is visualized in Figure 5.12, which plots the average dropout rate for 13 to 17 year-olds in 2016, versus the distance from the nearest secondary school. The figure shows that children of secondary school age that live 2kms or more from the nearest secondary school are about two times more likely to dropout of school when compared to children that live within 1km of the nearest secondary school.

Figure 5.12 Average dropout-rate for children aged 13-17, by distance bracket, 2016-2017



Supply and access are urgent concerns, but trends suggest they are currently not the most binding constraint to children’s progression from primary through to secondary school. If absorption capacity in

¹⁰ Even after controlling for age, gender, household and other locational factors of interest

secondary schools was the main barrier holding children back, then recent investments in an increased number of secondary schools, classrooms and teachers should have led to a proportional increase in the number of students making it through from primary to secondary school. This has not materialized, despite the Government of Rwanda’s efforts to invest in the sector and implement the policy of 9 – and now – 12 years of free basic education. Over the past five years – between 2012 and 2016 – the Government of Rwanda has invested in the construction of 109 new secondary schools, about 3,300 new classrooms, increased the number of qualified teachers by almost 4,200. Yet, enrollment levels have stagnated in the secondary education system overall (3.5% increase in aggregate enrolment since 2012) and even dropped in lower secondary school during the same period. Transition rates from primary to secondary school have also dropped significantly, from 86% in the transition from 2011 to 2012 to 71% in 2015-2016, despite stable examination results and increased enrolment levels on the primary school leaving examination. The increased investment in secondary school since 2012 has led to the temporary under-utilization of resources.

Instead of an increase in the number of students enrolling in secondary school, what we see over the past few years is a re-composition of the secondary education sector, with students shifting away from private schools towards public and government-aided school. Between 2012 and 2016 the number of students enrolled in the secondary education system increased by 3.5% overall. Enrolment levels increased by almost 13% in public schools, close to 8% in government-aided schools, but decreased by more than 20% in private schools in the space of just 4 years (see Table 5.9). This suggests that free secondary education (as part of the 9-years of basic education policy) is crowding out private-sector education at secondary school level. The rapid drop in enrolment levels in private schools also shows that households react very quickly to the aggregate cost of education. This high price elasticity is consistent with findings that suggest that the aggregate cost of education (the cost of books, school accessories, uniforms, food, etc.) is one of the main drivers of dropout in the transition of primary to secondary school.

Table 5.9 Enrolment in secondary school, by type of school and year

Type of school	2012	2016	Change
Public	153,352	173,109	+12.9%
Government-aided	279,850	301,554	+7.8%
Private	101,510	79,076	-22.1%
Total	534,712	553,739	+3.6%

Source: MINEDUC, *Education Statistical Yearbook, 2012 and 2016*

These statistics confirm that while the secondary education sector might in the very near future face significant resource constraints, these constraints are not the main driving force behind dropout in the transition from primary to secondary school.

KEY MESSAGES:

- *One of the key reasons children fail to make the transition to secondary school is because of learning barriers, specifically in poor English literacy and numeracy skills, such as multiplication*
- *Furthermore, low performance in Primary 6 – and by extension in the national examination – is strongly linked to dropout*
- *The largest barrier to entry into secondary school, according to children and parents, remains the aggregate cost of education, despite successful implementation of the 9/12-years of basic education policy*
- *The transition from primary to lower secondary school creates a whole new set of non-tuition related education (estimated at an increase of nearly RWF12,000 per year) expenses for children and their households – with the school feeding program an especially new and large cost burden*
- *The actual cost of transitioning to lower secondary school and the effect of a much higher opportunity cost, combine to create a situation where children simply cannot afford or have to opt out of transitioning to secondary school*
- *Finally, supply and access are urgent concerns, but trends suggest they are currently not the most binding constraint to children's progression from primary through to secondary school*
- *However, insufficient resources in secondary education will very soon become one of the biggest challenges facing Rwanda's education sector*

5.4 Why do older girls drop out of school? Gender Barriers

We have established that girls aged 16 and above are more likely to be out-of-school than boys. This is predominantly a rural issue. In rural areas, girls aged 16 to 18 in early 2017 were about 8 percentage points more likely to be out-of-school than boys. In urban areas girls and boys aged 16 to 18 are equally likely to be enrolled. This switch in gender dynamics in rural areas is inconsistent with the educational performance of boys and girls between the ages of 7 to 15, an age during which boys lag behind girls on almost all metrics. The question we ask in this section is why are girls aged 16 to 18 more likely to be out-of-school relative to boys?

In this section we show that the reason why girls drop out of school after the age of 16 is not mainly related to performance in school rather, it is the result of the social and family environment, which put pressures on girls of this age that do not allow them to continue their education. The existing social norms and gender stereotypes present in their communities and within their families, the social expectations on girls, and value that families seem to put on girls' education vis-à-vis that of boys, seem to discourage girls from continuing their education.

5.4.1 Child-level Factors

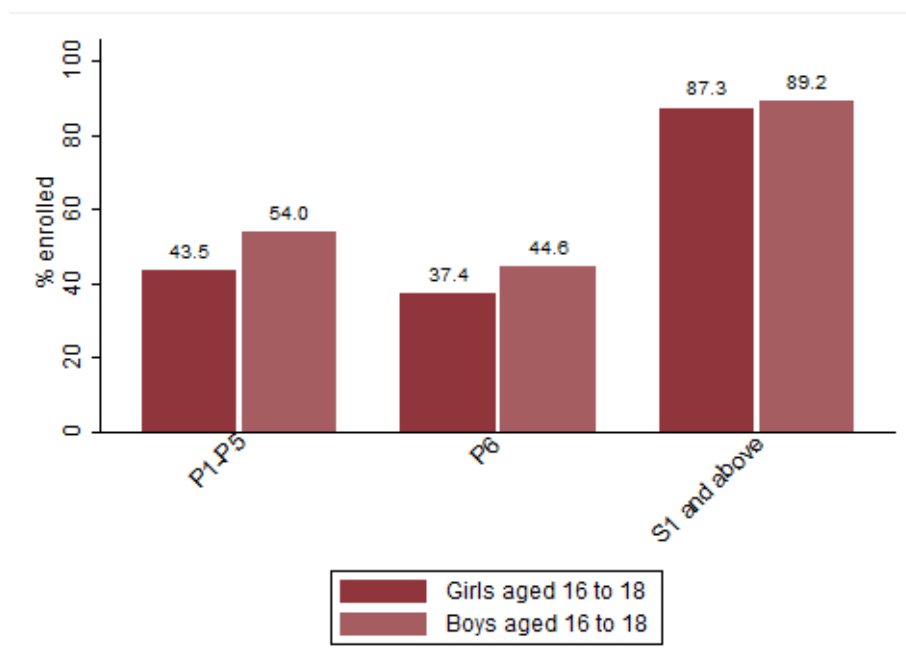
a. Performance

We find that while there are differences in the educational performance of girls and boys that contribute to differences in enrolment rates, learning is not the main reason girls aged 16 to 18 are out-of-school than boys. Ironically, one of the factors contributing to lower enrolment rates for girls aged 16 to 18 is the fact that girls reach the Primary 6 milestone faster than boys, on average. Primary 6 is the grade after which the likelihood of dropout is the highest. Due to their better performance throughout the primary education system girls reach that educational milestone at a younger age than boys. In 2017 for example, an estimated 57% of girls aged 16 had previously attended Primary 6, compared to just 44% of boys. This is a large difference (13 percentage points) in the context of an education system that leads to girls dropping out-of-school - by failing to make the transition to secondary school - earlier-on than boys.

The higher educational performance of girls, and the fact that they reach the Primary 6 milestone faster, does not however fully explain the gender enrolment gap between the ages of 16 to 18. In fact, when controlling for the highest grade achieved, we find that the estimated gender gap widens. This can be seen in Figure 5.13. The graph shows that girls and boys aged 16 to 18 who had made the transition to secondary school before 2017, were

equally likely to still be enrolled in 2017.¹¹ However, girls aged 16 to 18 who had not made the transition to secondary school before 2017, were less likely to still be enrolled in 2017 relative to boys who had also not made the transition.

Figure 5.13 Enrolment rates for girls and boys aged 16 to 18, by highest grade achieved in previous year, 2017



Evidence suggests that girls have historically been less likely to make the transition to secondary school.

Although this does not appear to be the case in 2016-2017, where transition rates are estimated to have been higher for girls than for boys, it was the case during the 2011-2016 period. Education statistics for the 2011-2014 period, as per the Education Statistical Yearbooks produced by MINEDUC, show that transition rates for girls have been, on average, one to four percentage points lower than the rate for boys. Evidence from the child survey for the 2015-2016 period shows that an estimated 82% of boys in this age group who were enrolled in Primary 6 in 2015, were still enrolled in school in 2017 – i.e. either repeated Primary 6 or, more likely, transitioned to Secondary 1, compared to just 68% of girls in the same age group. This is a very large and statistically significant gap.

We find that for the 16 to 18 age group, this gender gap in transition rates is not related to learning discrepancies between girls and boys.

This is an important point to make, as it has often been assumed that low educational performance amongst girls is a key driver of dropout. We confirm this finding using three different sources. Evidence from the child survey suggests that in both 2015 and 2016 success rates on the school exams in Primary 6 were about 5 percentage points higher for girls aged 16 to 18, suggesting that - if anything - girls had higher abilities on average

¹¹ Differences are not statistically significant and negligible in 2015-2017.

in Primary 6, despite being much less likely to have transitioned to secondary school. Finally, the numeracy and literacy assessments delivered during the child survey do not support the hypothesis that boys aged 16 to 18 and enrolled in Primary 6 in 2017 have higher abilities than girls in Primary 6. This evidence combines to suggest that learning gaps are not the main driver of lower transition rates for girls. In fact, when controlling for abilities in Primary 6, the estimated gender gap in transition rates widens.

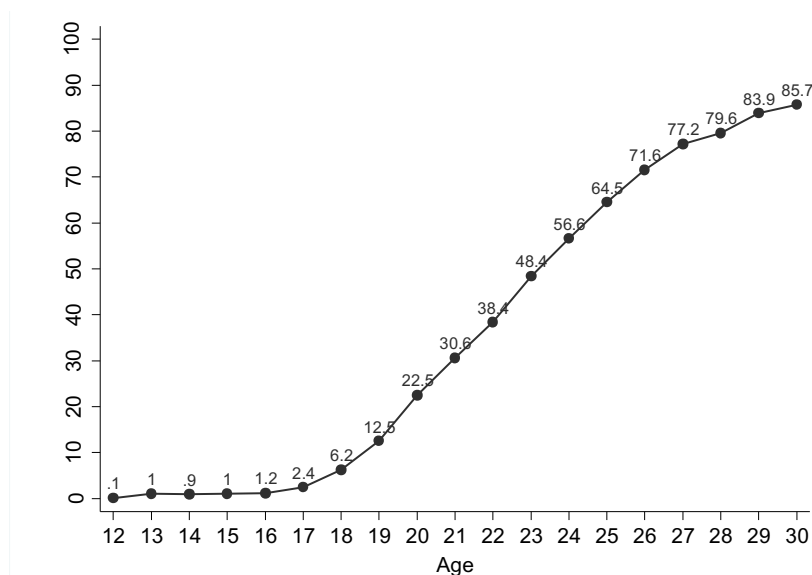
b. Pregnancy and marriage

Although there is a perception that pregnancy and/or marriage are a major cause of dropout for girls in later stages of their educational trajectory, this is not the case for girls in the 16 to 18 age group. According to data from the child survey, only an estimated 1.3% of girls aged 16 to 18 reported ever having been pregnant. Pregnancy and marriage were also not mentioned, by either girls or parents, as a major cause of dropout or a reason for not re-entering school after having dropped-out in our child and parent surveys. Pregnancy and/or marriage might have contributed on the margins to slightly higher dropout rates for girls aged 16 to 18, but the effect is small and does not explain the enrolment wedge we observe between girls and boys from age 16 onwards.

While pregnancy and/or marriage are not one of the main drivers of dropout for the 16 to 18 age group, evidence suggests that they are likely to be a key cause of dropout for slightly older girls still enrolled in primary or secondary school. Note that the majority of children in secondary school are older than 18. This means that gender-related findings for the 16 to 18 year age group do not necessarily generalize well to the rest of the secondary education system. Furthermore, evidence suggests that pregnancy and/or marriage switch from being a marginal occurrence around the ages of 16 to 18, to being a more dominant occurrence thereafter. There is a clear break in the prevalence of child birth and marriage around the ages of 18 to 19. According to the 2012 Population Census, and in particular the sub-sample provided by NISR, which is publicly available online,¹² we see that pregnancy rates increase from about 2% of girls at age 17, to more than 20% of girls by age 20 and almost 50% of girls by age 23 (see Figure 5.14). Very similar patterns apply for marriage.

¹² Which is representative of 8 Districts in Rwanda.

Figure 5.14 Percentage of girls that have had a child, by age, 2012 (according to Rwanda's 2012 Population Census)



Source: Rwanda 2012 Population and Housing Census (2012), own calculations, based on a publicly available sub-sample from 8 Districts, National Institute of Statistics of Rwanda

The rapid increase in pregnancy rates after the age of 18 might explain why girls aged 16 to 18 identify pregnancy as one of the biggest challenges girls face during their education, even though they are unlikely to have been pregnant themselves by age 18. When asked what the biggest challenge girls faced with their education was, almost 50% of girls aged 16 to 18 identified pregnancy as an issue. The next most common issue identified by girls - out of 23 different potential issues that were tested - was being sick (28%), followed by bad influence from their social circle (24%). The high proportion of girls identifying pregnancy as an issue may be a reflection of high awareness rates, resulting from successful outreach campaigns, but it could also signal that pregnancy remains a problem for older girls in school.

The issues of pregnancy and/or marriage being a key cause for dropout or a constraint to re-entry was also a theme that came up frequently in qualitative interviews. Girls aged 16 to 18 who were interviewed as part of the qualitative component of the study, and who had never been pregnant before, mentioned having friends that had dropped-out because of pregnancy or marriage. For example, one girl aged 18, that was interviewed in a rural area of Gicumbi District, shared the following story with the moderator:

“There is this girl (18) who was my classmate and age mate; we were even neighbours since she lives up there. She was in a relationship with a guy in her neighbourhood, who also lives there. Later, she got pregnant, and the guy convinced her to drop out of school, and then she did. There is another one who got married, and she was kicked out of the house”. (Female, 18, out-of-school, Gicumbi)

Boys, of the same age group, also identified pregnancy as a potential educational risk for girls. According to one boy, aged 18, living in Gicumbi:

“A girl, when she gets in P6, starts getting into romantic relationships with boys. So when she gets pregnant, she cannot continue with her education. She just drops out”. (Male, 18, out-of-school, Gicumbi)

Girls aged 16 to 18, who were interviewed after having given birth, discussed how having a child made it very difficult for them to return to school. One young mother, aged 18 and living in Gicumbi, expressed that she wanted to go back to school, but being a mother made it much more difficult:

“I love school but I think if I go back, where will I get school materials from? What will my child eat?” (Female, 18, out-of-school, Gicumbi)

This girl was of the opinion that although schools accept girls who are pregnant or who have already given birth, it is the students themselves who do not want to return, for fear of embarrassment or due to parental pressure. There is a high social stigma on being pregnant at a young age or before getting married. Some respondents felt that being out-of-school increased the risk that girls would become pregnant or get married, making it more difficult for them to return to school thereafter. One parent, living in Gasabo District, used the example of their daughter to explain that girls sometimes drop-out of school in order to get married:

“Many school girls in this community, when they reach their puberty, we notice that they start thinking about marriage. So what makes them drop out of school is that desire to get married. As an example, what happened to my daughter caught us off guard. At a certain age, girls don’t want to study anymore. They only want to be in relationships. They drop out of school to help their parents or to get married when they are 19. They often get married immediately.” (Parent out-of-school girl, Gasabo)

In summary, while pregnancy and marriage do not explain differences in enrolment rates between boys and girls aged 16 to 18, it is important not to discount these issues as potentially major educational challenges for girls aged 19 and above.

5.4.2 Household and Community-related Factors

a. Underlying gender biases

Evidence suggests that parents, and communities more broadly, tend to associate with the education of their sons and daughters differently. Social expectations within the household are different for girls than

they are for boys. These underlying gender biases, although marginal and impossible to fully quantify, favour the hypothesis that household-factors might explain why girls are less likely to be enrolled than boys around ages 16 to 18.

First of all, the household plays a bigger role in decisions about dropout and re-entry for girls than it does for boys. This is particularly true in rural areas. When asked who participated in the decision for them to dropout in our child survey, out-of-school girls in rural areas, aged 16 to 18, were about 9 percentage points more likely to mention their parents than boys were.¹³ Similarly, when parents were asked who participated in the decision that their child should drop-out, parents were more likely to say that they themselves had participated in the decision when the child was female. This is important because it points to the possibility that girls have less agency in their education and might be pressured by parents to drop-out of school. Although both quantitative and qualitative interviews showed that in most cases children took the decision to drop-out of school themselves, qualitative interviews confirmed that parents tended to have a bigger say in decisions about the enrolment of their daughters. During qualitative interviews, respondents portrayed boys as willing to leave school of their own will, in order to take-on jobs and make money; girls were portrayed as being less entrepreneurial, more subject to parental decisions and the desire to get married:

“Boys are motivated by earning money so that they may be able to buy houses or build their own houses. He can become someone else’s shepherd and as the animals reproduce they may give him some.” (Male, current S1 student, Ngoma District)

“Boys want to make money. It starts off by them saying ‘it’s for buying school materials’ but then they get used to it.” (Parent out-of-school boy, Gicumbi)

“Sometimes, parents believe that they shouldn’t pay tuition fees for girls. They believe that they can afford tuition fees for boys only” (Female, 17, from Gasabo)

“... I can’t really tell the specific reason why (girls drop out of school). It is just because their parents undermine them” (Parent, from Gasabo).

Parents also appear to have marginally lower educational aspirations for their daughters. We show these differences using a couple of examples. During the household survey parents were asked what level of education they aspired to for their daughters and sons. An estimated 87.5% of parents surveyed wanted their sons to complete at least University or a VTC, compared to 81.5% for their daughters. This difference of 5.5 percentage points is significant at the 1% level, and might be reflective of a small but real bias within households favouring the education of boys. Furthermore, girls were slightly more likely than boys to feel that “parents did not want” children of their gender to study. Girls were about 3 percentage points more likely to say that “parents did not want girls to study”, than boys were to say “parents did not want boys to study”. Even though very few girls and boys were of the opinion that parents did not want children of either gender

¹³ Difference significant at the 10% level, despite small sample size.

to study (about 6% of girls, vs 3% of boys), this is a small and statistically significant difference, that shows that on the margins parents have slightly different educational aspirations for their sons and daughters.

Finally, evidence seems to suggest that girls aged 16 to 18 drop-out when there are a greater number of younger siblings of schooling age in the household. The number of siblings in the household appears to have no significant impact on the enrolment level of boys. We can see this clearly in Table 5.10, which shows that in rural areas the difference in enrolment of girls and boys aged 16 to 18 with just one younger sibling of schooling age is about 3 percentage points, compared to about 8 percentage points for children with two younger siblings and 20 percentage points for children with 3 younger siblings of schooling age. These statistics show that the structure of the household has a very significant bearing on the education of girls aged 16 to 18.

*Table 5.10 Enrolment of girls / boys aged 16 to 18 in 2017, in rural areas, by number of younger siblings of schooling age**

Number of younger siblings aged 6 and above	Enrolment of girls aged 16-18	Enrolment of boys aged 16-18
1	57.9%	61.8%
2	50.0%	58.4%
3	40.1%	60.3%

**We do not have sufficient statistical power to show the situation of boys/girls with more than 3 siblings*

These household-level dynamics could result from: (i) the fact that parents prioritize the education of boys over girls, sacrificing the education of girls when there is not sufficient money to pay for all siblings; or (ii) the fact that girls drop-out because with more siblings in the household, come greater household-level responsibilities. There is ample evidence showing that girls are expected to play an important role within the household, taking care of siblings or older family members, conducting household chores and working on the family farm. These responsibilities increase with age and can interfere with children's education. An estimated 9% of children believed that chores were an educational challenge for girls, compared to fewer than 1% that thought chores were an educational challenge for boys (a statistically significant difference at the 1% level).

b. Household-shocks affect the education of girls - example of the loss of a parent/mother

These underlying biases and the differences in gender roles with respect to the family are laid to bare when there is a shock in the family. We show this using the example of the loss of a parent or household member or the birth of a child in the family.

The education of girls seems to suffer more from the loss of a parent, than the education of boys. We can see this in Table 5.11. The death of the mother is associated with a 13.5 percentage point drop in enrolment for girls, compared to an 8 percentage point drop for boys; the death of the father is associated with a 10.5 percentage point drop in enrolment for girls, compared to no significant difference in enrolment for boys. In rural households, the death of a household member in the previous year was associated with a 7-percentage point drop in the enrolment rates of girls, compared to no significant change for boys. The death of a parent or other household members are likely to be one of the main drivers of the discrepancies we observe in enrolment rates between girls and boys aged 16 to 18. Older girls are much more likely to have a lost a parent than younger girls: an estimated 11% of girls below the age of 16 had lost a parent, compared to about 23% of girls aged 16 to 18. This is therefore not a marginal occurrence or shock to the family structure.

Table 5.11 Enrolment of girls and boys aged 16 to 18 in rural areas in 2017, based on whether parents alive or passed-away

	Mother alive	Mother not alive	Father alive	Father not alive
Girls	56.6%	43.1%	57.2%	46.6%
Boys	63.0%	55.3%	63.8%	62.2%

Other changes to the structure of the household, such as the birth of a child, also affect girls more than boys. The birth of a child in a rural household over the previous 12 months was associated with a 25-percentage point drop in enrolment rates for girls aged 16 to 18, compared to no significant change for boys. This is a very large and significant drop, which suggests that adolescent girls have very large responsibilities towards taking care of younger siblings. The birth of a child is also not a marginal occurrence. An estimated 9% of girls aged 16 to 18 lived in a household in which a child was born in the previous 12 months. These differences show that girls' education is comparatively more vulnerable to household shocks than the education of boys. Girls at ages 16 to 18 are expected to take on greater responsibilities within the household and these responsibilities can have a direct effect on their education.

The experience of one of our SSIs participants illustrates how shocks to the household affect the education trajectory of girls. This child (Female, 14, Ngoma) currently in Primary 3, after multiple instances of dropout due to lack of materials (specifically, shoes), and from a household with an absent father (in prison), expressed her worry about being able to reach her target of completing Senior 6 due to the responsibilities that fall on her when her mother is sick – a common occurrence as she suffers from chronic illness:

“Int: What makes you worry or what makes you think that you might not be able to finish Senior Six, that is how far you said you wanted to go, right? Resp: When my mother is not around, I am the only one left in charge and yet she is the one who provides me the school materials. Int: What do you mean by « I am the one left in charge if she is not around »? Resp: Sometimes she falls sick and I end up taking all the

responsibilities in her place. **Int:** What exactly does that mean? **Resp:** It means that at some point, I might not be able to get school materials and then I will have to drop out again. **Int:** You said that you take all responsibilities when your mother is sick, what are those? **Resp:** I have to buy food too. **Int:** Do you really buy food too? **Resp:** Uuhm [agreeing] **Int:** You buy food and then.... **Resp:** We only eat what we buy. **Int:** But where do you get what to buy with.... With what do you buy food? **Resp:** I work for daily wage payments mostly in activities that end at 11: AM...” (Female Student, 14, currently in Primary 3)

As the quantitative data shows clearly, and the case above illustrates, shocks to the household can and do affect individual girls, and pose a barrier to their education. The expectation that girls take over household chores, particularly when the mother is not able to, introduces a burden on girls who, in many cases, need to either skip school for a short period of time or, stop going to school altogether.

KEY MESSAGES:

- Learning is not the main reason girls aged 16 to 18 are out-of-school than boys.
- Girls have historically been less likely to make the transition to secondary school.
- While pregnancy and/or marriage are not one of the main drivers of dropout for the 16 to 18 age group, evidence suggests that they are likely to be a key cause of dropout for slightly older girls still enrolled in primary or secondary school
- There is a clear break in the prevalence of child birth and marriage around the ages of 18 to 19. Pregnancy rates increase from about 2% of girls at age 17, to more than 20% of girls by age 20 and almost 50% of girls by age 23
- In summary, while pregnancy and marriage do not explain differences in enrolment rates between boys and girls aged 16 to 18, it is important not to discount these issues as potentially major educational challenges for girls aged 19 and above
- Evidence suggests that parents, and communities more broadly, tend to associate with the education of their sons and daughters differently. Social expectations within the household are different for girls than they are for boys. These underlying gender biases, although marginal and impossible to fully quantify, favour the hypothesis that household-factors might explain why girls are less likely to be enrolled than boys around ages 16 to 18
- The household plays a bigger role in decisions about dropout and re-entry for girls than it does for boys. This is particularly true in rural areas
- Parents also appear to have marginally lower educational aspirations for their daughters.
- Evidence seems to suggest that girls aged 16 to 18 drop-out when there are a greater number of younger siblings of schooling age in the household
- The education of girls seems to suffer more from the loss of a parent, than the education of boys. The death of the mother is associated with a 13.5 percentage point drop in enrolment for girls, compared to an 8 percentage point drop for boys; the death of the father is associated with a 10.5 percentage point drop in enrolment for girls, compared to no significant difference in enrolment for boys
- shocks to the household can and do affect individual girls, and pose a barrier to their education. The expectation that girls take over household chores, particularly when the mother is not able to, introduces a burden on girls who, in many cases, need to either skip school for a short period of time or, stop going to school altogether

6. System-Level Barriers at the National and School Level

This section looks at the administrative mechanisms surrounding dropout and repetition and the implications of targets/objectives and data collection/processing methods on the education system. The administrative context is vital for deciding on and communicating education sector priorities and targets, delegating roles and responsibilities to different actors and developing effective monitoring and reporting systems. This section is comprised of two subsections: i) targets and objectives (national & school) and ii) definition, monitoring and reporting.

6.1. School- and National-Level Targets and Objectives

The education sector in Rwanda is target-driven. In this section we demonstrate that, while there is a strong administrative structure (please refer to Annex 1) in place to set, communicate and achieve targets, the way targets are currently set can lead to unintended effects. The administrative context is vital for deciding on and communicating education sector priorities and targets, delegating roles and responsibilities to different actors and developing effective monitoring and reporting systems. However, some of the targets outlined in the Education Sector Strategic Plan for the 2013/14-2017/18 (ESSP)¹ period do not take into account the dynamic nature of the education system: they are mutually incompatible, sometimes impossible to achieve, or lead to effects that go against the stated objectives of the ESSP. It is possible that the current target-mix at the national and more decentralized levels might be contributing to non-desirable educational outcomes.

Annex 1 provides a detailed overview of Rwanda's education administrative structure that deals with dropout and repetition, ranging from the current targets and objectives set by the Ministry of Education in the current ESSP and the communication and implementation channels at the decentralised levels. We provide an overview of the relevant Ministerial Orders related to dropout/repetition and the decentralized education structure that relays these targets from districts to the village and parents, including accountability mechanisms such as *imihigo* (performance-based) contracts and school inspections.

6.1.1 Review of repetition and dropout targets under the current ESSP

In this section, we question the rationale behind national targets agreed upon under the current ESSP (which covers the 2013-2018 period) and highlight the risk of unintended effect. Our aim is to present examples that highlight that the current ESSP targets contain multiple instances of targets that were unrealistic and mutually incompatible. To guide this discussion we create a very simple model that takes the actual enrolment figures of 2013 and maps out what would have happened if dropout, repetition and transition targets – as per the ESSP – had been met for each of the subsequent 5 years. The ESSP targets are presented in Table 6.1 below.

¹ It is important to note that, at the time of writing this report, a new ESSP was being drafted, along with a new set of targets. Our analysis here is based on the current (at the time of writing) ESSP.

Table 6.1 ESSP targets on repetition, dropout and transition rates (for the 2013-2017 period)

Target	2013	2014	2015	2016	2017
Primary repetition	11.7%	10.7%	9.7%	8.7%	7.7%
Primary Dropout	9.3%	8.4%	7.6%	6.6%	5.7%
Transition to secondary	86.8%	87.3%	87.9%	88.4%	89.0%
Secondary repetition	3.8%	3.5%	3.1%	2.9%	2.6%
Secondary Dropout	12.7%	12.4%	12.1%	11.7%	11.3%
Gross Enrolment Rate in Primary	121%	117%	111%	106%	100%

In this very simple model we take as a given the enrolment levels by grade in 2013 as per the Education Statistical Yearbook, we assume that all ESSP targets are met – with the only added assumption that repetition and dropout rates are proportionally higher in some grades than in others, and to keep the model simple assume that each year all children aged 7 (as per the Census projections) enter the primary education system on time. We then project forward and see what happens. This model does not do justice to the underlying complexities of the education system, but is useful for the purpose of this exercise. Results are presented in Table 6.2.

Table 6.2 Projections of enrolment levels by grade, based on ESSP targets, taking 2013 as starting point

Grade/Year	Actual					
	2013	2014	2015	2016	2017	2018
Pop age 7	311,698	313,486	300,148	300,330	300,593	300,975
P1	664,161	422,615	363,653	349,868	343,340	338,103
P2	507,092	562,523	386,085	326,940	315,364	313,351
P3	406,487	445,897	500,606	361,847	305,143	294,637
P4	341,454	368,049	407,212	460,848	348,009	292,770
P5	301,957	313,083	339,257	377,775	431,394	338,727
P6	181,013	218,232	234,826	262,460	302,706	356,764
GER Primary	138.5%	130.5%	123.2%	117.3%	112.1%	106.3%
S1	147,547	162,726	196,212	212,495	238,177	275,601
S1 qualified teachers	4,471	5,085	6,132	6,855	7,683	8,890
S1 classrooms	3689	4068	4905	5312	5954	6890

The first thing to note is that if the ESSP had been implemented as per the targets, it would have led to a wholesale shift in the structure of the primary education system in the space of just a few years. In this hypothetical world, enrolment levels would have plummeted in Primary 1 from 664,000 in 2013, to just 364,000 in 2015, a reduction of almost 50% in the space of just two years. We have shown in this Chapter that the reason children repeat in Primary 1, and consequently the reason enrolment levels are high, is a lack of school readiness. Children do not have the required literacy and numeracy skills to progress to the next level and repetition is one of the mechanisms at the disposal of schools to help children learn. The ESSP targets make abstraction of this and would only make sense if: a) the assumption was that all learning challenges in Primary 1 would have been resolved within the space of two years; or b) it was decided that promotion decisions would be disconnected from learning achievements. Neither of these two options were intended by the ESSP. In terms of their structural effect, the ESSP targets would have also led to a very large inflow of children in upper primary school, increasing the total number of students enrolled from about 825,000 in 2013 to 1.1m by 2016, an increase of about 33% in the space of 4 years. It would also have increased the number of students enrolled in Primary 6 by 67% during the same period. These are very large shifts in the population of children, that would put teaching resources under huge strain, making it very difficult to also achieve improved quality in Primary 6 at the same time.

Further, some of the targets of the ESSP are internally inconsistent. For example, it is virtually impossible to achieve a drastic reduction in the Gross Enrolment Rates, while at the same time achieving a large reduction in dropout rates. The gross enrolment target for the current ESSP period was missed by a very large margin: the targeted GER was 100% in 2017, compared to an actual estimated level of 143% (as per the survey). The gross enrolment rate is the number of children enrolled in primary school as a percentage of the population of children of primary school age (i.e. aged 7-12). A gross enrolment rate of 100% means that there are no children outside of this age bracket enrolled in primary school. To achieve this target, any children who have accumulated delays in their education - putting them outside of the 7 to 12 age bracket (through late start, repetition or dropout and re-entry) - would either: a) have to dropout of school; b) be discouraged from re-enrolling if they have yet to finish primary school and have previously dropped-out; or c) would have to successfully transition to secondary school. With a stagnating number of children making it through to Primary 6 between 2013 and 2016 - in 2013 there were an estimated 181,000 children enrolled in Primary 6 compared to 198,000 in 2016 - the only way for the education system to make progress towards the GER target would have been through a very large increase in dropout rates.

To show that dropout and GER are targets that work against each-other consider the following example. In the model above, we estimate that if all ESSP targets in terms of repetition and dropout had been achieved, the GER in 2017 would have been 112%. Now assume that Government had been very successful in reducing the dropout rate, and that the dropout rate was reduced to 0% starting in 2013. Then keeping all other parameters the same, the GER in 2017 would have been 137%. This reveals that a faster implementation of the ESSP dropout targets, would have led to a rapid increase in the Gross Enrolment Rate, thereby leading to a large miss on the GER targets. On the other hand, if dropout rates had stayed at the same level as in 2013 - at an estimated 14.1% - then the GER target would have been achieved by 2016-2017, but not the dropout target. Looking forward, and not counting the current over-aged students in the system, successful promotion from one grade to the next is what is required to ensure that the GER stays close to 100%. If low dropout is also a desired policy objective, it means that children who are struggling either need extra support to learn, or passing standards must be reduced. If learning standards are to be maintained, the one ESSP target, therefore works against the other.

Pursuing a policy of reducing over-aging - and consequently also reducing the GER - is incompatible with a policy of also reducing dropout. These two targets are almost impossible to achieve together. This leads to important policy dilemmas as to what is more important: targeting better quality and lower costs, through a reduction in the Gross Enrolment Rate and over-aging, or targeting a greater equity and longevity for children within the education system, by reducing drop-out rates?

Targets under the 2013-18 ESSP are also inconsistent with resource investments in secondary schools. As can be seen in Table 6.1 above, if ESSP targets for primary school repetition, dropout and transition to lower secondary had been met from 2013-2018 we would have seen an additional 125,000 (approximately) children enrolled in Secondary 1 within 5 years. To meet the ESSP target Pupil-to-Qualified-teacher ratio in secondary school of 31:1, an additional 4,400 qualified teachers and an extra 3,200 classrooms would have needed to be built, rehabilitated or re-allocated to service Secondary 1 children alone. Using data from the Education Statistical Yearbook, we find that the total number of qualified teachers for all 6 years of secondary school increased by an average of 742 teachers per year (for the period of 2013-2016). This figure would have needed to be 883 to meet the targeted demands for Secondary 1 alone. Over the same period, the total number of secondary school classrooms increased by about 3,300; 3,200 classrooms were needed to meet Secondary 1 targets alone.

What these comparisons show is that there was a large disconnect between ESSP targets and the reality of the education sector. The problem is not that MINEDUC/REB failed to meet the targets, but that that the targets were simply not achievable. As we show in the next point, targeting correctly is very important because unrealistic and incompatible targets can lead to unintended consequences.

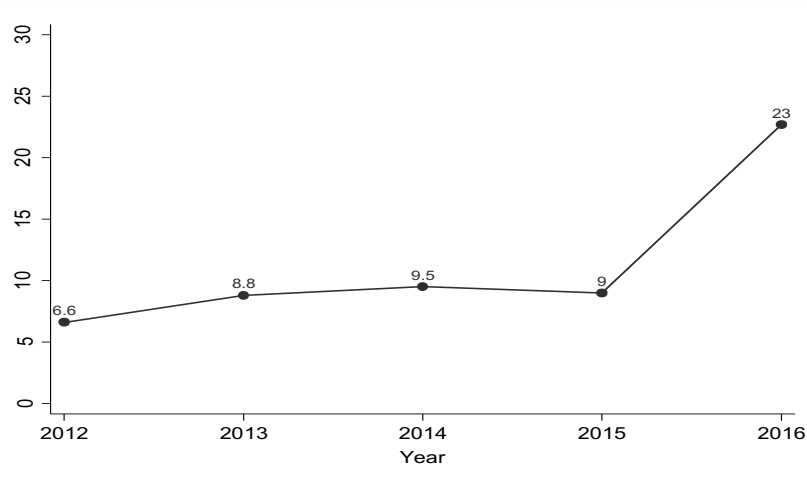
6.1.2 Impact of the drop in repetition rates in 2016

There was a very large drop in repetition rates in 2016, compared to previous years; we show that this drop was achieved by lowering the “passing” standards from one grade to the next, thereby potentially creating undesired effects. The average estimated repetition rate for children aged 6 to 16 in primary school dropped from an estimated 27.1% in 2015 to 15.7% in 2016, potentially in a policy effort to meet ESSP targets. We show that this drop came at the expense of passing standards, by looking at the promotion of children who failed to pass their “school-level” exams, or in other words failed to meet expectations to pass to the next grade. Figure 5.14 shows that the promotion rate of primary school children that did not meet the criteria to pass to the next grade were fairly steady between 2012 to 2015. On average, an estimated 8.5% of children who failed to pass the school-level exam, were still promoted to the next grade. In 2016-2017, this number jumps to 22.7%, coinciding with large drop in repetition rates. What explains this large drop in repetition rates in 2016 is therefore not an improvement in learning, but rather a drop in promotion standards.

This is a sensible policy decision, in that it achieves a number of key objectives, including a better distribution of children by grade, a reduction in overaging, and in the near future, also a reduction in the aggregate cost of primary education. But the ultimate objective of the education system is to promote learning, and this policy also comes at a large cost to the quality of education. In the immediate term, it means a larger proportion of children will transition to the next grade, without having the necessary background to succeed. This sudden drop in repetition rates, will also lead to a large and sudden shift of pupils from Primary 1 to Primary 2, and so forth,

putting a greater strain on teaching resources in higher grades. Teachers in 2017 will face not only larger classes but also the challenge of teaching classes with a much larger range of abilities and individual needs than was the case previously. If the extra resources in terms of classrooms, textbooks and qualified teachers (that this higher promotion rate requires) are not met in the later grades of primary, it is quite possible that this drop in repetition rates will ultimately lead to much lower transition rates to secondary school in the future.

Figure 6.1 Promotion rate among 6-13 year olds who fail end of year school exams 2012-2016



Qualitative interviews with teachers confirmed the link between repetition policies and the promotion of children who have yet to acquire the required abilities:

“Currently, the head teacher is the one to decide the repetition rate regardless of the 5% policy. I think the over-population [of classrooms] can be the reason for this challenge of promoting students with poor performance. You can find a class of 60 students with only 15 students who get 50% in the class. What will be the results if you only take performance into account to promote these students? New students will not find the space for studying in that class. That is why the students are promoted in the public schools regardless of their performance.” (Primary school teacher, Gasabo District)

“ ‘Guterura’ means promoting students regardless of their performance [...] I can give an example. In P1 many students don’t know how to read and write vowels and consonants. If a student leaves P1 without the ability to read and write that, he/she will not understand the content of P2. Last year, I was a teacher in P6, but there were some students who didn’t know how to write in Kinyarwanda. This is one of the effects of ‘Guterura’ “(Primary school teacher, Gasabo District)

“It means the 5% [repetition rate target] is one of the principles to follow while promoting the students to meet government expectations. The second is the number of classrooms. They [MINEDUC] have said that high repetition rate can

overload the class when new students come to join, that is a second problem. The third is promoting old students regardless of their performance” (Primary school teacher, Gasabo District)

These examples highlight the fact that target-setting is crucially important and that there are no simple solution: improving one metric has dynamic effects on other metrics, sometimes leading to undesired consequences. Moreover, if the focus of targets is solely defined by rates then it is extremely easy to lose the bigger picture of what these rates mean, in terms of learning or future resource requirements for example. Given that the education system is very complex and dynamically connected over time, and given that moving one piece of the puzzle affects the other, investing in better modelling before setting targets can lead to better, more realistic, internally consistent policy objectives.

6.1.3 Targets at The School Level

Targets that are set at the national level and communicated through to the school level are translated into school-level targets. Schools then implement rules to achieve these targets. We find that the rules surrounding grade repetition, dropout and enrolment are varied and not unified across different schools.

Here, we look at different examples of school policies to see whether the schools in our sample have a unified set of rules in place covering two of these targets, repetition, and dropout.

“We have a challenge of setting goals in Rwanda. All employees, including teachers, give a promise of working effectively 100% which is impossible. They have to report how they did well to meet the government expectations. Currently, we ask our head teachers the results of students in national exams [...] Thus, we consider the percentage required to avoid a shame, and we increase the repetition in P5 to increase good results in national exams” (Primary school teacher, Gasabo District)

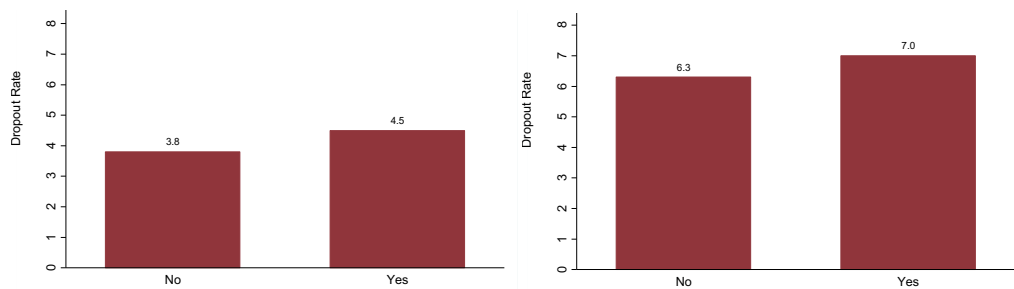
6.1.3.1 Grade Repetition

Evidence suggests that repetition targets vary by school and that many schools do not have formal rules in place regarding grade repetition. Starting with Imihigo targets, according to the school survey, we find that almost half of the schools reported having a repetition target. Out of schools with a repetition target, half mentioned a targeted rate of 10%, the remaining half targets ranging from 0 to 41%. The school survey shows that schools not only had different targets, but also different rules in place regarding who can repeat and how many times. We illustrate this with the following example. Just over two thirds of schools report having a rule in place regarding how many students are allowed to repeat a grade. Just over a third of schools report having a rule regarding how many times a student is allowed to repeat a grade. Of the 49 schools in the sample that had had a rule regarding the number of times a student could repeat, 48% stated that students were allowed to repeat only once and 39% allowed a student to repeat twice. This means that two children with exactly the same educational performance may have different educational trajectories based on the rules that were in place in their respective schools. Even with the same poor performance, one child would only accumulate one year delay while the other might accumulate two years delay for example. Unfortunately, due to small sample size leading to low statistical power we cannot test whether these rules effect the overall repetition rates of schools.

6.1.3.2 Dropout after prolonged absence

Schools have similar dropout targets, but inconsistent rules surrounding how many absences children can accumulate before being considered to have dropped-out. About half of head-teachers reported that their school had a Imihigo target related to dropout. Of the 48 schools in our sample that report having dropout targets in the Imihigo contract about half had a target rate of 0% (i.e. no dropout events at all) while the remaining schools had a target dropout rate between from 1-6%. While there is little variation in dropout targets, there is much more variation at the school level in how schools identify children that have dropped-out. For example, we find that only about 60% of schools have a rule in place to determine how many absences a child can accumulate before they are considered a dropout. Out of the 72 schools that had a rule regarding absence and dropout the range of allowed absences spanned from 3 to 270 with most schools reporting an allowance of 30 absences (approximately 1 month) before a child is considered to have dropped out. Interestingly, schools that have a rule regarding absence and dropout record higher dropout rates when calculated from both the head-teacher surveys and the child surveys (Figure 6.2). This is possibly due to the fact that these rules allow for easier identification of dropout compared to schools who have no rules in place.

Figure 6.2 Dropout rates among schools with & without rules regarding absence and dropout*



* (left: head-teachers surveys n= 111) and schools w & w/o rules regarding absence and dropout
(right: child surveys n= 3283)

KEY MESSAGES:

- Clear defined objectives and targets are being set by education sector policy makers at the central level and there is a strong structure in place to communicate, monitor and achieve these targets. However, the targets themselves are not always set with enough consideration for the dynamic nature of the system
- The current 2013-2018 ESSP targets are sometimes mutually incompatible and unrealistic when put in the context of the effect their implementation would have on the education system
- More careful modelling is necessary before agreeing on targets, as it has significant potential ramifications on the entire education system, given how effective the administrative mechanisms are
- The process of setting targets can be improved through modelling, which could help avoid setting targets that are unrealistic or that have ultimately undesirable effects for the education system
- Targets and rules surrounding grade repetition, dropout and enrolment are varied and not unified across different schools which can adversely impact the trajectory of children across the education system

6.2 Defining, Monitoring and Reporting

In this section, we discuss how data is collected at the school level, aggregated and compiled into statistics at the national level and the limitations of the current data collection and processing method. We also look at how dropout is defined and find that the information currently collected is not detailed enough to provide an accurate picture of the dropout problem. We further examine how dropouts are identified and monitored at the school level and whether these methods make it possible to identify and monitor children at risk of dropout, an important pre-requisite to providing effective support mechanisms. We find that at the school level, there are very rarely consistent mechanisms in place and in particular, that there is a large information gap produced whenever a child transfers between schools.

6.2.1 Identifying Dropout and Repetition at the National Level

At the national level, the main mechanism through which dropout and repetition rates are monitored is through the Education Management Information System (EMIS); statistics are reported annually in the Education Statistical Yearbook. At the core of the EMIS system is a very detailed yearly survey of every school in the country. Surveys are completed yearly by head-teachers, before being verified by Sector - and District - Education officials and then aggregated at the District and national levels. The data collected via EMIS compiles very detailed information from each school and is the most comprehensive resource on education statistics in Rwanda. Through EMIS, the Yearbook provides detailed statistics of enrolment per grade, educational flows (dropout, repetition, transition etc.), teaching resources and school infrastructure disaggregated by school status and ownership, school-level, grade, province, district and gender. In doing so, the report measures progress against ESSP targets, including the repetition and dropout rates.

While EMIS provides a very valuable resource, there are a number of very important limitations:

Data is collected once per year from head-teachers and published after a delay while results are aggregated and analysed. This low frequency makes it difficult for policy makers to respond to problems that arise in good time.

The data is aggregated in a system containing a pyramid of excel sheets- one sheet per school aggregated to one sheet per District and finally to one sheet of national statistics. This means that the data cannot be analysed at the school-level making it extremely difficult to understand what measures at the school level affect repetition and dropout such as class size or teacher turnover. Similarly, it is not possible to currently use this system to see the effects of school level interventions such as classroom rehabilitation and school feeding.

Data collected from head-teachers is not linked year-on-year at the school level, which makes it very difficult to i) calculate statistics such as dropout and repetition which requires data on the previous year (t-1) and ii) conduct data quality checks. A simple consistency check of individual school excel sheets over time shows inconsistencies in the data, with for example more children enrolled as promoters or repeaters (not transferring in) at the beginning of a year than there were children in the previous grade the year before.

The data collected does not cover information on re-entrants meaning that the dropout rate measured and reported is in fact a net dropout rate, in other words the difference between the dropout rate and the re-entry rate. Currently the dropout rate is defined by MINEDUC as: the share of pupils from a given grade or age group in time 't', that were not enrolled in school anymore in time 't+ 1'. The data provided by head-teachers does contain a table on the number of children who dropped out based on grade, gender and reason (illness, work, pregnancy and other), however it appears that this is not what is used to calculate the dropout rate in national statistics which calculates dropout as a residual i.e. 100% - (promotion rate + repetition rate). The use of this residual method for dropout rate is clearly seen in the 2015 Education Statistical Yearbook in which for example, the District of Nyanza has a reported dropout rate of -1.4% and the District of Gasabo has a dropout rate of -0.7%. It is theoretically otherwise not possible to have negative dropout rates. The annual report filled out by head-teachers does not contain any information on re-entry to school by out-of-school children. This means that the calculations of dropout that are aggregated at the national level (using the residual method) show us only, in effect, Net Dropout, that is the number of out-of-school children who are enrolled the following year ("drop-ins") subtracted from the number of children that were enrolled one year and not enrolled the next (MINEDUC's definition of "drop-out").

The definition of dropout does not include children that are enrolled but never attend or dropout during the school during the year, which means that dropout is essentially defined only in relation to enrolment. This might lead to underestimating the dropout-out problem, especially in light of automatic re-enrolment and inconsistent policies across schools to determine when – after how many absences – a child should be considered a dropout.

The main consequence of these limitations is that it is not possible at this point in time for the Ministry of Education to react in real-time to national level-issues relating to dropout and repetition. The policy response is always designed around old and incomplete data. This is exacerbated by the fact that the system of aggregating data at district, then national levels, means that currently no school-level analysis is being conducted. There are many very useful insights that could be gained from comparing data at the school level – for example, better understanding how class-to-pupil ratios affect dropout, what the effect of teacher-to-pupil ratios is, what happens to schools when a new classroom is built, or how schools perform after the introduction of school feeding. These are all questions that can be analyzed in much more detail with marginal improvements to existing data collection efforts.

6.2.2 Identifying Dropout and Repetition at the School Level

Rwanda's primary education system is unique in terms of the sheer size of its schools. Using the statistics in the 2016 Yearbook we find that the average primary school in Rwanda has 896 pupils, 11 classrooms and 14 teachers. Rwandan schools have on average 165% more students than schools in Kenya, 105% more than in Uganda and 78% more than in Tanzania (see Table 6.3). This is partly the result of the double-shifting policy, which means that the use of school resources is maximized through two shifts of students per day, but also the fact that Rwandan schools are simply larger. They have more teachers and classrooms on average.

The size of schools places a much greater management burden on head-teachers in Rwanda, who need to cope with the demands of educating many more children and managing more staff, on average, than their counterparts in other EAC member countries. These statistics suggest that the individual management qualities of a

head-teacher in Rwanda play a more important role in the successful delivery of education. In a large school it is more difficult for staff to keep track of individual children's challenges and needs. Ideally, a school would be able to effectively identify warning signs of a child that is at risk of repeating or dropping out and undertake targeted supportive action to prevent this. The extremely large size of schools makes this increasingly less feasible.

Large size also puts stress on information management systems at the school-level and in particular the tracking of attendance and dropout data. In primary schools with so many pupils, and without an IT management system, the effective monitoring of attendance, dropout and repetition data, becomes very difficult. It is important to keep this in mind as we review what administrative mechanisms schools have in place to monitor and respond to repetition and dropout.

Table 6.3 Basic primary school size metrics for each country²

School Size Metrics	Rwanda	Tanzania	Uganda	Kenya	Malawi	Zambia	Ethiopia
Number of primary schools	2,842	17,165	18,889	29,460	5,405	8,804	33,373
Number of primary pupils	2,546,263	8,639,202	8,264,317	9,950,746	4,188,927	3,215,723	18,691,217
Pupil to School ratio	896	503	438	338	775	365	560
Number of primary teachers	40,921	206,829	192,000	317,477	56,534	75,236	396,099
Teacher to School ratio	14	12	10	11	10	9	12
Number of primary classrooms	31,437	118,255	131,325	304,147	33,767	49,398	
Classroom to School ratio	11	7	7	10	6	6	
*see footnotes for references							

² 1) The United Republic of Tanzania, President's Office of Regional Administration and Local Government, Pre-Primary, Primary and Secondary Education Statistics in Brief 2016

2) Uganda Bureau of Statistics, Statistical Abstract 2016

3) Ministry of Education, Science and Technology Kenya, Education Statistical Booklet 2014

4) Republic of Zambia, Ministry of General Education, 2015 Educational Statistical Bulletin

5) Federal Democratic Government of Ethiopia, Ministry of Education, Education Statistics 2015

6) Government of Malawi, National Statistical Office, Statistical Year Book 2012

6.2.3 School-Based Mechanisms to Monitor Dropout

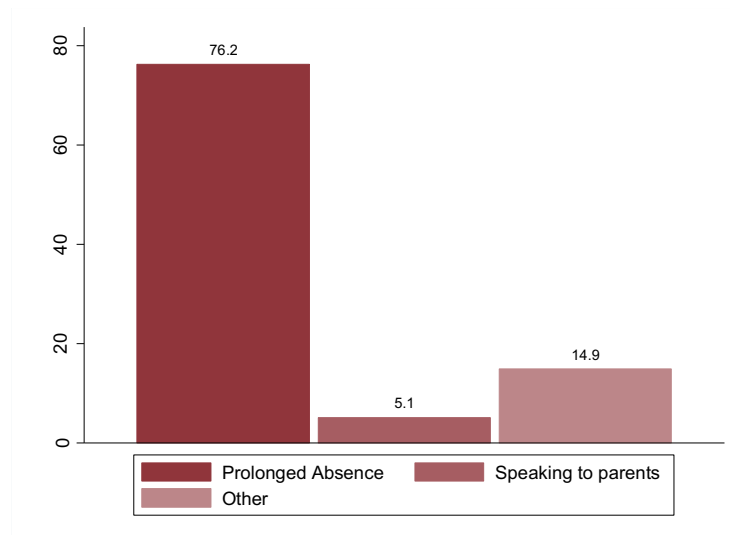
In this sub-section we discuss how schools identify children who have dropped out of school or are at risk of dropping out of school. If school fails to identify these children, then they will also fail to provide targeted support to encourage re-entry or to prevent dropout. We find that at the school level, besides consistent monitoring of attendance sheets, there are few consistent mechanisms in place to monitor dropout. Importantly, there is also a large information gap produced whenever a child transfers between schools, which happens quite frequently.

6.2.3.1 Enrolment and Dropout

Correct identification of children who have dropped out or are at risk of dropping out is a major prerequisite for having effective support mechanisms in place. Given that national statistics on dropout are tied to enrolment, we start by trying to better understand the enrolment process at the school level.

The automatic re-enrolment of children in schools, implies that children might be considered to be enrolled when in fact they are not. Based on the head-teacher survey, we find that the vast majority of schools (97%) automatically re-enrol children from one year to the next. On the positive side, for children who are not first time entrants to the system and who are not transferring from another school, automatic re-enrolment reduces the administrative burden of the enrolment process during each school year, for both the parent and the school. However, the question this raises is at what point does a school realize that this child might in fact have dropped-out or moved to another school and no longer be enrolled? Figure 6.3 shows how schools with automatic re-enrolment go about determining whether a child has actually dropped-out.

Figure 6.3 Share of schools with automatic re-enrolment by how they determine that a child has dropped out of school.



Evidence suggests that schools that have automatic re-enrolment exhibit a wide range of cut-off points in determining how long into a new school year without attending a child is removed from the registration list. An estimated 25% of head-teachers report that a child is removed from the register if they do not attend the school in the first 4 weeks of the school year, a further 14% have a cut-off point of 12 weeks. In the other 61% of schools answers varied widely from less than one week to up to one full year. A better understanding of how children should be included and removed from the school's enrollment list is important.

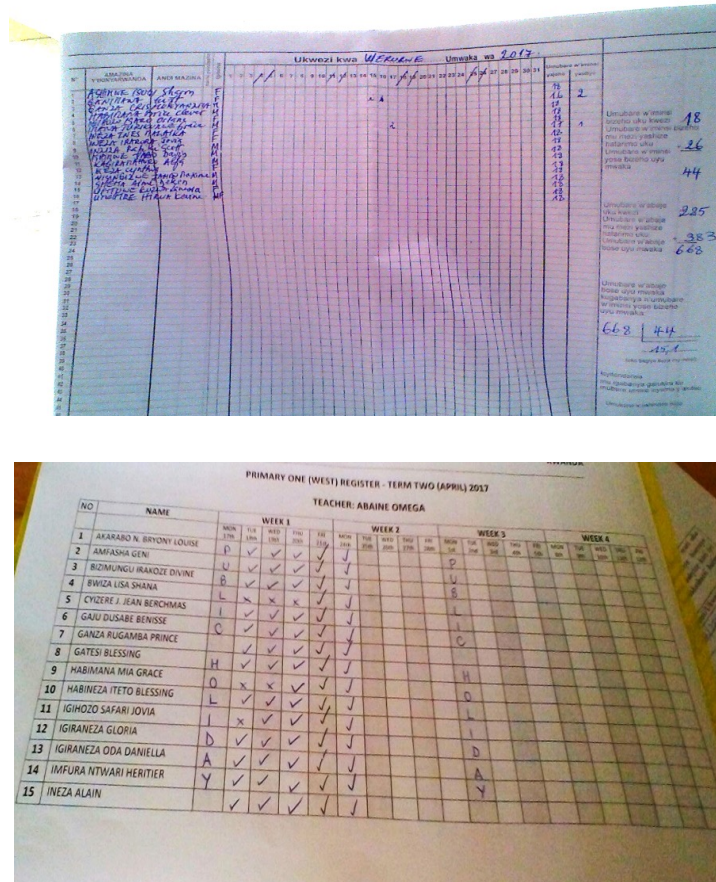
The majority (62%) of schools report not having a specific rule to decide when a child is considered a dropout, raising the possibility that the problem of dropout is being under-reported by schools or that enrolment levels are being over-stated. At the school-level, there is not much clarity on what specifically qualifies a child to be a dropout. For example, what happens if a child attends in the very first week of school, registers, but then stops attending? Is this child a dropout or a child with attendance problems? When asked the following question: "If a child is registered at the school but does not attend, is this child counted/reported as a dropout in school statistics (as reported to REB/MINEDUC) or as a registered child?" 25% of head-teachers said that the child would be reported as registered and not as a dropout. This suggests that for a non-negligible proportion of schools reported dropout rates are likely underestimating the number of actual events of dropout. Consolidation of these rules and thresholds would improve the data that schools provide on dropout and as well as the school's own understanding of how and when to support children at risk of dropping out.

6.2.3.2 Absenteeism and Dropout

As we have seen, prolonged absence is the most common way that schools determine if a child should be considered as a dropout. This strategy requires very structured and consistent monitoring of absences. We find that almost all schools (98%) require teachers to record daily attendance in their classes. As part of this study enumerators took photographs of an attendance sample provided by the head-teachers. The quality of these records was then assessed. Of the schools in our sample, 87% provided a standardized class attendance list. The remaining 13% provided attendance reports aggregated at the class level. Most photographs (about 75%) showed evidence of daily attendance taking. Of those schools that provided class attendance lists, 92% made use of an identical template attendance register showing that the best-practice method for monitoring school attendance has been taken up by schools; only 8% of schools were found using their own strategy for recording the attendance (see Figure 6.4) for sample registration photos).

There appears to be a standardized system in the primary education system to record attendance data; evidence also suggest that most schools record attendance data daily. We are not able to comment on whether these daily attendance records are accurate and what verification mechanisms are in place at the school level to ensure that teachers are accurately recording attendance data. It is important to keep in mind though that both schools and teachers have incentives to report high attendance rates to Sector and District level officials, because they are accountable towards them.

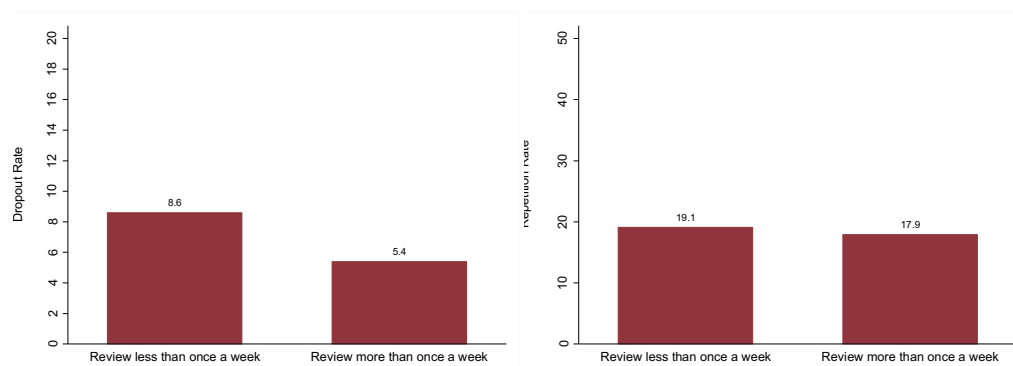
Figure 6.4 Examples of schools using the official template attendance register (above) and own methods (below)



While schools seem to track attendance daily using standardized templates, they do not have consistent processes in place for compiling attendance records. Most schools (63%) compile attendance records into student level statistics once a month while 23% report that this is done weekly. Similarly, 53% of schools compile attendance records into grade level statistics once a month, with 18% doing this weekly. Head-teachers typically review attendance data once a week (about 40%) however there is quite a lot of variation: about a quarter report reviewing the reports daily, while one out of five head-teachers look at the reports once a month.

Schools where attendance is reviewed more frequently by head-teachers report lower dropout and repetition rates. This might be because tracking is effective and reduces dropout/repetition, or might be reflective of the fact that schools where dropout/repetition is low, are also schools with much better management systems in place. In the head-teacher data, schools where attendance is reviewed less than once a week had a dropout rate of 5% compared to 3.9% for schools where attendance is reviewed once a week or more (n=111). Similarly, repetition rates reported by head-teachers average 9.5% in schools where attendance is reviewed once a week or more and 11% for schools where attendance is reviewed less often (n=132). This finding also holds when we look at the child level data. The likelihood of having repeated or dropped out is lower for children from schools where attendance data is reviewed more often (Figure 6.5).

Figure 6.5 Dropout rates (left) and Repetition rates (right)*



* among children at schools where attendance is reviewed less than once a week compared to children at schools where attendance is reviewed more than once a week

Evidence suggests that schools keep historic data on children who have repeated and dropped-out. Over 95% of schools report that they keep records on students who were repeating grade in 2016 while 87% keep records of students who dropped out. Keeping track of these students is very important if the schools are to play a key role in encouraging out-of-school students to re-enter. Most schools (81.5%) report that the registry of cases of dropout is kept by the Sector Education Officer as well as at the school itself. Of schools that keep dropout records, 72% reported that identifying dropouts and their households would be very easy. This shows that record-keeping is important, but not always sufficient to ensure effective follow-up.

Although most schools keep records for their own schools, there is a large information gap regarding the educational background of children who have transferred schools. To be able to provide extra attention and support to children who are enrolled in school but at risk of repeating or dropping out, teachers need to know the educational background of the students in their classes. This can be particularly challenging with students who are new to the school. We find that about 40% of schools do not know if a child that is enrolling for the first time in the school has previously dropped out of a different school or repeated a grade. This creates a barrier for teachers to provide quality tailored support to those children at risk. When looking at who is notified when a child moves schools, we find that the child's old school most commonly notifies the Sector Education Officer (reported in 65% of schools) and the child's new school (reported by just 55% of schools). The ICT in Education Policy aims to help improve data sharing between schools with the "One Digital Identity Per Child" project, but this has yet to be implemented.

KEY MESSAGES:

- *The EMIS system is the main mechanism through which dropout and repetition is monitored. This system provides valuable information but has several limitations the consequence of which is that MINEDUC cannot respond in real-time to changing trends or new challenges in the education system.*
- *The current system of data aggregation also means that it is impossible to analyse data at the school level to look at the relationships between school indicators (such as class size or teacher turnover) and dropout/repetition*

- *The current method for defining and calculating dropout at the national level gives only a partial picture of the dropout issue. It misses events of dropout that occur during the school year if the child re-enters the following year. It also fails to capture any information on re-entrants such that dropout is calculated as a net figure i.e. the number of drop-outs minus the number of drop-ins. This obscures the picture, providing artificially lower dropout rates if there are high drop-in rates*
- *Given that Rwanda's primary schools are extremely large with an average of over 890 students and 14 teachers it is vitally important that there are uniform management systems in place to identify, monitor and report children who dropout or are at risk of dropping out*
- *Most schools identify dropout after a period of prolonged absence. Among these schools there is very little agreement on the length of an acceptable absence after which a child is considered a dropout. This is important firstly because it does not allow for children to be identified as "at risk" before the dropout event and secondly, because the longer the period of absence, the more school the child will miss and the harder it will likely be to find and re-enrol the child*
- *Regular monitoring of attendance is important given that this is the primary way to identify dropouts. Taking daily attendance using a standardised register is an established practice in the vast majority of schools. Despite this, there are not consistent processes in place to compile and review these records regularly. This is important if the records are to be effective in the identification and monitoring of students at risk of dropping out*
- *Schools keep historic data on whether children have previously dropped out or repeated however this does not appear to be sufficient to ensure effective follow-up; we find that only 72% of schools that have records are confident in identifying dropouts and their households*
- *There is a large information gap when it comes to the schooling background of children who have transferred between schools. Only 40% of schools know if a student transferring in has previously dropped out. This is very important as it means that it is very difficult to identify at-risk children who have transferred- a vital pre-requisite to targeted support.*

7. Policy Recommendations

Having largely achieved the goal of improved access, how can policy makers reduce repetition and dropouts while ensuring greater quality and equity in the education system?

In this final chapter, a set of policy recommendations are proposed. The policy recommendations outlined in this section stem from the key challenges identified in the data analysis presented in the preceding Chapters, key stakeholder consultations, and review of global best practice.

In the introduction, the report has highlighted the major policy reforms that the Government of Rwanda has undertaken to increase access and quality of basic education, with enrollment, timely entry and survival rates in basic education significantly improving over the past decade. However, the system, as we have seen, is in flux. Net enrolment rates of close to 100 percent in primary education have changed the structure and dynamics of the education system. Achieving higher efficiency, equity, and quality with the current resources available to MINEDUC will require a more complex, targeted, and coordinated policy approach. Trade-offs will be required to ensure that repetition in the first years of Primary education and in the years preceding the transition to Secondary education are addressed, while the number of students dropping-out of school after the age of 13 is minimized. These objectives will have to be rigorously projected and monitored by modelling the impact of any significant change to dropout and repetition rates on the capacity and efficiency of the education system.

This section proposes ten key recommendations for how to strengthen the policy framework so that MINEDUC may better address dropout and repetition. The recommendations focus on strengthening the enabling environment and addressing supply-side, demand-side, and quality side barriers. In particular, we recommend policies and policy actions that seek to:

Improve the Enabling Environment, through the:

1. Strengthening of policies at the national level;
2. Development of consistent national-level definitions on dropout and repetition and provide systematic guidance on when and how to apply repetition for individual children;
3. Improvement of systems for collecting, managing, analyzing, and monitoring education data, including data on repetition and dropout;
4. Improvement of systems for identifying and monitoring children at-risk of repetition and/or dropout;

Improve Supply-Side Barriers, through the:

5. Launch of a national programme with targeted interventions to reduce dropout and repetition;
6. Introduction of interventions to target remaining gender barriers in education for boys and girls, particularly among the poorest families;

7. Increase of access to pre-primary education for improved school readiness for all children in Rwanda to mitigate repetition;

Improve Demand-Side Barriers, through the:

8. Increase of household support for and parental engagement in education;
9. Re-evaluation of the purpose of the Primary 6 examination and implications for students who do not perform well;

Improve Quality-Side Barriers, through the:

10. Increase of the capacity of primary school teachers for improved quality of education;

It is important to design new policies and programmes based on rigorous evidence and research in order to better target and address underlying causes and at-risk populations. Moreover, policy and programme interventions should be rigorously piloted and assessed prior to rolling them out at the national level, as untested policies can lead to unintended consequences or have unforeseen indirect effects that can undermine the intentions of the policy.

Improve the Enabling Environment, through the:

7.1 Strengthening of policies at the national level

Currently, there is no overarching national policy that explicitly addresses the issues of dropout and repetition in Rwanda. Thus, this report recommends a new national policy framework to address dropout and repetition. The policy should take into consideration the following:

- **Set internally-consistent national and school-level targets for dropout and repetition:** Given their dynamic nature, the issues of dropout and repetition can only be addressed within an internally-consistent set of policy objectives and targets across the education system. The current process to develop targets fails to take into account the underlying structure of the education system, leading to goals that are sometimes not achievable or are mutually incompatible. The new national policy on dropout and repetition should lay out a structured process whereby targets on repetition and dropout are set within a comprehensive policy framework that explicitly takes into account current and future system-level trends for all policy targets, that yield realistic objectives for these targets, that is consistent with current and future budgetary projections, and that can allow MINEDUC to have full understanding of all trade-offs intrinsic in any given policy mix.
- **Create inter-ministerial coordination mechanisms:** As we have seen in previous chapters, there are important determinants of repetition and dropout that do not necessarily fall within the authority of MINEDUC or of any single ministry or government agency – e.g. issues related to poverty or health. As such, and in order to tackle the many complex, interrelated causes of repetition and dropout, coordinated policy actions by different ministries and government agencies to address these

underlying causes is necessary. The new policy should lay out the responsibilities for each of these actors, as well as the coordination mechanisms among the different institutions.

- **Consider revising the formula on the school capitation grant to include proportional increases to capitation grants for schools based on factors that may increase the likelihood of repetition and dropout for certain groups:** Schools with higher rates of poverty and learning challenges require more resources than schools from wealthier, higher-performing areas. Adjusting the capitation grant formula to respond to key equity indicators and channel resources to where they are most needed. For example, adjusting schools’ capitation grant based on incidence of repetition or dropout, locality (rural/urban), and/or the average income level of its students can potentially help reduce inequalities in the education system.
- **Re-evaluate the current school feeding programme in secondary education:** The school-feeding programme is one of the largest cost-drivers for children entering secondary school. It acts like a *de facto* fee, because parents are required to contribute to the feeding programme. In schools where parents do not or cannot contribute, the school feeding programme imposes a financial burden on children and households. To reduce this burden, MINEDUC could (i) substantially increase the subsidy per child for the school feeding programme in secondary schools to eliminate these costs for families; or, (ii) replace the school feeding programme, and re-direct funds to a cash transfer programme that provides cash directly to children or their mothers – particularly from the poorest households.¹ In particular, this policy could target girls to help increase incentives for girls to re-enter and stay in school past primary education.²
- **Strengthening teacher recruitment:** Programmes could be introduced that aim to improve the quality of teachers recruited and the way they are assigned to schools and grades to ensure that the teachers sent to the areas and grades with the greatest challenges have qualifications to meet the needs. There should be a particular focus on ensuring highly-skilled teachers are allocated to teach in early grades, and in key subjects, where repetition and learning issues are most common.

And, it is recommended to:

- **Revise the Special Needs and Inclusive Education policy:** The policy should be updated to take into consideration the findings of the study.

¹ Whether the transfer should be made conditional on school attendance or given unconditionally should be rigorously tested and determined before rolling out any programme at the national level.

² This type of programme has proven to be quite successful in Malawi, where it has had considerable effects in the probability of children – particularly children of secondary school age – attending school without interruptions.² It has also been implemented in different contexts, such as the State of Odisha in India, for example through the Odisha Girls’ Incentive Programme.

7.2 Development of consistent national-level definitions on dropout and repetition and provide systematic guidance on when and how to apply repetition for individual children

In order to achieve the first recommendation, it is necessary to have national-level definitions and guidance for all schools and education stakeholders to adhere to to ensure sound monitoring. To that end, the following activities are proposed:

- **Harmonize the definitions and rules to track attendance, dropout, repetition, and enrolment at the school-level:** We propose that MINEDUC engages in a policy dialogue with other stakeholders in the education sector, including REB, the NCC, Districts, schools, and development partners – to establish a unique set of formal guidelines on how to define dropout and enrolment at the school-level, as well as provide clear guidelines to schools on when a child should repeat a grade or not. Schools are not provided with sufficient formal guidance at the moment, and the definitions used at the school-level are varied and not uniform across different schools. A harmonized approach to defining, recording and measuring dropout, repetition, and enrolment at the school level could lead to early detection of children who may be at-risk of dropping out, and could allow for much more timely follow-up. It could also lead to better educational statistics ensuring the MINEDUC is able to react to accurate data. This would require MINEDUC to shift towards a broader definition of dropout, taking into account not only whether a child is enrolled or not, but also, how consistently this child attends school throughout the year.
- **Clarify and standardize the rules governing repetition and tracking of attendance, dropout, repetition, and enrolment at the school-level:** Based on the revised definitions proposed above, a new policy on dropout and repetition would put in place clear rules about the conditions in which a child should be required to repeat a class and the conditions in which a child should be counted as a dropout. The policy should be precise, for example, stating the number of required days of attendance each year, and any cases of exceptions to the rules.

7.3 Improvement of systems for collecting, managing, analysing, and monitoring education data, including data on repetition and dropout

In order to provide relevant and accurate information to policymakers and school administrators, the national policy proposed above should lead to a plan to provide more timely and accurate data on the situation of the education sector and, in particular, of repetition and dropout. It should also provide information on progress towards achieving targets and objectives, as well as facilitate information sharing and coordination between all relevant institutions in the education sector. To that end, the following is recommended:

- **At both the national and school levels, strengthen overall educational data input and information management systems, from the Ministry and all the way down to the school level:** Improvements

should be made to enable the system to: (i) provide more accurate and timely statistics on dropout and repetition; and (ii) provide real-time information about these issues to school administrators. Significant improvements to data management and information systems will be needed in order for MINEDUC to collect, record, preserve, analyze and use educational data on repetition and dropout. MINEDUC should aim to first improve existing monitoring systems through simple quality control measures by:

- **Improving data management systems for the existing Education Management Information System (EMIS):** The current structure of the EMIS data does not allow for any school-level analysis and makes quality control of statistics derived from it very difficult to manage from one year to the next. This can lead to errors and inconsistencies across years in measures of repetition, promotion, dropout, etc. Steps that can be taken to improve data management systems in the short-run include:
 - **Revamping data management, by creating a master database, which includes all schools and all variables by year:** Currently, EMIS data is scattered through many different files, and school-level information is not consolidated in a single database. This greatly reduces the amount of information that can be extracted and the dimensions of analysis that can be performed by MINEDUC on this data.³
 - **Ensuring calculations of promotion, repetition and dropout rates are based not only on information provided by schools in one year, but a comparison of information across years:** This would be more consistent with the definitions of dropout, repetition and promotion that MINEDUC currently uses. At the moment these calculations are done using information from one year only.
 - **Increasing the frequency of reporting of key statistics to once-per term, improve data collection processes and technologies, and automate the analysis using a structured dataset, so that results can be produced and shared much more rapidly and at a much more disaggregated level.** Currently there are lengthy delays between when the data is collected and when the data is reported, which makes it difficult to use pro-actively in decision making.
- **Investing in migrating the current EMIS onto a professional IT platform for better information management:** This can provide policymakers at the national and local level, as well as administrators at the sector and school level with the necessary information, in a timely manner, to address policy and administrative issues related to dropout and repetition. Among these is the capacity to identify and track children who are at risk of dropping out.

³ Laterite has developed such a database for MINEDUC using a subset of information from EMIS, which can serve as an example for what can be achieved with better data management.

- **Coordinate with other Government agencies to provide each school and each child with a unique identification number:** This number should be used across all the education system and across Ministries in the Social Cluster. This would enable MINEDUC and other relevant stakeholders to track progress in each school, as well as follow individual children as they progress through the system and when they change schools, and allow the Government of Rwanda to target policies to address the issues of dropout and repetition more directly and in a concerted way across Ministries.
- **Introduce additional metrics related to dropout:** Currently national statistics account for drop-out but, do not take into account dropout during the school year, and do not take into consideration re-entry dynamics. MINEDUC should consider to:
 - **Introduce a measure of re-entry:** There is no mechanism to account for children who have dropped-out, but then re-enter the education system. The result of this is that the current measure of dropout used is in fact the difference between dropout and drop-in (or re-entry). Introducing a measure of re-entry would contribute to fixing this problem, and provide a more detailed view of the flows into and out of the education system.
 - **Introduce a measure of dropout during the year:** The current definition considers dropout only from one year to the next. This can lead to an under-estimation of dropout rates, as this does not include children that are enrolled but never attend or leave midway through the year, and enroll in school the next year (without repeating grade).⁴
- **Ensure consistent monitoring and reporting procedures for school attendance are in place in all schools and that attendance data is reported to and aggregated at national level:** This data should feed a national database that allows for real-time tracking of attendance and for analysis and reporting of trends in attendance.

7.4 Improvement of systems for identifying and monitoring children at-risk of repetition and/or dropout

Given the results of the study, simple measures can be taken to develop tools that aid educators in identifying and monitoring children who are at risk or repetition and/or dropout. The following activity, therefore, is recommended:

- **Develop a scorecard that can be used by schools to identify at-risk children who are likely to repeat a year or drop out of school:** Schools lack formal systems and tools to help them identify, prioritize and proactively address cases of children at risk of repetition or dropout. Tools can be developed that

⁴ Under the current definition of dropout rates used by MINEDUC, these children are de facto included as promoted, and thus, leads to an underestimation of dropout rates. Children who drop out of school during the school year would typically be classified as either having dropped out, repeated (if when enrolling they are forced to repeat grade), or having been promoted. However, in this last case, classifying them as having been promoted masks the fact that they were out of school for a considerable amount of time during the school year.

identify child-level risk-factors for repetition and dropout; such tools call attention to children who need additional support and intervention in order to prevent dropout. For example, a scorecard, with a simple set of 5 to 15 questions, can be an effective tool that school administrators and teachers can use to identify children at-risk of repeating grade or dropping-out. Such a scorecard could be developed using reliable data on trends around repetition and dropout in Rwanda and could help identify key variable sets that provide accurate classifications of children who may be at risk of repeating or dropping out.

And, to ensure systematic support for these children, it is recommended to:

- **Develop a Referral Pathway for Children with special education needs:** A national-level system for referral should be developed whereby when a teacher suspects a child has special education needs the child can be systematically referred to the appropriate social sector worker or service for identification and treatment. Currently social services are available but, have low uptake rates by families and particularly amongst adolescents. Providing a systematic system from school to the other social sector services can help to provide struggling girls and boys with the services they require, particularly in the case of children with disabilities and children facing extreme difficulties in their households.

Improve Supply-Side Barriers, through the:

7.5 Launch of a national programme with targeted interventions to reduce dropout and repetition

To address some of the key determinants of dropout and repetition, MINEDUC should design a national programme aimed at reducing dropout and repetition. This programme should lay out a portfolio of targeted interventions to address the key drivers and determinants of dropout and repetition identified in this study. The programme would be a key pillar of the implementation of the national policy on repetition and dropout and should seek to:

- **Implement targeted learning support programmes for at-risk children who are likely to repeat or drop-out:** Many children entering Primary 6 have yet to fully assimilate the basic literacy and numeracy skills of previous grades. Likewise, the issues of school readiness and the shortcomings in learning identified in previous Chapters are important determinants of repetition, particularly – but not exclusively – in the early grades of primary school. Remedial learning interventions can be targeted directly at children at-risk of dropping out or repeating to help them catch up to their peers and achieve a level of academic performance that prevents them from repeating and thus from dropping out. Such remedial interventions can be delivered by school teachers to small groups of students in core subjects during extracurricular hours.

- **Develop a programme to deploy Community Education Workers in each village:** In many cases, girls and boys at risk of dropping out school require interventions that are difficult for schools to manage within their current envelope of resources. Appointing Community Education Workers in each village can help provide an additional village-level resource to provide direct support to individual students and families based on their specific needs and to help connect families to existing social services. This is a strategy that has already been successfully tried and tested in Rwanda by the Ministry of Health and LODA.
- **Consider geographically targeted interventions, especially for the urban poor:** While dropout and repetition rates have been historically highest in rural areas – with the gap reducing in recent years, one demographic group that is vulnerable to dropout and repetition, and is growing, is low-income households in urban areas. As urbanization levels in Rwanda rise, the number of urban poor children who drop out is expected to rise. There is a need to draw specific policies that target this sub-group to help reduce the direct and opportunity costs for these children, which tend to be higher than those faced by children living in rural communities.

7.6 Introduction of interventions to target remaining gender barriers in education for boys and girls, particularly among the poorest families

As presented above, gender barriers continue to impact boys' and girls' education. At primary school age, boys are more likely to repeat and dropout, however around age 14 the dropout rate for girls surpasses that of boys and girls become more likely to not be enrolled in school. It is recommended to:

- **Launch a national communications campaign to raise awareness on gender issues in education:** A national communications initiative to improve understanding among local education officials and in communities and families about the persisting gender barriers can increase support in the home for girls' and boys' learning. Such a campaign should aim to: (i) raise awareness and self-efficacy among girls and boys to make positive decisions around education; (ii) increase parents' participation in and support for girls' and boys' education; (iii) improve support and encouragement for education among community members; and, (iv) improve knowledge of remaining gender barriers in education among government officials.
- **Improve teachers' skills around gender sensitive pedagogy:** Increasing teachers' ability to respond to girls' and boys' learning needs in the classroom and their ability to respond to gender issues in and around schools can improve learning for boys and girls and reduce dropout and repetition.
- **Increase coordination between schools and social services through stronger referral protocols:** Many girls and boys face extenuating family difficulties, such as the loss of a parent or domestic violence in the household, that have a detrimental impact on their education. Having stronger

community- or school-level protocols to connect those girls and boys to social services may help to alleviate gender barriers.

7.7 Increase of access to pre-primary education for improved school readiness for all children in Rwanda to mitigate repetition

The first years in the educational trajectories of children in Rwanda are fundamental in determining their future progression through the education system. As has been shown in this report, late entry into the education system, repetition and dropout are inter-linked in a dynamic way from the very start of a child's education. The importance of addressing late entry and repetition in the early grades of primary school – particularly in Primary 1 – cannot be overstated as a pre-emptive measure to reduce future dropout and improve the efficiency in the education system in Rwanda.

Starting school late is a strong predictor of future dropout, with late starters less likely to transition from Primary to Secondary school; whereas, early start has a positive effect on survival rates at later stages of a child's education. To address these issues, the following set of policy actions are proposed:

- **Take steps to promote on-time entry – at age 7 – into Primary 1:** A key insight from this report is that getting children into the system on-time can increase their chances of learning and maximize their time in the education system. By focusing on reducing late entry, children will not start at a disadvantage and can build the necessary foundational skills at the appropriate age. The importance of on-time entry as it relates to child development and future educational outcomes should be communicated both at the school level to Head Teachers and their staff, as well as at the community level through village leaders or community health workers to parents of young children.
- **Take steps to bring late-starters into the system and provide targeted remedial support:** It is clear that delayed entry has long term consequences on children's trajectory in the educational system. As such, it is important to make efforts to bring out-of-school children into the system as quickly as possible. Any policy to address out-of-school children of primary school age or late-starters needs to consider the age and gender of these children. Specifically, the data seems to suggest that interventions should target the youngest children (ages 7-8) of both sexes, and place an emphasis on boys past the age of 9, as these specific subgroups of children who have never attended school, seem particularly at risk. Moreover, policies targeting late-entry should focus on the poorest households and communities as poverty is one of the key drivers of late entry.
- **Encourage the expansion of formal/informal pre-primary, and strengthen early childhood education, specifically in rural and low-income areas, as a way to improve school readiness:** Evidence shows that a very high proportion of children repeat Primary 1 in their first year of education and a key factor is their lack of school readiness. Most low-income and rural households do not send their children to pre-primary schools, where children could benefit from entering the education

system earlier and have more chances of succeeding. MINEDUC should accelerate efforts to ensure that all Rwandan children are afforded a minimum of 1-year of pre-primary education. The long-term aim should be to ensure that all students are enrolled in a 3-year cycle of pre-primary education to increase the levels of school readiness in primary school. Effective grassroots awareness campaigns about the impact of pre-primary on the school readiness and socio-emotional development of their children should be implemented together with the roll-out of new initiatives aiming to expand access to pre-primary education. Similarly, reducing costs of early childhood education for households, through ensuring pre-primary teachers are placed on the government payroll and providing per capita financing at the pre-primary level would be important to ensure that low-income households – particularly in rural communities – can access these services.

- **Strengthen the collaboration amongst ministries in the Social Cluster⁵ to promote school readiness and early childhood development:** MINEDUC should work with other ministries in the Social Cluster to promote early childhood development interventions to improve school readiness; for example, reducing stunting (MINISANTE), and promoting and continuing early childhood development (MIGEPROF).

Improve Demand-Side Barriers, through the:

7.8 Increase of household support for and parental engagement in education

Parental involvement and the home environment are important correlates of repetition and dropout. As we have seen, children from households where both parents assist with homework are at lower risk of repeating or dropping out. Promoting parental engagement in creating a home environment conducive to learning is an important strategy to address repetition and dropout. As we have seen, young children from households with higher levels of parental involvement and who are more engaged in their children’s education tend to do much better in their first years in school. The education of parents seems to be an important factor that helps promote a home environment more conducive to learning. While little can be done to increase parental education, we recommend testing interventions that can help parents – particularly those from low-income households – to create more conducive home environments for learning. MINEDUC should consider developing programmes that:

- **Inform and sensitize parents on the importance of being actively involved in the education of their children:** Parents may sometimes not be fully aware of the importance of their engagement in the education of their children. Informing parents – particularly fathers – about the benefits of their active involvement in the education of their children can potentially increase parental engagement in the education of their children. Communications campaigns to inform parents about clear strategies they

⁵ The Social Cluster is a working group of high-level ministry officials from MINEDUC, Ministry of Health (MINISANTE), Ministry of Local Government (MINALOC), Ministry of Gender and Family Protection (MIGEPROF), Ministry of Youth, Ministry of Sports and Culture, and the Local Administrative Entities Development Agency (LODA) set up to increase coordination among ministries and government agencies in charge of social issues (e.g. education, health, etc.).

can use to improve their children’s learning in school could help to increase household support for studies, particularly concerning the reduction in domestic tasks.

- **Provide support mechanisms to uneducated parents that can enable them to assist their children with their school work:** The education of parents is an important correlate of dropout and repetition; children from households with more educated parents are less likely to repeat or dropout. While changing parent’s education status is hard, school- and community-level policies and mechanisms to help uneducated parents assist their children in their school work could have positive impacts on learning and thus, reduce repetition and dropout.
- **Strengthen parent-teacher associations:** Provide programmes and sensitization for parents and community members to actively engage and volunteer in their children’s schools. The extra support will provide a strengthened link between household and school; will encourage the development of the school; and provide support to teachers.
- **Raise awareness on the children and their right to education:** Parents and community members should be made aware of the rights of children, especially those with disabilities, to an education and their role as duty-bearers in ensuring that they are enrolled and participate accordingly in the education system.

7.9 Re-evaluation of the policy on Primary 6 examination and its implications for students who do not perform well

Repetition rates in Primary 5 are unusually high compared to all other primary school grades, except for Primary 1. This holds true regardless of whether we look at children in the 7 to 12 age group or the 13 to 18 age group. Unlike repetition in Primary 1, which is linked to low levels of learning and school readiness, repetition in Primary 5 seems to be mostly driven by strategic decisions by children, parents and/or schools, because of the Primary 6 national examination.

The Primary 6 national examination puts considerable pressure on children, parents, and school teachers and administrators. Given the high stakes around the Primary 6 national examination, children are incentivized to repeat Primary 5, and schools to increase repetition rates in that same grade. Teachers and school administrators also have clear incentives to increase repetition rates in Primary 5, to increase the school’s pass rate in the Primary School Leaving Examination. These incentives are sometimes formalized in teachers’ and head teachers’ *imihigo* contracts, creating even stronger motivations to increase repetition rates in Primary 5 in their schools. To address these issues, it is proposed to:

- **Reduce the stakes of the Primary 6 national examination by not using it as a national allocation mechanism for secondary schools:** The Primary 6 examination is logistically and financially burdensome to implement and, in its current form, is not an accurate barometer of whether children are meeting learning expectations in Primary 6. The cost of the examination is further augmented by

the very large cost to the education system of high repetition in Primary 5. Finally, the Primary 6 examination cements the existing learning gap between urban and rural areas, and low- and higher-income families, by ensuring that the best performers (who are much more likely to live in urban areas and come from better-off households) are also the children that make it to the best secondary schools. Instead, the examination can be utilized as a placement test, allowing options for further education for under-performing students (including TVET and non-formal education options).

Improve Quality-Side Barriers, through the:

7.10 Increase of the capacity of primary school teachers for improved quality of education

MINEDUC should prioritize the professional development of primary education teachers. High repetition rates, and evidence of low learning outcomes, even after repetition, signal challenges related to quality of teaching, particularly, but not exclusively, in early grades. In addition to improving the resources available to teachers and lowering their work load through improved teacher-to-pupil ratios, it would be beneficial to strengthen professional development opportunities for primary school teachers and improving their quality by:

- **Providing teachers with opportunities for capacity development and in-service training to increase the quality of teaching and address learning issues and teaching practices in the classroom:** Teachers should be equipped with the necessary pedagogical tools to deliver the competency-based curriculum in large class settings, in a child-centered approach.
- **Promoting Inclusive Education:** Children with certain types of disabilities have a higher likelihood of repeating, dropping-out or, at times, being allowed to go through the system without learning.⁶ Teachers should have the capacity to identify children with special education needs, and then refer them to the necessary social service worker for identification and treatment, as necessary. Teachers should also have training and capacity to plan and deliver inclusive education, which meets the needs of all students.
- **Implementing programmes to support teachers in the transition to English instruction in upper primary education:** Currently, English serves as the main language of instruction from Primary 4 on. Children struggle with English literacy, even at the Primary 6 level. Many children who dropout (and repeat in Primary 5) do not have the most basic English literacy skills. Qualitative evidence suggests that many teachers also do not have the requisite skills to teach English at that level. Therefore, it is recommended that further programming be implemented to strengthen teachers' capacity in English-language instruction.

⁶ Teachers who participated in FGDs mentioned that children who have a known disability are many times promoted automatically as teachers consider that these children are not capable of learning much.

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A.1. Annex 1: Administrative Structure of Rwanda's Education system

This annex provides a detailed view of the administrative mechanisms surrounding dropout and repetition. The administrative context is vital for deciding on and communicating education sector priorities and targets, delegating roles and responsibilities to different actors and developing effective monitoring and reporting systems. This section is comprised of two subsections: i) targets and objectives and ii) definition, monitoring and reporting. Note due to small sample sizes, school level analysis of administrative mechanisms focuses on schools offering primary classes only.

A.1.1 Targets and Objectives: National-level targets on repetition and dropout in basic education in Rwanda

The current focus of the education sector is outlined in the 2013-2018 Education Sector Strategic Plan (ESSP 2013/14-2017/18). This strategy focuses on three key targets: i) expanding equitable access to education, in particular in secondary school; ii) improving the quality of education; and iii) increasing the relevance of Rwanda's education system. The first goal of expanding access beyond primary school is emphasized in the new 12-Year-Basic Education Policy which is currently being rolled out. Much progress has already been recorded for reaching almost Universal Basic Education in primary schools in Rwanda. The ESSP outlines a focus now on the key strategic objectives of improving "quality", "relevance" and "equity". These goals of improving quality and relevance were behind the recent curriculum reform that consists of a new competency-based curriculum which began rolling out in 2016. This new curriculum focuses on skills that are relevant to the labour market.

The ESSP is the policy document that provides the overarching targets and objectives for the education sector over a 5-year period. The targets of the ESSP are also underpinned by those of the Second Economic Development and Poverty Reduction Strategy (EDPRS II) and are further reinforced by individual topic specific education policies such as the Girls Education Policy (2008), the ICT in Education Policy (2008, revised 2016), the Special Needs Education Policy (2008), the Early Childhood Development Policy and Strategic Plan (2011) and the Teacher Development and Management Policy (revised 2011).

Figure A.1.1 gives a breakdown of the current ESSP targets relating specifically to primary education. These targets are displayed in the table based on whether they focus on: i) underlying dynamic processes of the system (enrolment, promotion, transition etc.), ii) resource coverage or iii) quality of learning. We see that many of these

targets are resource-oriented, focussed on basic input ratios and the coverage of other resources within primary schools. The focus of the ESSP appears to be outcome-driven surrounding what is to be achieved, without sufficient attention on i) the processes by which these outcomes will be realised or ii) how the underlying process changes, that achieving these outcomes will bring about, interact with each other. That is not to say that the ESSP doesn't discuss the possibility of trade-offs between outcomes- for instance it does cover how the temporary double shifting policy will prioritise access and class size while reducing contact time per pupil- but these discussions are limited and cover very few of the target outcomes.

Table A.1.1 Overview of the ESSP 2017/18 targets specific to primary education

Target Type	Outcome Indicator	2017/18 Target
Process-oriented	GER	100%
	NER	100%
	Completion	75%
	Transition	89%
	Repetition	7.70%
	Dropout	5.70%
Resource-oriented	% primary schools with internet connectivity	10.1%
	% primary schools with required science facilities (science kits / corners)	61% (kits), 16.3% (corner)
	% of primary schools with access to:	
	- Electricity	70%
	- Alternative energy sources (solar, biogas etc)	30%
	- Water	100%
	Pupil : Classroom ratio	83:1
	Primary pupils per class	40:1
	Primary pupil: textbook ratio	1.7
	% schools with functioning libraries	85.9%
	pupil: qualified teacher ratio	48:1
	Primary teacher attrition rate	1.8%
	% head teachers trained and school managers trained annually	50%
% primary schools with a functional PTA	99%	
Total number of PTAs	5,204	
Quality-oriented	% students meeting minimum standards in English (E), Kinyarwanda (K) and maths (M) in P3, P5	90% (P3 K), 90% (P3 M) 90% (P5 K), 90% (P5 M) 70% (P5 E)
	% teachers meeting the independent level (B1 and above) of English proficiency (primary, secondary)	70%

As can be seen in Figure A.1.1, the Education Sector Strategic Plan lays out targets for reducing both dropout and repetition. In the current ESSP, the Ministry of Education has made ambitious goals on reducing both dropout and repetition rates in primary schools to 5.7% and 7.7% respectively by 2017,

prioritizing them on both educational and fiscal grounds. Describing the motivation behind these targets, the ESSP highlights the inefficiencies that come when the budget needs to account for students completing the same year of education multiple times. The ESSP aims to achieve reductions in events of dropout and repetition using broad interventions focussed on improving the quality of education received.

A.1.2 Mechanisms for communicating targets from the central to the local level

Targets set at the central level can only be realised with effective communication and implementation at the decentralised levels, through the district, sector, cell and village authorities as well as to members of the public such as parents. There are several ways in which the Ministry of Education relays the ESSP targets to local actors.

A.1.2.1 Ministerial Orders

The Ministry of Education sets out rules and regulations in the form of Ministerial Orders. These orders cover the responsibilities and code of conduct of different actors in the education system (head-teachers, teachers, parents, students, local authorities etc.). Table A.1.2, as an example, outlines recent ministerial orders surrounding out-of-school children.

Table A.1.2 Recent Ministerial Orders and Laws pertaining to out-of-school children

Laws and Orders	Purpose	Relevant Articles
Ministerial Order No. 001/2016 of 08/01/2016	Providing sanctions against parents who do not send their children to school and against other persons who employ children in work preventing them from going to or encouraging them to drop out of school.	<i>Article 2:</i> A parent or guardian who does not send his/her child to school while the child has reached the required age to start primary school, shall be sanctioned by a reprimand in a meeting of the Village in which he/she resides and be ordered to send the child to school. In case a parent or a guardian prevents the child from continuing his/her education, the parent or guardian shall be summoned to school to receive explanations on the importance of education and is obliged to bring the child back to school. When a parent or a guardian does not bring the child back to school, the school authorities shall appeal to the Cell authorities where the child lives in order to bring the child back to school.
		<i>Article 3:</i> Anyone who engages a child into work that prevent him/her from going to school or encourages him/her to drop out of school shall be dealt with by the authorized bodies in

Laws and Orders	Purpose	Relevant Articles
		<p>accordance with the law and the child will be brought back to school by the Cell authorities.</p> <p><i>Article 4:</i> Any person who is indirectly or directly involved in acts that prevent a child from starting studies or encourages him/her to drop out of school or prevents him/her from continuing school education, shall be sanctioned by a censure at a meeting of the Cell of his/her residence and the child shall be brought back to school by the authorities of the Cell. A teacher or other person responsible for education, who illegally, does not admit a child to school or prevents him/her from continuing school education shall be subject to administrative sanctions in accordance with his/her status and the child shall be brought back to school by the authorities of the Cell.</p>
<p>Ministerial Order N° 003/2016 OF 08/01/2016</p>	<p>Determining general rules governing pre-primary, primary and secondary schools and functioning of school general assembly and its subsidiary organs.</p>	<p><i>Article 12:</i> Modalities for promotions, repetition, dismissal and transfers in pre-primary, primary and secondary schools shall be determined by an instruction of the Minister in charge of education.</p>
<p>Law No. 32/2016 of 28/08/2016</p>	<p>Law governing persons and family.</p>	<p><i>Article 203:</i> By marriage, spouses are obliged to cater for and educate their children based on Rwandan cultural values. If one of the spouses does not comply with this obligation, the other spouse or any interested person may file a lawsuit against him/her.</p>

These Ministerial Orders are shared widely across stakeholders. Firstly, they are shared between professionals at different hierarchical levels of the system e.g. from central government offices to district offices, from there to the sector offices and to the cell/village and school level authorities. MINEDUC's Guide for the Administration of Primary Schools (2010) indicates that all schools should have in place "a file containing laws, directives and decrees, laws of education, school calendar, deliberation, discipline, statute of promoter's association, official newspapers" etc. Secondly, Ministerial Orders can be spread widely via the media. The media is also key for communicating government priorities to the general public. For example, the issue of reducing dropout rates was covered during the National Leadership Retreat in March 2016 and highly publicised in the media at the time.

A.1.2.2 Decentralised Education Services

As we have noted, Ministerial Orders cover the roles, responsibilities and code of conduct of the various actors in the education system. Here it is worth discussing the decentralised structure of this system. Decentralisation of education services allows for more ownership at the local level and for quicker, more efficient and adaptable responses to local needs in comparison to a centralised system. Decentralisation has been a key component of government policy since the National Decentralisation Policy was adopted in 2001. The National Decentralisation Policy was revised by the Ministry of Local Government in 2012 in an effort to re-energise decentralisation efforts.

The role of District Education Officer (DEO) was created in 2006. The DEO's duties include providing technical advice to the district government, planning and budgeting education activities within the district, recruiting and deploying qualified teachers and procuring textbooks, assessing implementation of education policy and providing all education statistics including those on which funding for teacher salaries and capitation grants rely. The DEO's report directly to the District Mayors and the plans and budgets they develop are reviewed by the District Education Committees which are chaired by the Mayor or the Vice-Mayor for social affairs.

Furthermore, the role of Sector Education Officer (SEO) was created in 2011 when it was realised that the DEO required more support to be able to provide oversight at the school level- to put this decision in context we find that a district has, on average, 90 primary and 50 secondary schools. The Sector Education Officer assists the districts by providing a link between schools and district government. The SEO can provide oversight and supervision at the school level interacting directly with head-teachers. The SEO reports to the Sector Executive Secretary who, in turn, reports to the District Mayor. Both DEO's and SEO's sign performance contracts under Imihigo (discussed below).

At the cell level a Cell Council is in place which encompasses all adult residents of a cell. The Cell Council meets to identify and discuss priorities for the cell and takes decisions regarding problems that are being faced. The Cell Executive Committee is composed of 10 elected members whose role is to align community development with policy orientation and provide technical advice for the implementation of Cell Council decisions (this is achieved via the Community Development Committee, who design development plans, mobilize resources and oversee plan implementation). This community level administration allows all residents to become involved in the decision-making process.

At the village level, village leaders are elected volunteers whose role is to identify and address the problems, priorities and needs of people at the grassroots level. The village also has a community education volunteer who monitors education activities in the village, including school attendance of all children. Community education volunteers follow up with households where children are reported as not attending school. The community education volunteers have the duty to report parents who are found responsible for their children's school absence and individuals who involve children in

child labour. Community education volunteers also have the duty to assist families in seeking further support for cases of out-of-school children where it is needed (e.g. children with disabilities).

An example of the impact that harnessing local authorities at the grassroots level for communicating the importance of education is illustrated with the program “Mubyeyi, Tera Intambwe!” or “Parents, Step In!” funded by the DFID’s Innovation for Education program. This project, developed in 2012, involved working closely with the community education volunteers who undertook village meetings and home visits to discuss factors that influence dropout choices and sensitised children and parents to dropout mitigation strategies. Community education volunteers worked with partner organisations, such as Radio Rwanda to run a community awareness and sensitisation campaign.

A more recent campaign by the National Commission for Children (NCC) undertaken in May-June 2017 aimed to increase awareness of the importance of raising children in a family unit and included community participatory discussions on the prevention of child labour and school dropout. This campaign was undertaken as part of the Tubarere Mu Muryango program initiated by the NCC and UNICEF in 2012. This program puts in place two community volunteers per village known as “Inshuti z’Umuryango” (Friends of Family). These volunteers are chosen in meetings by members of the community. Their role is to prevent, protect and respond to child protection issues in their villages.

The decentralisation of education services in Rwanda puts in place actors at all levels of the system who are vital for communicating education sector priorities and targets, implementing interventions aimed to reach these targets, monitoring and reporting on progress.

A.1.2.3 Imihigo Contracts

Targets set in Imihigo contracts reflect the goals and priorities of the sector and are another method for communicating, encouraging and enforcing targets from central to local actors.

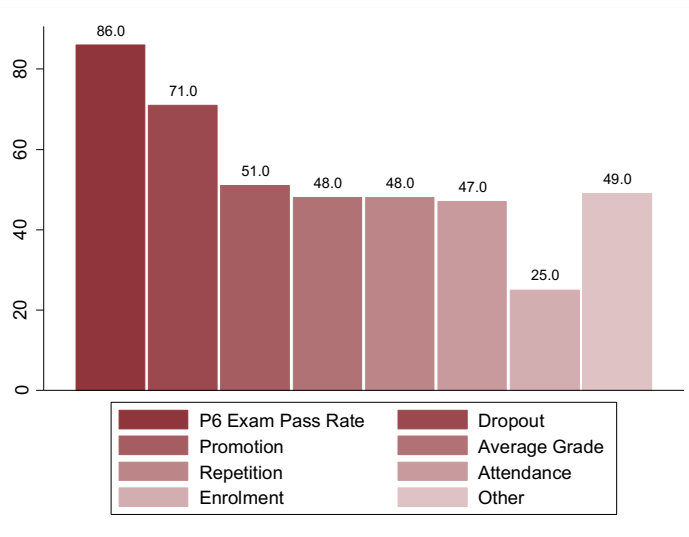
Imihigo is a performance based contract system and planning tool containing targets for civil servants that have been an important part of Rwanda’s development since 2006. Initially rolled out to District Mayors as an accountability tool post-decentralisation, Imihigo contracts are now signed by high level actors across all ministries and public institutions as well as authorities at the provincial, sector and cell level. Imihigo contracts were rolled out for head-teachers for the first time in 2016. What goes into an Imihigo contract is decided through a consultative process at the local government level however it is required by the central government that the targets chosen: i) align with national priorities, and ii) are ambitious in that they must focus on goals that have yet to be reached. Mechanisms to encourage public servants to achieve the Imihigo targets come in the form of incentives (bonus payments for those who score highly on their annual Imihigo performance assessments) and disincentives (dismissal from their position for those who score below 60% on the assessments).

At the school level, performance-based contracts are signed by teachers and head-teachers. As such, these contracts provide a tool that could be used to focus school staff to meet the policy targets such as the reduction in repetition and dropout rates.

In 2016, Imihigo contracts are almost universally in place in primary schools that are public and government aided. We find that 87% of the head-teachers in schools surveyed have signed Imihigo contracts and these contracts are much more common for head-teachers of public and government-aided schools (91.1% and 92.6%, respectively) compared to head-teachers of private schools (54.8%).

The most common target included in Imihigo contracts is a minimum for the Primary 6 National Examination pass rate. This suggests that head-teachers perceive the P6 pass rate to be the strongest metric to evaluate their own success. Such a focus on the National Examination in Primary 6 is likely to cause stigma around children’s performance in Primary 5, from which schools can predict whether a child is likely to pass the National Exam if taken the following year. This is a likely cause for the high repetition rates we see in this Primary 5. Figure A.1.1 shows the share of Imihigo contracts containing each target type. Within those with a National Examination pass rate target the minimum pass-rate required in a contract was 50% while the highest was 100%. The next most common targets after P6 exam pass rate are dropout rates (70% of Imihigo contracts included them), promotion rates (53%) and repetition rates (49%).

Figure A.1.1 Share of Imihigo contracts including each target type



There is no difference in repetition rates when comparing schools where head teachers have and don’t Imihigo contract targets for promotion rates or repetition rates. Children at schools where the head-teacher had an Imihigo contract that included a target dropout rate recorded higher 2016 dropout rates than children at schools where the head-teacher’s Imihigo contract had no dropout target. This may seem counter-intuitive but potentially indicates that Imihigo contracts are tailored to the unique situation of a school

in terms of what needs to be improved- i.e. schools with identified issues of dropout have these targets imposed upon them.

A.1.2.4 School Inspections

School inspectors represent another direct link between schools and the central government. The Education Quality and Standards Department at REB recruits, trains and oversees school inspectors. The quality standards for inspections were outlined in the Rwandan Education Quality Standards 2008 and are underpinned by the UN's guidelines on Child Friendly schools. Additionally, REB publishes a procedures manual for education quality and standards. Inspections are useful for two reasons: i) to supervise and monitor progress towards education targets and ii) to provide a feedback mechanism where information can be shared with central government regarding the on-the-ground situation and with head-teachers regarding how they can improve. The department consists of 3 units: the regional inspection unit, the pedagogical inspection unit and the school construction inspection unit.

Regional school inspectors are active in each of the 5 provinces and are responsible for establishing the quality standards and following up on the implementation of educational policy, programs and official ministerial instruction in all schools excluding TVET and University. Regional Inspectors assess how the administration of schools is conducted and the environment in which teaching and learning is taking place.

The pedagogical inspection unit is responsible for the inspection of quality standards of teaching and learning. The inspectors in this unit focus their reports on inspections of individual teachers and subjects with the aim of identifying problems related to learning resources and examinations as well as teacher quality. The inspectors in the pedagogical unit have a duty to provide feedback and ongoing training, advice and suggestions to teachers to help them to better meet the expected standards of quality.

The school construction inspection unit is responsible for designing standardised plans for education infrastructure, determining the spatial requirements, preparing cost estimates of materials, conducting feasibility studies and budget proposals, and supervising construction works and maintenance activities on school infrastructures (e.g. classroom rehabilitation).

A.2. Overview of Sampling Strategies and Research Instruments

This annex provides some background information about our sampling strategies for quantitative and qualitative data collection. We also provide an overview of our main quantitative surveys and qualitative interview guidelines.

A.2.1. Sampling Strategy for Quantitative Surveys

A.2.1.1. Target Population

The sampling frame for this survey includes all children between the ages of 6 to 18 in 2017, in Rwanda. This means that only households with at least one child between the ages of 6 to 18 would be sampled for the purposes of this study.

A direct implication of using this age range is that this study cannot provide information on the full spectrum of students in Rwanda's basic education system (primary and secondary school). This means that the sample is not representative of students in higher secondary school, considering that about 40% of students enrolled in higher secondary school were above the age of 21 in 2014 according to EICV 4. The study is not capable of providing representative statistics at the grade level for all children in a given grade (due to overaging); rather it provides insights on grade-level dynamics only in so far children aged 6 to 18 are concerned.

While the original target population included all individuals aged 5 to 21, due to budgetary cuts, the age range had to be reduced. Given that children aged 6 to 18 account for the vast majority of children in primary school (above 93% of primary school students according to EICV 4 data), the narrower focus on the 6 to 18 age range was chosen to provide estimates for children in primary school and for children in transition between primary school and secondary school. The proposed approach does not, however provide good estimates for trends in secondary school. This is because, according to EICV 4 data, more than 50% of students in lower secondary school alone were above the age of 17 in 2014 and hence many years overage.

In order to obtain data on children outside the 6 to 18 age range, we collected basic schooling data on all children living in the sampled households as part of our household survey.¹ While this will not be entirely representative of children in other

¹ Households were visited twice during field work. First, during field preparation activities, to select and locate participants, and basic information about the households. And, a second time, during the main data collection exercise. As part of the field preparation visit, we included a module of the household survey that included the household roster and basic information about the education status of all household members.

age groups - given that only households with one child between the ages of 6 to 18 will be sampled - it will nevertheless provide a strong indication about the schooling patterns of children outside the target age range

A.2.1.2. Reference Period

The main reference period for this survey was the latest completed school year (i.e. 2016). However, we also collected information on the education status of all children in the sample in 2017, and going back through their full schooling trajectory as well as other variables related to that schooling trajectory.

A.2.1.3. Geographic Coverage

The final sample is representative of the target population at the national and province level. It covers all Provinces and Districts in the country. The final sample size is detailed in Table A.2.1 below.

A.2.1.3. Sample Size and Calculations

We had to rely on a three-stage cluster sampling approach, with stratification at the District and urban/rural levels, targeting a total of 3,600 households in 90 cells and 450 villages. This would, according to our original estimations, result in an estimated 3,600 adult surveys, 9,900 to 10,000 child surveys and 450 village leader surveys. We will also conduct interviews with head teachers in all schools in the 90 sampled cells. This corresponds to an estimated 150 school surveys (most cells have only 1 school, but some have 2 or more).

One of the major complications of opting for a three-stage cluster sampling approach is that it made sample size calculations considerably more complicated, not only because the formulas are significantly more complex and depend on many more parameters, but also because there is a lack of information on the required inputs and parameters for these calculations.

Had we opted for a typical two-stage cluster sampling strategy, it would have been possible to use EICV estimates to test the precision of different potential sampling combinations using standard sample size calculation techniques. This is not possible in the case of a three-stage cluster sample, for the simple reason that EICV - which is the only nationally representative source on the repetition, dropout and promotion rates of children - was based on a two-stage sampling approach. Other publicly available datasets - for example the 2012 Census - also do not provide sufficient information. The 2012 Census only provides data on whether children are in school or not, and whether they are in primary or secondary, but does not specify which grade they are in, whether they have repeated or not, etc. Moreover, the publicly available Census dataset does not provide for village and cell identifiers, which are required for sample size calculations.

Even if sufficient information was available, one of the issues that complicated sample size calculations is that many of the assumptions that underlie the standard formulas did not apply. The inputs into standard sample size calculation formulas,

such as the standard deviation and the intra-cluster-correlation, are based on parametric assumptions of normality. The concept of power itself assumes that the variable of interest is normally distributed. What we observe in the case of repetition, dropout and promotion rates, is that distribution of these rates within Districts does not follow a normal distribution, but rather a skewed distribution that is best modelled using Beta distributions.

To overcome the barriers described above, we opted to use population modelling and Monte Carlo Simulations to compare differences between the alternative sampling strategies that were considered.

The final sample is representative of the target population at the national and province level. It covers all Provinces and Districts

Table A.2.1 Sample Size by Survey Type

Administrative Level	Sample	Survey	Sample Size (n)
District	All Districts	Child Survey	8,122
Cell	90 Cells	Household Survey	3,608
Village	450 Village (5 in each Cell)	School Survey	155
Household	3600 Households (8 per village)	Community Survey	449

A.2.1.4. Sampling Methods

We used random sampling with probability proportional to size to determine the number of cells to select within each stratum (Districts, divided into urban/rural areas). This enabled the research team to better optimize resource allocation and to slightly increase the efficiency of this survey.

This is an atypical sampling strategy in that most nationally representative studies would only use a two-stage cluster sampling approach: randomly selecting villages within each District and then randomly selecting households within each village. By adding a third layer of clustering, the cell, we may have lost some statistical power to estimate dropout and repetition rates with a more precision, but our aim was to obtain a better match between individual and school-level data. Given that about 60% of cells in the country only have one school, but many villages, sampling households from only one village in a cell would have led to an imperfect match between child and school level data in the sample, and low statistical power for each school.

To obtain a better match between schools and child-level data we sampled households from 5 villages within each cell, with 8 household interviews (and about 20 child interviews) per village. This would provide us with about 100 child interviews per village and an estimated 66 per school, a bare minimum considering the diversity of grades that children can be in and the diversity of ages. Our hope was that by adding more resolution at the local level, we could get different kinds of insights and a better understanding of dynamics in the catchment areas of each school. This is particularly important since one of our main research questions evolves around school-level factors. Our strategy had to strike a balance between the competing

objectives of achieving national level representativity and a high degree of precision, sufficient statistical power at the school-level, sufficient survey length in order to study a broad range of hypotheses, as well as budget and logistical considerations.

A.2.2. Sampling Strategy for Qualitative Interviews

A.2.2.1. Semi-Structured Interviews

Table A.2.2 below shows the final sample composition for our SSIs by enrolment status of respondents, thematic area, location, specific educational situation and gender. As can be seen in Table A.2.2, our SSIs covered a wide range of relevant themes, locations and child-specific educational circumstances to provide a wide range of insights into factors related to dropout and repetition.

Table A.2.2 SSI Sample Composition

Current Status	Thematic Area	Location	Specific Situation	Gender
Enrolled (10)	Dropout & re-entry (5)	Rural(5)	Dropped out anytime in primary and Reentered, now in primary	2 Males, 3 Females
		Rural(3)	Repeated in P1 and another grade; still in school	Female
	Repeated P5		Female, Male	
			Male	
Kigali(2)	Female			
	Out of school (13)	Terminal Dropout in Primary (4)	Rural(4)	Repeated during primary and dropped out
Terminal Dropout at Transition (6)	Rural(4)			Dropped out after P6
		Kigali(2)	Dropped out in P4	
Terminal Dropout in Secondary (3)	Kigali(1)			Dropped out in lower secondary
		Rural(2)	Male	
Male				

Total Male	11
Total Female	12
Total Urban (Kigali)	5
Total Rural (Ngoma and Gicumbi)	18

A.2.2.1. Focus Group Discussions

For primary school teachers, we conducted 3 focus group discussion (FGD) - two in the two median districts on the basis of repetition and dropout rates, and the third in Kigali. In Kigali, we selected the district with the worst repetition and dropout rates.

For each of the three districts, we selected a central location – a major city or town – in the district. We then select a sample of 8-10 schools within a radius of 2 hours travel time from that central location. For each school, we asked the head teacher to select a teacher that teaches at a specified level as illustrated in Table A.2.3.

Table A.2.3 Composition of FGDs for Primary School Teachers per location

Composition of Primary school teachers' FGD per location	
🏫 School 1 – P1	🏫 School 6– P1
🏫 School 2 – P5	🏫 School 7– P5
🏫 School 3 – P6	🏫 School 8– P6
🏫 School 4 – P2	🏫 School 9 – P4
🏫 School 5 – P3	🏫 School 10 –P1

Given availability and last-minute cancelations, the final sample differed slightly from our intended sample. Of the 32 primary school teacher who participated in the FGDs, 10 (7 male and 3 female) were from Gicumbi, 15 (8 male and 7 female) from Ngoma, and 7 (3 male and 4 female) from Gasabo, Kigali. The distribution by gender and grade was as follows:

- Primary 1: 3 male and 4 female teachers
- Primary 2: 2 female teachers
- Primary 3: 1 male and 2 female teachers
- Primary 4: 4 male and 2 female teachers
- Primary 5: 3 male and 2 female teachers
- Primary 6: 7 male and 2 female teachers

For secondary school teachers, we had 1 focus group discussion (FGD) for the entire country. The FGD was only held in Kigali's Gasabo district. Kigali was chosen because it has the highest secondary school attendance rates. We selected a central location in the district, and then selected a sample of 8-10 schools within a radius of 2-3 hours travel time. For each school, we asked the head teacher to select a teacher that teaches at a specified level as illustrated in the table below.

Table A.2.4 Composition of FGDs for Secondary School Teachers per location

Composition of secondary school teachers' FGD	
☞ School 1 – S1	☞ School 6– S3
☞ School 2 – S2	☞ School 7– S1
☞ School 3 – S3	☞ School 8– S2
☞ School 4 – S1	☞ School 9 – S3
☞ School 5 – S2	☞ School 10 –S1

Because some selected teachers were not available or a replacement was sent by headteachers at the last minute, the final sample for the secondary school FGD varied slightly from our intended sample. Out of the 8 secondary school teachers who participated in the FGD on secondary schools, 4 were male and 4 were female. Their distribution by grade was as follows:

- Secondary 1: 1 male and 1 female
- Secondary 2: 1 male
- Secondary 3: 1 female
- Secondary 4: 1 male and 1 female
- Secondary 5: 1 female
- Secondary 6: 1 male

A.2.3. Overview of Qualitative Interviews Guidelines

The purpose qualitative research component of the study was to provide complex textual description of how children, parents and teachers experience the phenomena of dropout and repetition in rural and urban contexts. The investigation aimed to explore underlying behaviours, beliefs and opinions, and to identify intangible factors such as social norms and gender roles whose role in dropout and repetition may not be readily apparent or easily measurable by quantitative surveys. With information from qualitative component of the study, the objective was to interpret and better understand the complex reality of dropout and repetition and the implications of the results of quantitative data analysis.

To capture subjective experiences with and interpretation of dropout and repetition, we used semi-structured interviews (SSIs) with children who had repeated a grade or who had dropped out during their school trajectory. For each child selected for the SSIs, we also interviewed her parents. We also ran Focus Group Discussions with teachers from selected primary and secondary school in rural and urban areas. The interview guidelines summarized below were developed in structures that mirror various components of the quantitative part of the study, i.e. the levels of child, household, school and community.

A.2.3.1. Child Semi-Structured Interviews

Our semi-structured interviews with children comprised 5 modules, including three modules (from a to c in the Table A.2.5) exploring a child's personal experience with repetition and/or dropout, and two modules (d and e) on her perceptions about extents and risk factors of repetition and/or dropout in general. Two special modules were also provided, one for children with disabilities, and another one for children who got pregnant during their school trajectory. The main topics discussed under each module are outlined in Table A.2.5 below.

Table A.2.5 Overview of the semi-structured interview guidelines with child

Qualitative interview components and modules
<p>a) Profile</p> <ul style="list-style-type: none"> • Child's family structure, personal educational aspirations and experience with dropout and repetition (in order to double check if his/her actual profile corresponds to data from the quantitative component)
<p>b) General</p> <ul style="list-style-type: none"> • General impression on schooling; and • Perceived general schooling-related challenges faced at home and at school.
<p>c) Personal experience with repetition and/or dropout</p> <ul style="list-style-type: none"> • Child's personal experience at school (e.g. his/her performance in taught lessons, his/her personal impression about learning, teachers' performance, and classroom conditions) and at home (poverty, moving, shocks, etc) particularly during the year of education in which he/she repeated a grade or dropped out of school; • Perceived reasons for dropping out of school or repeating a school year (with a prompt on grade); • Perceived strategy or event that could have prevented the occurrence of repetition and/or dropout during that school year; • Process that led to repetition (including prompts on assessment methods, studying outside class hours, timeline) and/or drop-out (including prompts on timeline, absences, intentions, enrolment) and the main decision-makers; • Personal experience during the out-of-school period (with a prompt on awareness and follow-up by local leaders, main occupation); • Efforts made and perceived challenges faced in relations to re-enrolment after drop-out; and • Personal experience with repeating a grade (with a prompt on over-aging, changes in learning) and/or with re-enrolling at school after a dropout event (re-enrolment process, specific requirements at school and enablers).
<p>d) General impression on dropout and repetition among pupils</p> <ul style="list-style-type: none"> • Hope for personal educational accomplishments; • Perceived extent and risk factors of dropout and re-entry among school children, by gender; and • Perceived extent of repetition and its risk factors, including gender and grade.
<p>e) Perceptions about transition from primary to secondary school</p> <ul style="list-style-type: none"> • Perceived and/or actual challenges related to the transition from primary to secondary school (including prompts on employment, relevance of curriculums and accessibility of secondary schools); and

<ul style="list-style-type: none"> Perceived appropriate strategies to facilitate the transition from primary to secondary schools (including a prompt on introduction of double-shifting in secondary schools).
<p>f) Personal experience with disability</p> <ul style="list-style-type: none"> Absences caused by the disability; Awareness by teachers and classmates, and existence of supportive environment to cope in classroom; Perceived appropriate support to enhance personal learning experience at school and at home; and Perceived extent of disability among school children and disability-related challenges faced during their schooling experience.
<p>g) Personal experience with pregnancy</p> <ul style="list-style-type: none"> Awareness about pregnancy by parents and teachers, their reactions and support; Personal experiences with absence from school and dropout during pregnancy; Actual or planned re-enrolment and re-integration at school after dropout; and General impression of extents of and challenges related to dropout and re-entry among pregnant school girls.

A.2.3.2. Parent Semi-Structured Interviews

Our semi-structured interviews with parents had a thematically similar structure with the SSI with children, outlined above. The only apparent difference was that the SSI with parents did not have the last two special modules on disability and pregnancy. The following table (Table A.2.6) explains the topics explored during each SSI with parents.

Table A.2.6 Overview of the semi-structured interview guidelines with parent

Qualitative interview components and modules
<p>a) Profile</p> <ul style="list-style-type: none"> Family structure, livelihood strategies, and the perceived benefits of children’s education.
<p>b) General information on the child</p> <ul style="list-style-type: none"> Child’s attitude towards schooling and his/her personal motivations; Child’s involvement in household chores; and Brief overview of child’s history of repetition and/or drop-out.
<p>c) Repetition, Dropout, and/or re-entry</p> <ul style="list-style-type: none"> Perceived child’s experience at school (e.g. enjoyment, peer-pressure, teacher friendliness, performance in taught lessons) and at home (doing homework, siblings’ influence, family shocks and poverty) in particular during the year of education in which the child repeated a grade and/or dropped out of school; Perceived reasons why his/her child repeated or dropped out of school (with a prompt on grade); Perceived strategy or event at home or at school that could have prevented his/her child from repeating a grade and/or dropping out of school; Process that led to repetition (timeline, information, and reaction) and/or drop-out (timeline, absences, intentions, enrolment), the main decision-makers and acceptance by parents; Peculiar challenges related to his/her child’s repetition in P1 (with a prompt on child’s school readiness) or in P5 (with a prompt on expected performance at P6 national examination) as perceived by parents in the community;

<ul style="list-style-type: none"> • Child’s experience during the out-of-school period (awareness and follow-up by local leaders, main occupation); and • Efforts and challenges related to re-enrolment after drop-out period.
<p>d) General impression on dropout and re-entry among pupils</p> <ul style="list-style-type: none"> • Hope for his/her children’s educational accomplishments; • Perceived extents and risk factors of dropout and re-entry among school children, by gender; and • Perceived extents of repetition and its risk factors (including a prompt on gender and grade).
<p>e) Perceptions about transition from primary to secondary school:</p> <ul style="list-style-type: none"> • Perceived and/or actual challenges related to the transition from primary to secondary school (including prompts on employment, relevance of curriculums and accessibility to secondary schools); and • Perceived appropriate strategies to facilitate the transition from primary to secondary schools (including a prompt on introduction of double-shifting in secondary schools).

A.2.3.3. Teacher Focus Group Discussions

Focus group discussions with teachers had two components to them: (i) one on repetition; and, (ii) one on drop-out. The following table (Table A.2.7) summarizes the main topics discussed under each component.

Table A.2.7 Overview of the focus group discussion guidelines with teachers

Qualitative interview components and modules
<p>a) Experiences and perceptions about repetition</p> <ul style="list-style-type: none"> • Perceived factors that led to the overall decrease in repetition rates in primary schools nationally in 2015-2016; • Repetition decision-making at school (including prompts on pass marks, notice to the child and parent’s advice); • Perceived risk factors of repetition (with prompts on age, conditions at home and at school); • Perceived effect of gender on repetition rates and risk factors; • Perceived appropriate strategies for decreasing repetition rates; • Impressions about high repetition-risk grades and potential roles of teachers; and • Perceived specific challenges related to repetition in P1, P5, S1 and S5 (with prompts including school readiness, resources availability at schools and national primary and secondary school leaving examinations).
<p>b) Experiences and perceptions about drop-out</p> <ul style="list-style-type: none"> • Existing drop-out determination and tracking mechanisms at school; • Perceived household-specific and school-level risk factors of drop-out (with prompts on family conditions, parental support, lack of school materials, performance at school, class size and reading materials); • Perceived effect of gender on drop-out rates and risk factors (with prompts on age and grade); • Existing criteria for re-entry; • Perceived household-specific and school-level factors of re-entry; • Perceived effect of gender on re-entry rates; • Effectiveness of actual school-level strategies to address drop-out; • Perceived appropriate strategies to prevent dropout at household and school levels; and

- Perceived reasons why many children drop out in P6 (with prompt on children viewing P6 as the terminal point of their education, lack of double-shifting in secondary school and change in parents' attitude when children reach P6).

A.2.4. Overview of Quantitative Survey Instruments

Below we provide a general overview of the main modules and topics covered by the four survey instruments specifically designed for this study: (i) child survey; (ii) household survey; (iii) head teacher survey; and, (iv) community survey.

A.2.4.1 Overview of child survey questionnaire

The child questionnaire was used to collect information from all children aged 6 to 18 years of age in the selected households. It was comprised of 16 modules covering a wide range of topics. A novel feature of this survey was the module that aimed to capture the full schooling trajectory of participants and inquire about reasons behind specific events – such as, for example, instances of drop-out – to gain deeper understanding of dropout and repetition. Table A.2.8 below provides a summary of the main modules and the themes they covered.

Table A.2.8 Overview of the child survey instrument

Quantitative interview modules and sub-modules
a) Child profile <ul style="list-style-type: none"> • Child's particulars (name, age, gender and location)
b) School readiness (if child is 6-7 years old) <ul style="list-style-type: none"> • Pre-primary school attendance; and • International Development and Early Learning Assessment – IDELA (peer relations, emotional awareness, empathy, conflict resolution and self-awareness).
c) Last school attended <ul style="list-style-type: none"> • School attendance (if the child has ever attended school); • Details of last school attended (name, location, boarding/day school); and • Distance from school and mode of transport used.
d) School trajectory (by year of education, till 2017) <ul style="list-style-type: none"> • Enrolment (year and grade); • Late-enrolment (reasons why); • Re-entry/drop-in (decision-makers, enablers and timing);

<ul style="list-style-type: none"> • Change of school (decision-makers and primary motives); • Grade repetition (expectation, reasons why, decision-makers, challenges and benefits); • Performance in school and/or national exams (including P6, S3 and S6 national examinations); and • Drop-out between school years or during school year (decision-makers, primary motives and occupations).
<p>e) EGRA/EGMA assessments</p> <ul style="list-style-type: none"> • Reading comprehension; • Adding numbers; • Subtracting numbers; • Comparing numbers; • Multiplying numbers; and • Dividing numbers;
<p>f) Absence from school</p> <ul style="list-style-type: none"> • Missing school (extent, frequency, motives, decision-makers, follow up)
<p>g) Personal experience at school</p> <ul style="list-style-type: none"> • Learning difficulties; • Behavioural issues; • School feeding; and • Languages of instruction.
<p>h) Double-shifting</p> <ul style="list-style-type: none"> • Switching between morning and afternoon classes; • Preferred shift and reasons; and • Likelihood of missing school based on shift.
<p>i) Support from parents</p> <ul style="list-style-type: none"> • Help with homework at home; • Attitudes towards education and importance attached to schooling; • Parent’s satisfaction with child’s performance at school; and • Parent-teacher communication.
<p>j) Homework and studying</p> <ul style="list-style-type: none"> • Studying or doing homework outside class time; and • Support received at home.

<p>k) Household work</p> <ul style="list-style-type: none"> • Household chores; and • Absence from school caused by household chores.
<p>l) Work outside the household</p> <ul style="list-style-type: none"> • Involvement in paid jobs; and • Absence from school caused by paid jobs.
<p>m) Out-of-school</p> <ul style="list-style-type: none"> • Satisfaction with school before dropping out; • Learning and absence from school before dropping out; • Personal opinion on drop-out; and • Expectations and perceived challenges related to re-entry.
<p>n) Gender</p> <ul style="list-style-type: none"> • Perceived challenges related to menstruation; • Personal experience with pregnancy; • Perceptions about the importance education for girls; and • Perceived peculiar challenges related to girls' or boy's education.
<p>o) Attitudes towards and perceptions about schooling</p> <ul style="list-style-type: none"> • Perceptions about over-aging; • Perceptions about monitoring of individual pupil's performance by teachers; • Perceptions about own ability to perform at school; and • Perceptions about peer pressure.
<p>p) Educational aspirations vs. expectations</p> <ul style="list-style-type: none"> • Level of education aspired to; and • Highest level of education expected to complete.

A.2.4.1 Overview of the household survey questionnaire

The household questionnaire was used to collect information about the household in which children live in. It collected information about family structure, socioeconomic profile of the household, etc. It included modules that aimed at capturing

the learning environment in the household, as well as information about aspirations and educational expectations from parents. Table A.2.9 below provides a summary of the main modules and the themes they covered.

Table A.2.9 Overview of the household survey instrument

Quantitative interview modules and sub-modules
<p>a) Household location and composition</p> <ul style="list-style-type: none"> • Household location; • Household composition roster – for each household member (name, age, gender, marital status, relationship, language spoken and education); • Religion and migration; and • School attendance, by child.
<p>b) Housing</p> <ul style="list-style-type: none"> • Type of housing.
<p>c) Health</p> <ul style="list-style-type: none"> • Food consumption; • Mosquito net usage and incidences of malaria; • Incidences of chronic illness; and • Incidences of disability (physical, sensory, cognitive, behavioural and emotional disabilities);
<p>d) Household assets, expenditures, income and employment</p> <ul style="list-style-type: none"> • Household assets, properties and livestock; • Employment sectors and income generation;
<p>e) Schooling cost</p> <ul style="list-style-type: none"> • Tuition fees; • Private tutor cost; • Transportation cost; • Parent Teacher Committee (PTC) or Association (PTA) and other voluntary contributions; • School feeding cost; • Cost of books, uniforms, bags, stationeries; and • Perceived quality of education.
<p>f) Household shocks and events (droughts, landslides, birth, death, etc.)</p> <ul style="list-style-type: none"> • Events and shocks experienced; and • Events and shocks that affected the ability of children to attend school.
<p>g) Learning environment at home</p> <ul style="list-style-type: none"> • Languages spoken at home; • Availability of reading books at home; • Presence of lights and stationeries for studying at home;

<ul style="list-style-type: none"> • Decision-making of children’s schooling; • PTA/PTC meeting attendance; • Parents’ involvement in their children’s education; • Parent’s perceptions about gender and education; and • Gender-based time allocation between schooling and household chores among children;
<p>h) Attitudes, aspirations and networks</p> <ul style="list-style-type: none"> • Perceptions about the responsibility for children’s performance at school; • Gender-based expectations about the helpfulness of children in the future; • Perceptions about the importance of education; and • Gender-based aspirations vs. expectations towards children’s educational accomplishment and employment;

A.2.4.1 Overview of the head teacher (school) survey questionnaire

The head teacher survey was administered to head teachers in the schools in the cells in our sample. It included detailed information about the type of schools, infrastructure, teaching staff, dropout and repetition incidence in the school, etc. It included 14 modules. Table A.2.10 below provides a summary of the main modules and the themes they covered.

Table A.2.10 Overview of the head teacher (school) survey instrument

Quantitative interview modules and sub-modules
<p>a) School details</p> <ul style="list-style-type: none"> • School location; • Head teacher’s details (gender, age, education level, years of experience); • <i>Imihigo</i> contract targets (enrolment, pass rate in national examinations, repetition rate, dropout rate; and • School type (ownership, rural/urban, grades offered, unisex/mixed).
<p>b) Enrolments, repetition and dropout</p> <ul style="list-style-type: none"> • Number of teachers, by grade; • Enrolment figures, by grade and gender; • Double-shifting and number of classes, by grade; • Repetition, by grade and gender; and • Drop-out, by grade and gender.
<p>c) Class attendance</p> <ul style="list-style-type: none"> • Boarding at school; • Places of origin of most pupils; • Double shifting and student absenteeism; and • Class start time and end time, by shift.

<p>d) Sanitation</p> <ul style="list-style-type: none"> • Unisex/mixed latrines/toilets for pupils and staff; and • Provision of sanitary pads at school.
<p>e) Language of instruction</p> <ul style="list-style-type: none"> • Language of instruction, by level.
<p>f) Over-aging</p> <ul style="list-style-type: none"> • Minimum vs. average enrolment age for pupils starting P1; and • Perceived effect of over-aging on pupil's learning and teacher performance.
<p>g) Staffing</p> <ul style="list-style-type: none"> • Number of teachers, by gender and shift; • Perceived adequacy of staffing and staff turnover problem at school; • Teaching load and teacher absenteeism; and • Accessibility of school by teachers.
<p>h) Community engagement</p> <ul style="list-style-type: none"> • Types of assistance received from local communities; • Collaboration between school administration and officials responsible for social affairs and education; and • Functioning of PTC/PTA.
<p>i) Education/assistance programmes</p> <ul style="list-style-type: none"> • Programmes that active in the school (including school feeding programmes).
<p>j) Pupils' absenteeism</p> <ul style="list-style-type: none"> • Collection, review and communication of pupil's attendance records; • Common patterns and reasons for absence; • Determination of drop-out based on information on absence from school; and • Perceived effect of absenteeism on performance of individual students.
<p>k) Teachers' absenteeism</p> <ul style="list-style-type: none"> • Extents and patterns of teacher absenteeism; and • Perceived problem and consequence of teacher absenteeism.
<p>l) Grade repetition</p> <ul style="list-style-type: none"> • Perceiving extent of repetition issues at school; • Factors affecting repetition decision-making at school; • Rules and regulations governing grade repetition at school; • Main reason why pupils repeat, by grade; • Current mechanism to assist children who have repeated or are at risk of repeating;

<ul style="list-style-type: none"> • Repetition as a consequence of failing to pay tuition and/or other school fees; and • Repetition as a consequence of expected pupil’s performance in national examination (P6, S3 or S6).
<p>m) Dropout</p> <ul style="list-style-type: none"> • Registration at the beginning of the year, attendance and detection of dropout; • High-dropout-risk grades and periods; • Extent of dropout issue at school; • Exclusion of students who fail to pay tuition and other schooling-related fees; • Rates of re-enrolment after drop-out, by gender; • Perceived factors of drop-out at the child, household, school and community levels; • Main drop-out decision-makers; • Main reason for pupils in the school to drop out, by grade; and • Drop-out risk management mechanism at school (prevention, records keeping, communication and follow up).
<p>n) Enrolment and registration</p> <ul style="list-style-type: none"> • Requirements for enrolment at school (for first-time enrollers, continuing students and students who are changing school) • Registration fees; • Information on child’s dropout/repetition experience at registration; • Notification to SEO or DEO when a child drops out of school;

A.2.4.1 Overview of the community survey questionnaire

The community survey was administered to village leaders of all villages in our sample. It included detailed information about the type of community, the socioeconomic profile of the community, mechanisms available to assist schools with cases of dropout, etc. It included 4 modules. Table A.2.11 below provides a summary of the main modules and the themes they covered.

Table A.2.11 Overview of the community survey instrument

Quantitative interview modules and sub-modules
<p>a) Village and leader’s details</p> <ul style="list-style-type: none"> • Village location; • Respondent’s position held in the community and particulars (age, gender and education); and • Population size.
<p>b) Socio-economic characteristics of the community</p> <ul style="list-style-type: none"> • Main sources of employment in the community; • Economic migration; and

<ul style="list-style-type: none">• Access to public services.
<p>c) Education services in the community</p> <ul style="list-style-type: none">• Types of school located in the community (by level and school status);• Community's perceptions about the relative quality of education services offered in the schools;• Perceived extents of school absenteeism, grade repetition and school dropouts in the schools;• Perceived state of facilities (buildings, desks, etc.) in the schools; and• Accessibility of schools in the community.
<p>d) Responsibility for education at the community level</p> <ul style="list-style-type: none">• Assistance for children who repeat grade (from village leaders and/or organizations); and• Assistance for dropouts (from village leaders and/or organizations).