

Dropout and Repetition in the Primary Schools of Ethiopia:

The Financial Cost to the Education System

Summary

Rationale: *Dropout and repetition are both the causes and the results of the poor quality of primary education.*



Three young school age girls working as street vendors. What will be their future?

The dropouts and repeaters consume scarce educational inputs and resources such as teachers, classrooms, textbooks, etc. and as a result contribute to the decline in the quality of education. This decline in the quality of education contributes further to increases in the dropout and repetition. Thus, as long as the phenomena of dropout and repetition persist, attaining improvement in the quality of education will be difficult. Conversely, as long as the quality of the primary education remains low, dropout and repetition will continue to plague the education system.

The phenomena of dropout and repetition debilitate the individual, the school system and the society. The personal sorrow and the sense of failure that dropouts and repeaters feel are intangible costs to the society.

The society pays for repetition and dropout in two different ways. The parents, the community, and the education system invest to meet the cost of children's education.

These investments in a child's education are irretrievable, if the child leaves the education system without attaining the desired goal.

Repetition and dropout increase the cost to the education system to produce a graduate of the primary school. The society also pays for dropouts through reductions in the private and public rates of return on investment in education. One of the justifications for public investment in education, especially in primary education, is that it increases the productivity of the labor, and

thus contributes to the economic growth. Evidence from many parts of the world shows that farmers with at least a threshold level of primary education- four to five years of primary education - are more productive than farmers with no education.

This evidence is especially relevant for Ethiopia as the country pursues value addition to agriculture as one of the key strategies of poverty reduction and economic development. The ability of the citizens, who drop out of primary schools without attaining a threshold level of education, to contribute to improving productivity of the agricultural sector, or for that matter in any other sector, is minimized and the society has nothing much to show for its investment in educating these dropouts for what ever period of time they remain in the schools.

Ethiopian education system suffers immensely from the phenomenon of dropout and repetition. Dropout rates are relatively higher in early grades. National average for grade 1 dropout rate has hovered between 25% and 30%, during the five-year period between 1997/1998 and 2001/2002 school years. In terms of volume of dropouts, in 2001/2002, total number of grade 1 dropouts was greater than total number of dropouts in grades 2, 3, and 4 put together. Despite the automatic promotion policy, repetition persists in the first cycle grades.

The following example gives in indication of the volume of resources consumed by the repeaters which otherwise could have been used for improving the quality of inputs. In 2001/2002 school year, 726,120 students repeated grades 1-7 in Ethiopian primary schools. At a student teacher-ratio of 65:1, the primary education system required 11,170 teachers to provide instruction to these repeaters. At a student-section ratio of 75:1, the repeaters in 2001/2002 occupied 9,680 classrooms. Grade 1-7 repeaters occupied 726,120 chairs and desks, and the education system could have done with 726,120 less sets of textbooks for the students. If there were no repeaters in the education system, the student-teacher ratio could have been lower, the student section-ratio could have been lower, and access to textbooks and student furniture would have been greater.

How much resource do the dropouts and repeaters in the primary schools consume annually in Ethiopia? The answer to this question is important for many reasons. Even for people intimately involved with education, it is difficult to see and feel the magnitude of the wastage of resources created by the twin phenomenon of dropout and repetition. From a policy perspective, an accurate estimation of the volume of resources consumed and therefore wasted by the phenomena of dropout and repetition will provide incentives to policy makers to allocate sufficient additional resources to identify and implement potential interventions to reduce dropout and repetition.

The need for reductions in dropout and repetition rates assumes urgency in Ethiopia as the country aspires to achieve Universal Primary Education by year 2015. The Millennium Development Goals and the Poverty Reduction Strategy of Ethiopia heavily depend on whether the country is able to move towards the realization of the UPE goals. Unless the dropout rates are brought down considerably, close to five percent or below in all primary grades, as soon as possible, the goal of achieving UPE will remain elusive for Ethiopia. The goal of UPE will never be achieved, if the dropout rates continue at the same rate as at present.

Therefore, this study is devoted to estimating the financial cost that the Ethiopian education system is likely to incur, to support the dropouts and repeaters during the fifteen-year period, 2003/2004G.C to 2017/2018 G.C (1996 to 2010 E.C). The target year set by Ethiopia to achieve UPE is 2015/2016 GC or 2008 E.C. Two additional years are included in the calculations to give the education system to adjust for possible slippages in achieving the targets.

Methodology: This study estimates only the financial cost incurred by the primary education system to support the dropouts and repeaters. The economic costs of dropout and repetition to the society are not estimated. Ten categories of financial costs are included in the analysis. These are: (1) Teacher salary, (2) Administrative salary, (3) Non-salary budget expenditure, (4) Teacher development costs, (5) Cost of durables, (6) Capital (school construction) consumed annually per student, (7) Cost of furniture, (8) Cost of textbooks, (9) Direct parental contribution, and (10) Community and school contributions

Unit costs for the above ten expenditure items were calculated separately for the first cycle and the second cycle primary at 2003/2004 ETB prices.

Using an operational definition of Universal Primary Educational (UPE) developed to fit the socio-economic and educational conditions of Ethiopia, projections of enrollment, dropout, and repetition were undertaken for the fifteen-year period, 2003/04 to 2017/18, under three different Projection Scenarios.

Projection Scenario 1 assumed that the reductions in dropout and repetition rates would be achieved by the education system as required in the operational definition to achieve UPE by 2015. The operational definition of UPE for Ethiopia requires that the dropout rate be brought down, annually, at a compounded rate of 25% for grade 1 and at 20% compounded rate for all other primary grades. The repetition rate is to be brought down by 20%, annually, in all primary grades.

Projection Scenario 2 assumed that the dropout and repetition rates would come down only at moderate rates - at 50% of the rates required to achieve UPE as in Projection Scenario 1. Under the Projection Scenario 2, the target year for achieving UPE will be extended well beyond year 2015.

Projection Scenario 3 assumed that there would be no reductions in the dropout and repetition rates and that they would continue unchanged during the entire projection period and will remain at the same levels as in the base year, 2002/03. Ethiopia will never achieve UPE under the Projection Scenario 3. In all three Projection Scenarios, the intake levels into grade 1 were identical throughout the 15-year projection period.

For each of the three Projection Scenarios, the volume of key inputs required were estimated using the minimum quality standards (MQS) set by the MOE and the target years to achieve the MQS. Using these, the total cost of investment for the fifteen-year projection period, for the ten cost elements listed above, were calculated. Weighted, average, per-student expenditures for the first and second cycles were calculated using these data.

Using the weighted per-student expenditure and the projections of dropouts and repeaters, the annual cost incurred by the education system to support the dropout and repeaters was calculated for each of the three Projection Scenarios. In addition, the total annual cost for the fifteen-year projection period was also calculated.

The Study identifies three purposes of primary education relevant to the Ethiopian socio-economic context. The three purposes of primary education considered include: the purpose of primary education as investment in human capital development; the purpose of primary education as obtaining certification; and the purpose of primary education as achieving the goal of universal Primary Education for the country. As the impact of the dropout and repetition vary according to the purpose of education being considered, the costs incurred by the education system to support the dropouts and repeaters to accomplish the three purposes of primary education were also calculated for each of the three Projection Scenarios.

From accumulated research evidence from other parts of the world, the purpose of primary education as human capital development assumes that to achieve sustainable levels of basic skills, an individual should complete at least a threshold level of primary education, estimated to be about four to five years. In the Ethiopian context, for this study, the threshold level of education is taken to be completion of the first cycle primary. If a student leaves the primary school without completing the first cycle, the cost of educating the child until it leaves the education system is accumulated. If the child leaves the primary school after completing the first cycle, but before completing the second cycle, only the cost of supporting the child in the second cycle grade from which it drops out is taken into account.

For the purpose of primary education as certification, this study treats the completion of the first cycle primary as fulfilling the first hurdle and the completion of the second cycle primary as fulfilling of the second hurdle in the certification process. Thus, if a child leaves the education system without completing the first cycle primary, the cost of educating the child is accumulated for the number of years it remains in the school until dropping out. Similarly, if the child drops out of the second cycle without completing grade eight, the cost is accumulated for the number of years the child spends in the second cycle before dropping out.

If the objective of primary education is provision of UPE for all future citizens of the country, the cost of supporting a dropout is calculated by accumulating the cost of educating the child until the grade from which it drops out. For example, if a child drops out of grade 6, the cost of supporting that child until (including) grade 6 will be accumulated.

Major Findings

Table 1 below provides summary of investments in primary education and the total cost likely to be incurred by the education system to support the dropouts and repeaters annually under each of the three Projection Scenarios. Table 1 also provides the volume of financial resources consumed by dropouts and repeaters under each of the three purposes of primary education.

The total cost to the primary education system of Ethiopia under Projection Scenario 1 is estimated to be Birr 100,158,886,161.00. Under this scenario the dropout and repetition rates would be reduced to levels required to achieve UPE by 2015. Of this total cost, Birr 4,040,099,633.00 or 4.03% will be consumed by dropouts and repeaters during the 15-year projection period.

Table 1
Cost of Supporting the Dropouts and Repeaters as a Percentage of the Total Investment
by Projection Scenario and Purpose of Primary Education

Projection Scenario	Total Investment (Birr)	Cost of Supporting Dropouts and Repeaters:				Cost of supporting dropouts and repeaters as a percentage of total investment:			
		Total annual cost of Dropouts and repetition (Birr)	Ed. Objective: Human capital Investment (Birr)	Ed. Objective: Certification (Birr)	Ed. Objective: Achieving UPE (Birr)	Annual Total Cost to Total Investment (%)	Human capital to Total Investment (%)	Certification to Total Investment (%)	UPE to Total Investment (%)
Projection Scenario 1: Reductions in dropout and repetition to achieve UPE	100,158,886,161	4,040,099,633	5,484,755,471	6,559,274,947	9,896,741,799	4.03	5.48	6.55	9.88
Projection Scenario 2: Moderate reductions in dropout and repetition.	88,429,953,930	8,972,993,365	11,949,022,493	14,418,897,028	21,689,476,574	10.15	13.51	16.31	24.53
Projection Scenario 3: No reductions in dropout and repetition.	62,325,812,076	17,078,112,692	22,318,037,085	26,880,336,384	39,594,393,156	27.40	35.81	43.13	63.53

Under Projection Scenario 2, the total cost during the 15-year projection period would amount to Birr 88,429,953,930.00 and the total annual costs consumed by the dropouts and repeaters would amount to Birr 8,972,993,365.00 or 10.15% of the total cost.

Under Projection Scenario 3, the total cost of the primary education will be Birr 62,325,812,076.00 and the costs consumed by dropouts and repeaters will be Birr 17,078,112,692.00 or 27.4% of the total costs during the 15-year period.

If we assume the purpose of primary education as human capital development, and a threshold level of primary education (four years) as essential to achieve sustainable levels of basic skills, then the costs consumed by dropouts and repeaters will mount to Birr 5.48 Billion or 5.48% of the total cost of primary education under Projection Scenario 1. This cost of supporting dropouts and repeaters increases to Birr 11.94 Billion or 13.51% of the total cost of primary education in Projection Scenario 2 and to Birr 22.31 Billion or 35.81% in Projection Scenario 3.

If we consider certification as the purpose of primary education, the education system would incur 6.55% (Birr 6.56 Billion) of the total cost under Projection Scenario 1 and 16.31% (Birr 14.42 Billion) of the total cost in Projection Scenario 2 and 43.13% (Birr 26.88 Billion) of the total cost under Projection Scenario 3 to support the dropouts and repeaters.

As expected, percentage of the total cost of primary education consumed by the dropouts and repeaters are the highest if we consider the purpose of primary education as achieving UPE. During the 15-year projection period, 9.88% (Birr 9.89 Billion) and 24.53% (Birr 21.69 Billion) of the total cost if primary education under Projection Scenarios 1 and 2 respectively will be consumed to support the dropout and repeaters. Under Projection Scenario 3, the percentage of the cost consumed by dropouts and repeaters will go up to 63.53% or Birr 39.59 Billion.

Even worse is the reality that, under Projection Scenario 2, it will prolong the number of years required to achieve UPE far beyond the 15-year projection period. The consequences of this are enormous for the Ethiopian education system in terms of the additional costs required by prolonging the target year for achieving UPE and the loss incurred by the economy of Ethiopia through lost productivity. Under Projection Scenario 3, UPE will never be achieved by Ethiopia.

Analysis and Recommendations: One of the hidden assumptions that runs through all three Projection Scenarios is that the cost of inputs and therefore the quality of the inputs envisaged in the projections of costs will not be sufficient to bring about significant improvements in the quality of education required to achieve the desired levels of reductions in the dropout and repetition rates to achieve UPE. In the projection scenarios and in the cost calculations, only modest improvements in the quantity and quality of inputs are envisaged. As specified in the minimum quality standards employed in the projections, only improvements envisaged are modest reductions in student-section, student-teacher, and student textbook ratios.

How much additional resources should the society pump into the Ethiopian primary education system to improve the quality and therefore to reduce the dropout and repetition rates to the levels required to achieve UPE and to bring greater private and public benefits from the investment in the primary education?

Table 1 provides a range of answers. The value of investments irretrievably lost by the education system, through supporting dropouts and repeaters, ranges from a low of approximately Birr 4.04 Billion to a high of Birr 39.59 Billion. Additional investments, anywhere in between these values, could be easily justified from a financial and economic point of view to bring down the dropout and repetition rates to the levels required to achieve UPE.

Under Projection Scenario 1, the total value of investments consumed by dropouts and repeaters, annually, during the fifteen-year period amounts to Birr 4.04 Billion or 4.03% of the total cost of primary education for the 15-year projection period. This is the lowest. Therefore, if the education system can invest an additional Birr 4.04 Billion and reduce the dropout and repetition to the levels expected in the Projection Scenario 1, to achieve UPE, then this additional investment would be justified.

But, this is not a very feasible scenario. Projection Scenario 1 assumes that the dropout and repetition rates will be brought down drastically during the fifteen-year period. But, as described earlier, the unit costs of investments do not increase sufficiently to allow for concomitant improvement in the quality of education required to reduce dropout and repetition. The investment is only sufficient to maintain the status quo as far as the quality is concerned. Birr 4.04 Billion is consumed by dropouts and repeaters, who persist in the system, after achieving the reductions envisaged in the Projection Scenario 1 by itself may not be sufficient to bring about the improvement in the quality of primary education that would be

required to achieve the total reductions in dropout and repetition required to achieve UPE under Projection Scenario 1.

At the opposite extreme is Birr 39.59 Billion estimated to be lost by the education system to support the dropout and repeaters under Projection Scenario 3, if we consider achieving UPE as the goal of primary education. Under this scenario, the dropout and repetition rates remain unchanged at present levels and there is no possibility that Ethiopia would achieve UPE ever.

If the Ethiopian education system spends this Birr 39.59 Billion in addition to Birr 100.158 Billion investment required to support the enrollment levels in Projection Scenario 1, and is able to achieve the required reductions in dropout and repetition, the benefits to the society will come from two different sources. First, this Birr 39.59 Billion will bring to productive use the Birr 39.59 Billion that otherwise would be lost by the education system by substantial number of students not attaining the desired educational objective of attaining UPE because of high dropout and repetition rates. Second, the society will also benefit from greater economic returns brought to the society by the additional number students completing primary education successfully through reductions in dropout and repetition this additional investment will achieve.

A middle level option is provided by the total estimated financial resources consumed annually by the dropouts and repeaters under Projection Scenario 3. If we sum up the annual financial resources consumed the dropouts and repeaters for the entire fifteen-year period, it comes to Birr 17.078 Billion. If the Ethiopian education system can achieve the required reductions in dropout and repetition rates as required in Projection Scenario 1, by investing Birr 17.078 Billion, in addition to the approximately 100.158 Billion investment required, at present levels of unit costs, under Projection Scenario 1, this will put to productive use Birr 39.59 Billion investment that would be otherwise lost because the education system's inability to achieve the goal of UPE. This alone brings approximately 130% return on the addition investment.

This study looks at only the financial costs incurred by the dropouts and repeaters. A complete assessment of the loss to the society will require inclusion of opportunity costs incurred by the students who dropout and repeat. At least three types of opportunity costs need to be studied. First, the income foregone by the family and the students by attending school while they are in school before dropping out or income foregone by the repeaters by remaining in school longer than needed. Second, if a student drops out of school without attaining the desirable level of education how much cost does the society incur through diminished productivity caused by dropping out of the school. Third, opportunity cost for alternative use of the resources lost by supporting the dropouts and repeaters. Only when these economic costs to the education system are included, the true dimension of the cost to the society caused by the dropouts and repeaters could be assessed

This study does not get into how additional resources should be spent to improve the quality of education to reduce dropout and repetition. This will require benefit- cost analysis of the various educational programs and their impact on dropout and repetition. Given the status of the educational research and paucity of organized data makes it difficult to come up with answers immediately. Models are available. But, it will take a sustained effort to come up with objective answers to this question.

Chapter 1

Dropout and Repetition: The Causes and the Results of the Poor Quality of Primary Education

1.1 Dropout and repetition are both the causes and the results of the poor quality of education.



A very crowded classroom in Gambella. Crowded classrooms contribute to dropout and repetition

As long as the quality of primary education remains low, the dropout and repetition will continue to plague the education system.

As long as the phenomena of dropout and repetition persist, attaining improvement in the quality of education would be difficult.

1.2 Arguments against repetition and dropout are well known: Repetition reduces potential access to primary education. Everything else remaining the same, repetition increases the enrollment and causes overcrowding of the school system. This impact negatively on two important indicators of quality of inputs into the education system: The overcrowding caused by repetition increases the student-section ratios and the teacher-student ratios, thereby diminishing the quality of the classroom environment and the teacher student interaction. These affect negatively the quality of the teaching learning process.

Overcrowding caused by repetition also increase the demand on other inputs such as classrooms, teachers, textbooks, school furniture, etc. Repetition increases the unit cost of providing a given level of education to a child by retaining the students within that level for more number of years than normally required. Repetition also increases the

opportunity costs to education by increasing the length of time a student spends in the school to achieve a certain level of education.

- 1.3** For example, in 2001/2002 school year 726,120 students repeated grades 1-7 in Ethiopian Primary Schools. At a student teacher-ratio of 65:1, the primary education system required 11,170 teachers to provide instruction to these repeaters. At a student-section ratio of 75:1, the repeaters in 2001/2002 occupied 9680 classrooms. Grade 1-7 repeaters occupied 726,120 chairs and desks, and the education system could have done with 726,120 less sets of textbooks for the students. If there were no repeaters in the education system, the student-teacher ratio could have been lower, the student section-ratio could have been lower, and there would have been greater access to textbooks by students.
- 1.4** Many parents and teachers justify repetition in the belief that repetition could contribute to the improvement in the academic performance of the students. One of the presumed benefits of repetition is to ensure that all children acquire desired level of minimum competencies for that grade, before being promoted to the next grade. There is no strong evidence to justify this belief. On the other hand, as pointed out in the sections above, repetition contributes to further reduction in the quality of education through greater drain on the educational inputs and resources.
- 1.5** There is also strong evidence to show that repetition is one of the major potential contributing factors to students dropping out of schools. The sense of failure and the sense of shame felt by the young students who repeat a grade often contribute to their dropping out of the school. Repetition instills a feeling of 'culture of failure' among the young students. Students who are unable to proceed with their classmates to the next grade are often faced with taunts from their former classmates and scorn from their new classmates. This causes problems of self-esteem among the repeaters and they develop negative attitude towards schooling, resulting in absenteeism and other behavior that weakens their performance at school further. Eventually repeaters opt out to dropping out of school entirely.
- 1.6** Children who dropout of schools without attaining a threshold level of minimum skills in reading, writing, and arithmetic often relapse into illiteracy. Thus, as long as substantial proportions of students dropout of early grades, as happens in Ethiopia, achieving reductions in adult illiteracy will remain difficult.
- 1.7** The phenomena of dropout and repetition debilitate the individual, the school system and the society. The personal sorrow and the sense of failure that dropouts and repeaters feel are intangible costs to the society. They affect the school system through the sense of failure and the negative feelings created in the dropouts and repeaters and the negative responses they often evoke from the schoolmates and teachers. The longer term effects of these on the individual and the family are not evident readily to the policy makers, educators, and researchers.
- 1.8** The society pays for repetition and dropout in two different ways. The resources consumed by the dropouts, while enrolled in school before they leave the school system without attaining the desired goal, is irretrievable. Just as repetition increases the unit cost of producing a graduate, dropouts also increase the unit cost of producing a graduate of the primary school system. These costs are borne by the society.
- 1.9** The society also pays for dropouts through reductions in the private and public rates of return on investment in education. One of the justifications for public investment in

education, especially primary education, is that it increases the productivity of the labor, and thus contributes to the economic growth of the society. There is strong evidence to support this belief. Evidence from developing countries such as India and Brazil show that farmers with at least a threshold level of primary education are more productive than farmers with no education. This is especially relevant for Ethiopia. One of the strategies pursued by Ethiopia for poverty reduction is through increasing the productivity of the agricultural sector. More than 85% of the population in Ethiopia is engaged in agriculture. Unless all or majority of the present and future farmers acquire a threshold level of basic skills in reading, writing, arithmetic and other qualities essential to be a better farmer, poverty reduction through improved agricultural productivity will be difficult. On this account, the ability of the dropouts from primary schools without attaining a threshold level of education, to contribute to improving productivity of the agricultural sector or for that matter in any other sector is minimized and the society has nothing to show for its investment in educating these dropouts for what ever short period of time they spend in the schools.

- 1.10** Dropouts cause reduction in the coverage of primary education. Everything else remaining the same, larger the dropout rate, smaller will be the number of students who will transit into the successive grades thereby reducing enrollment and coverage. We shall see the impact of the dropout on the coverage of primary education in Ethiopia and the consequences of this on the goal of achieving Universal Primary Education in subsequent sections.
- 1.11** Ethiopian education system suffers immensely from the phenomenon of dropout and repetition. Dropout rates are relatively higher in early grades. National average for grade 1 dropout rate has hovered between 25% and 30%, during the five years between 1997/1998 and 2001/2002 school years. In terms of volume of dropouts, in 2001/2002, total number of grade 1 dropouts was greater than total number of dropouts in grades 2, 3, and 4 put together.
- 1.12** Despite the automatic promotion policy, repetition persists in the first cycle grades. There are diverse opinions among the key stakeholders of the Ethiopian education system as to the impact of the automatic promotion on the quality of education as expressed by the minimum skills acquired by the students. Many believe that automatic promotion only delays the problem by transferring the problem of repetition to higher grades. Policy makers have promoted continuous assessment as an integral part of the automatic promotion policy to assure that children acquire minimum skills expected of them before moving on to the next grade. The automatic promotion policy has not been in place for sufficiently long period of time in Ethiopia to assess its impact on repetition and dropout in higher grades.
- 1.13** As indicated in sections above, the dropouts and repeaters consume scarce resources from both public and private sources: government, parents, community, etc. How much resources do the dropouts and repeaters consume annually in Ethiopia? The answer to this question is important for many different reasons. Even for people intimately involved with education, it is difficult to see and feel the magnitude of the wastage of resources created by the dropout and repetition. Policy makers, parents, members of the community, schools, teachers and other stakeholders need to be aware of the volume of resources wasted by these two phenomena so that their commitment could be obtained to reduce, if not to eliminate, dropout and repetition.

- 1.14** From a policy perspective, an accurate estimation of the volume of resources consumed and therefore wasted by the phenomena of dropout and repetition will provide incentives to policy makers to allocate sufficient additional resources to identify and implement potential interventions to reduce dropout and repetition.
- 1.15** The need for reductions in dropout and repetition rates assumes urgency in Ethiopia as the country aspires to achieve Universal Primary Education by year 2015. The Millennium Development Goals and the Poverty Reduction Strategy of Ethiopia heavily depend on whether the country is able to move towards the realization of the UPE goals. Unless the dropout rates are brought down considerably, close to five percent or below in all primary grades as soon as possible, the goal of achieving UPE will remain elusive for Ethiopia. The goal of UPE will never be achieved if the dropout rates continue at the same levels as at present. As long as the repetition and dropout rates continue at the same levels, the cost of producing primary school graduate will be higher than it should be thus demanding more investments than other wise would be required to achieve UPE.
- 1.16** Therefore this study is devoted to estimating the financial cost that the Ethiopian education system is likely to incur, to support the dropouts and repeaters during the fifteen-year period, 2003/2004 to 2017/2018 G.C (1996 to 2010 E.C). Target year for achieving UPE is 2015/2016 G.C. or 2008 E.C. Two additional years are included in the calculations to give the education system adjust for possible slippages in achieving the targets. This estimation of financial cost to the education system to support the dropouts and repeaters will be done under three different scenarios of enrollment, dropout, and repetition in the primary school system. In addition, different assumptions about the purpose and goals of primary education in the development context of the Ethiopian education system will be considered in calculating the financial costs incurred by dropouts and repeaters.

Chapter 2

Ethiopian Primary Education System: A Brief Overview

2.1 Introduction. *This section reviews the characteristics of the primary education system that are immediately relevant to this study.* We shall briefly look at the structure of the primary education system, the types of schools by management, the size of the schools system as measured by the number of schools, coverage of primary education, internal efficiency and quality of inputs as measured by student-teacher ratio and student-section ratio

2.2 Structure of the primary education system. There is a consensus in Ethiopia that primary education will consist of eight years of schooling.



A complete primary school in Dessie.

The first four years of primary school, grades 1-4, is called first cycle. The second four years of schooling, grades 5-8, is called second cycle. There is no terminal examination at the end of the first cycle, grade 4, to determine the eligibility of the students to move on to the second cycle. Examinations in all grades, except in grade 8, are conducted by the schools themselves and determine the eligibility of the students to move on to the next grade.

In grade 8, a nationally administered examination is being replaced by regionally administered examinations. At least four regions have taken this responsibility, so far.

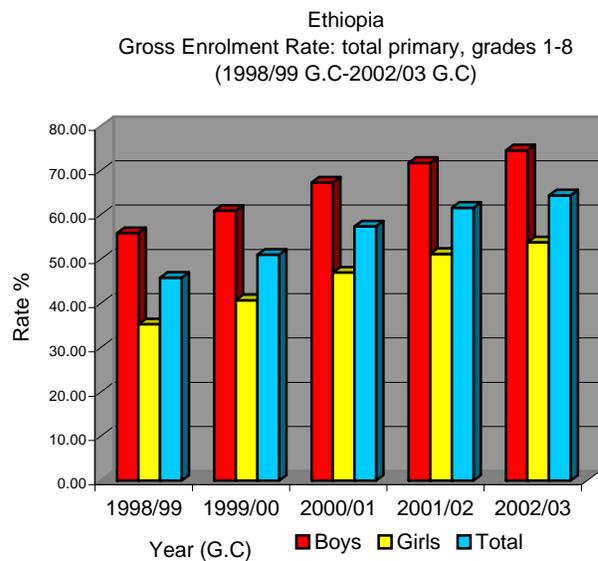
2.3 Types of management of schools. There are several agencies that provide primary education to the children in the country. The Ministry of Education of Ethiopia identifies eight types of primary schools through its annual school census.

- Government schools, which are managed and financed entirely by the government.
- Public schools that are partially financed by the government but managed by the communities.
- Private schools, which are totally financed by contributions from parents in the form of school fess and managed by private sector which may include individuals, religious groups, and other organizations.
- Foreign community schools.
- Schools run by missions
- Schools run by mosques
- Church (orthodox)
- Other categories.

2.4 Number of schools. In 2002/2003, there were a total of 12,471 primary schools operating in the country providing secular education. Of these 94.5 % were government schools; 1.8% were public schools; the rest approximately 3.7% were non government schools managed by private individuals, churches, missions, mosques, etc. The government schools and public schools together form vast majority of the schools in the country. These are the schools that experience brunt of the problem of dropout and repetition.

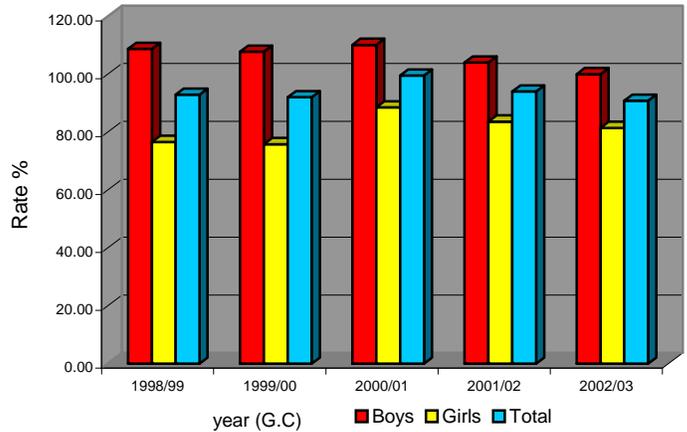
2.4 Coverage of primary education: Gross enrollment.

In 2002/2003, there were a total of 8,743,265 students enrolled in grades 1-8 in all primary schools of which 5,052,377 were boys and 3,519,938 were females. The total enrollment in the first cycle was 6,017,345 of which 3426457 were boys and 2590888 were females. In the second cycle, during the same year 2,725,920 students were enrolled of which 1716465 were boys and 1009455 were females. The total gross enrollment rate (GER) for the whole primary (grades 1-8) stood at 64.4% in 2002/2003, an 18.6% increase from five years earlier in 1998-1999.



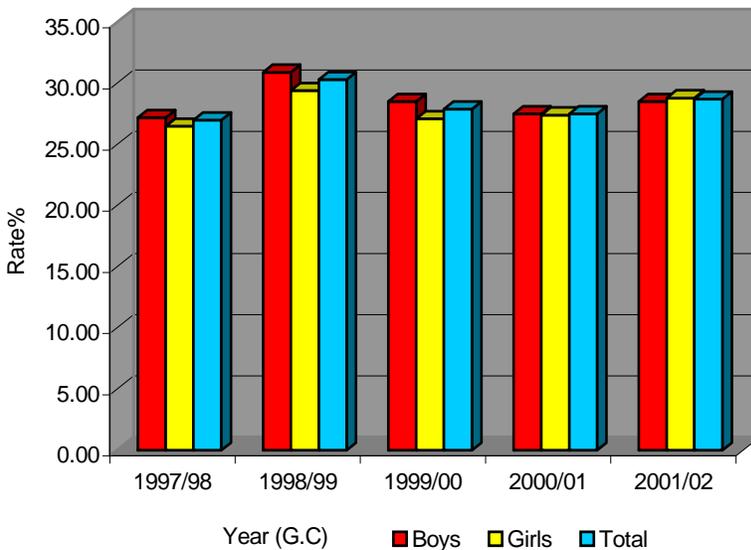
2.6 Intake into Grade 1. In 2002/2003, a total of 1,700,187 students of all ages entered grade 1, of which 948,017 were boys and 752,491 were girls. The total apparent intake rate was 90.8%. The apparent intake rate for boys was 100% and for girls was 81.4%. The apparent intake rate has shown only a modest increase during the five year period. If Ethiopia is to achieve UPE by 2015, the apparent intake need to reach from the present approximately 90% level to 130% level as soon as possible, This will enable the education system to reach the over age kids who are still outside the school system.

Ethiopia
Apparent Intake Rate by Gender:
1998/99 G.C-2002/03 G.C



2.7 Dropout. In 2001/2002, the total number of students dropping out of grades 1-7 stood at 1,341,777 of which 1,110,213 dropped out of grades 1-4 and 231,564 dropped out of grades 5-7. In other words 82.7% of the total dropouts occurred in grades 1-4.

Ethiopia
Drop out Rate at Grade 1 by Gender (1997/98-2001/02)



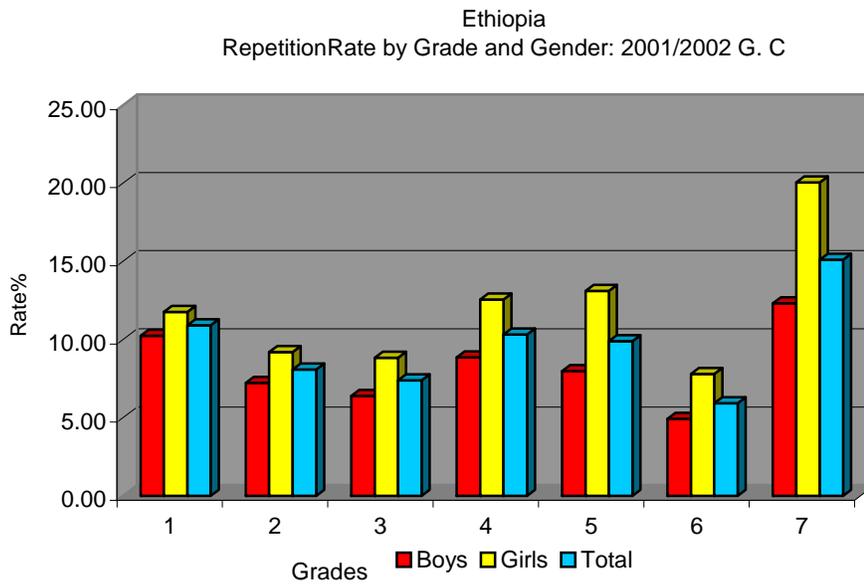
The total number of dropouts in grade 1 in 2001/2002 was 588,669 and the total number of dropouts in grades 2-4 was 521,544. In other words, the number of dropouts in grade 1 alone was greater than the total number of dropouts in grades 2, 3, and 4 combined. The dropouts in grade 1 alone formed 43.87% of the total dropouts in the entire primary grades 1-7, in 2001/2002.

The dropout rate for grade 1 in 2001/2002 was 28.74%.

During the five-year period between 1997/1998 and 2001/2002, the dropout rates for grade 1 hovered between 25% and 30%. The dropout rates for boys and girls showed no significant difference during the five-year period.

The dropout rate for the first cycle, grades 1-4, in 2001/2002 was 19.46% and for the second cycle, grades 5-7, was 12.18%. For the total primary, grades 1-7, the dropout rate stood at 17.64% in 2001/2002.

2.8 Repetition. In 2001/2002 a total of 726,120 students repeated in grades 1-7, out of which 533,144 students repeated in the first cycle, grades 1-4, and 192,976 repeated in second cycle, grades 5-7. The repetition rate for the whole primary, grades 1-7 was 9.54%, for the first cycle, grades 1-4, was 9.34% and for the second cycle was 10.15%.



2.9 Number of teachers. There were a total of 132,257 teachers in the entire primary school system of Ethiopia in 2002/03 school year. Total number of teachers in the first cycle was 87,340 of which 84,784 or 97.1% were holding TTI certificate and therefore qualified to teach at that level. There were 44,917 teachers teaching in the second cycle of which only 14,484 or 32.24% held a diploma from a TTC or equivalent institution and therefore qualified to teach at that level.

The student-teacher ratio for the first cycle in 2002/03 was 69:1 and for the second cycle it was 58:1.

2.10 Number of Classrooms. In 2002/2003 there were approximately a total of 92,700 classrooms and 117,988 sections of all grades providing instruction in all primary schools. Approximately 43 % of the classrooms in the country were used as double shift classrooms providing instruction to two sets of students both in the morning and in the afternoon. The student section ratio for the first cycle in 2002/2003 was 75:1 and for second cycle was 72:1.

Chapter 3

Scope of the Study

3.1 *The Scope of the Study: The Four Dimensions.*



Primary school children engaged in learning through play

The primary objective of this study is to estimate the financial cost incurred by the Ethiopian education system to support the dropouts and repeaters in the primary schools of the country. This chapter will further define this scope of the study along the dimensions of the education system important for estimating the costs.

These dimensions are mainly four: First dimension is along the components of the primary school system that should be included in the estimation of the costs incurred by the dropouts and repeaters.

Second dimension is along the elements of the costs of schooling that should be included in the study. Third dimension is the purpose and goals of primary education that are relevant and considered important in the Ethiopian context. The fourth dimension is the time period for which the costs incurred for supporting the dropouts and repeaters will be calculated.

3.2 *Dimension 1: The Components of the Primary Education System to be Included in the Study.*

Chapter 2 described the structure of the primary education as consisting of eight years of schooling, the first four years, grades 1-4, being the first cycle and the second four years, grades 5-8, being the second cycle. All eight grades that constitute primary education will be included in the study.

Dropouts and repeaters will be calculated for all grades, except grade 8. Calculation of dropout for Grade 8 poses some methodological problems. Since Grade 8 is the terminal grade for primary education, calculation of dropouts using regular methodology will take into account those students who pass grade

8 but do not pursue further education through normally accepted education structures. This may inflate the dropouts. Therefore, appropriate adjustments will be made in the cost calculations for grade 8 dropouts.

Similarly, policies of many of the regions do not permit students who fail Grade 8 examinations to enroll and repeat Grade 8, while some regions permit failures to enroll and repeat the grade. Therefore, for this study, only those students who fail grade 8 and enroll in grade 8 as regular students will be considered as repeaters.

In chapter 2 we also saw eight types of management structures for the primary schools. In 2002/2003, vast majority of the 12, 471 schools imparting primary education, 94.5%, were government schools. Nearly 1.8% of the schools were public schools, primarily financed by the government, but managed by the communities. The rest, approximately 3.7% of the schools were managed by the private sector, and religious and missionary groups. Enrollment data, dropout data, and repetition data from all these 12,471 schools will become baseline data for the study. Since the projections of future enrollments, dropouts and repetition will be based on these baseline data and will encompass the whole country based on a scenario for achieving Universal Primary Education, it can be assumed that the study is inclusive of all primary schools imparting secular education under all types of present and future management structures.

3.3 *Dimension 2: Costs to be Included in the Study.*

What costs and whose costs are to be included in the study to estimate the cost incurred by the education system to support the dropouts and repeaters? Three major considerations have gone into identification and inclusion of costs in this study.

3.3.1 Private vs. Public Costs of Education.

Education by its very nature is both a private consumption and an investment for the public good. The extent to which educational costs are sourced from public or private sources is a matter decided by the nature of the product, as would be the case with construction of highways and delivery health services. Some observers make sharp distinctions between public and private education. In many settings, however, these distinctions are questionable. Even on the criterion of provision of finances, as opposed to, for example, in the management control of the institutions, the boundaries between public and private may be blurred.

Therefore, the distinction between public and private costs is simply a matter of the specific choices and arrangements made by a government and the people that can be modified easily. Therefore, for our purposes,

instead of relying on arbitrary classifications that are subject to significant variations or changes, it makes more sense to base our comparisons based on a complete inventory of all costs incurred in the process of giving a child a year or some pre-determined level of education.

Moreover, considering the low-income levels of a significant proportion of the population, it is highly likely that income constraint forces many to drop out of the educational system and to remain at educational attainment levels far below their aspirations. Relatively high costs incurred by families, directly and/or indirectly, for the education of their children can represent an obstacle to universal access to education especially for the poor and for females, who often forgo educational opportunities as a result.

3.3.2 Economic vs. Financial Costs.

A major choice to make in relation to measurement of costs to provision of education relates to whether economic or financial costs are to be measured. Measurement of financial costs involves calculation of actual payments made to acquire goods and services used in the provision of primary education. Measurement of economic costs, on the other hand, involves valuation of alternative uses that have been forgone by using a resource in a particular way, in this case provision of primary education. These economic or opportunity costs recognize the cost of using resources, as these resources are then unavailable for productive use elsewhere.

The choice of whether to use financial, economic or both approaches depends on the objectives of the analysis. The objectives of this study are quantification of the effect of high repetition and dropout rates on the efficiency and cost-effectiveness of the educational system as a whole, and paving the way for the search for remedial action. Therefore, measurement of the value to the society of resources used in the provision of primary education, regardless of who pays for them, as measured by opportunity cost, is a more relevant concept than mere financial costs.

One of the important opportunity costs of educating children is the income foregone by the family by sending the child to school. In Ethiopia, child labor is prevalent. Children contribute labor to support the family in many ways: working in the farm, managing the cattle, fetching water and firewood, etc. Very rarely do children bring cash income to the family.

How ever, one of the reasons attributed to the introduction of double shift system for primary education in Ethiopia is to make available school going children to support the family through provision of labor at least

part of the time during the school days, there by to reduce one of the obstacles to send children to school. Therefore, it is reasonable to assume that the income foregone by school going children in Ethiopia has been minimized through the introduction of the double shift system and could be considered as negligible.

In addition there is evidence form other parts of the world that the income foregone by children under the age of 12 is negligible. Age 12 is the official age for enrolment in grade 6. For these reasons and for lack of quality data on opportunity costs for school going children, this study excludes opportunity costs from the cost calculations. Therefore it is apt to say that this study will consider only the financial cost incurred by the education system to support dropouts and repeaters in the cost calculations.

3.3.3 Criteria for Selection of Cost Elements to be Included in the Calculations.

The value of the resources devoted to the provision of primary education can be measured in different ways. One of the first essential steps in the measurement of costs is to identify the components or elements of the cost. A good classification scheme should be: first, it should be relevant to the situation; second, the cost elements chosen should not overlap; third, the cost elements should cover all possibilities.

The inclusion or exclusion of different forms of costs (recurrent–capital, fiscal–private, opportunity–actual, federal–regional–local, etc) in our analysis and the amount of effort devoted to their estimation depends on three criteria that relate different dimensions of the study and the problem at hand. These are:

- The extent to which a cost item can possibly be estimated with any reasonable accuracy given available resources;
- The extent to which the cost item is of interest to policy makers and policy analysts in terms of its ‘manupulability’ given the menu of policy options
- The extent to which interventions aimed at the cost item can contribute to achievement of objectives in terms of efficiency of the educational system and other broader developmental goals of the government/country.

3.3.4 Cost Elements Included in the Study and the Sources of Data.

Based on the three considerations and criteria discussed above the following 10 cost elements have been identified and employed in the calculations. The sources of the data are also provided where necessary.

- 3.3.4.1 Teacher salary
- 3.3.4.2 Administrative salary
- 3.3.4.3 Non-salary expenditure
- 3.3.4.4 Teacher development costs
- 3.3.4.5 Cost of durables
- 3.3.4.6 Capital consumed annually per student
- 3.3.4.7 Cost of furniture
- 3.3.4.8 Cost of textbooks
- 3.3.4.9 Direct parental contribution
- 3.3.4.10 Community and school contribution

3.3.5 Sources of data for the cost elements.

3.3.5.1 Teacher Salary.

Average teacher salary for the first and second cycles were estimated by using the PMIS databases established in the regional education Bureaus. The PMIS data from Dire Dawa, Harar, Amhara and selected woredas from Oromia were used to estimate the average salary of first cycle teachers holding certificates and second cycle teachers holding diplomas. Average salary per annum for a first cycle teachers holding a certificate is Birr 7500.00 and the average salary for a second cycle teacher holding a diploma is Birr 9400.00

3.3.5.2 Administrative salary

In order to calculate the administrative salary, the PMIS database from the regions and the MOE were used. Using these databases, the actual salary for administration at the MOE and regions were calculated for the base year 1996. Similarly the average annual salary for the zones and woredas were calculated for four of the regions. From these average salaries the total administrative salary for 2003/04 was calculated. Since

administrative salaries do not increase in direct proportion to the increase in enrollment, the following formula was used to project the future administrative costs: for every 10 % increase in the enrollment a 5% increase in the administrative cost was projected. The total administrative cost was allocated to the first and second cycle according to the proportion of the students in respective cycle.

3.3.5.3 Non-salary expenditure

The term non-salary expenditure refers to non-salary recurrent expenditure incurred by the government sources through annual budgetary allocations. The actual data came from only one region, Tigray. The data was obtained through a five-year budgetary analysis undertaken in 2001. This data was discussed in a two-day workshop conducted at the MOE to undertake projections for the UPE and adjust for the experiences from the MOE. From these sources, the average per-student non-salary expenditure per annum was established at Birr 30.00 for the first cycle and Birr 40.00 for the second cycle.

3.3.5.4 Teacher development costs

The teacher development costs include the recurrent costs and the capital consumed annually per student in the teacher training institutions. Recurrent costs come from the annual budgets of the teacher training institutions. This information was adjusted using expert information from the MOE. The capital consumed was calculated using the construction cost figures from more recent sample constructions in teacher training institutions. This cost teacher development for one-year certificate course in TTIs is established as Birr 3500.00 and for the three-year diploma course is established as Birr 13,500.00.

3.3.5.5 Cost of durables

Per- student annual expenditure for durables was established by a workshop for the MOE experts to develop enrollment and cost projections for achieving Universal Primary Education. It was agreed through discussions that the cost of durables per student per annum would amount to Birr 20.00 for the first cycle and Birr 25 for the second cycle.

3.3.5.6 Capital consumed annually per student at the primary level.

Actual capital expenditure for the construction of primary schools from the beginning of ESDP 1 in 1997/98 to 2002/03 was obtained from the MOE. Capital expenditure for the 15-year projection period for attaining UPE was projected using the following minimum quality standards: Student section ratio, 75:1 at present for first cycle primary will come down to 55: 1 by 2015. For the second cycle, the student section ratio of 72: 1 will be brought down to 55:1 during the same time period. Unit costs of Birr 80,000.00 and Birr 135,000.00 were used for the construction of a first cycle and a second cycle classroom respectively. These costs come from the standards established by the MOE engineering department. Historical capital expenditure at current prices were converted to 2003/2004 prices using the GDP inflator. All future capital investments were calculated using 2003/04 prices. To calculate the annual cost of the capital a discount factor 5% was used. This annual cost was divided by the enrollment to obtain per-pupil capital consumed. The per-pupil capital consumed per annum comes to Birr 30.00 for the first cycle and Birr 76.00 for the second cycle.

3.3.5.7 Cost of furniture

A unit cost of Birr 200 per student was used for classroom furniture. In addition cost calculations included funds for replacement of 25% of the furniture every year due to damage etc.

3.3.5.8 Cost of textbooks

The following unit costs were used: For the first cycle primary Birr 25.00 per one set of student textbook and for the second cycle Birr 58.00 per one set of textbooks. The costs of student textbooks include the cost of teacher guides and other supplementary materials. These cost estimates were obtained from the textbooks department of the MOE.

3.3.5.9 Direct parental contribution

Data were collected from 50 schools randomly selected from 8 regions, These regions included Dire Dawa, Harar, Addis Ababa, Oromia, SNNP, Amhara, Somali, Afar, and Benshangul

Gumuz. Data collectors visited the schools and interviewed teachers and headmasters to obtain details of the types and quantity of educational materials used by the students and other services the parents pay for in cash. Using this information a weighted average for the direct contribution by parents per student was computed. Direct parental contribution per student in the first cycle comes to Birr 50.20 per annum and for the second cycle comes to Birr 86.90 per annum.

3.3.5.10 Community and school contribution

During the visits to the schools to collect data on direct contribution by parents, from the school records data on community and school contributions in support of primary education were also collected. Using this information a weighted average was calculated for per pupil contribution annually. No separate calculations were done for the first and second cycles. Community and parental contributions come to Birr 11.16 per student annually.

3.4. *Dimension 3: The objectives of primary education.*

3.4.1 Human capital Theory and implications for the cost calculation

The purpose and objectives of education can be looked at from different angles. Many coming from an economic development orientation will view education as investment in human capital development. The assumption is that education improves the skill levels and therefore the productivity of individuals. Higher the level of education an individual attains, greater will be the individual's contribution to the economy.

Strong justification for investment in the provision of basic primary education by the society (government) comes from this view of education. A person with some primary education is economically more productive than a person with no primary education.

There is strong research evidence from different parts of the world to show that primary education does contribute to greater productivity. Evidence from India, Brazil, and other parts of the world shows that a person with a threshold level of primary education is more productive than a person with no education. There is some consensus based on research evidence and experience, that at least four to five years of primary education is required to meet the threshold level. If we accept this suggestion, in the Ethiopian context, this threshold level seem to coincide with the completion of the first cycle primary education.

Thus if we view purpose of education from the perspective of human Capital Theory, for the individual and the society to benefit from primary education, the individual must reach the threshold level of primary education, which in the Ethiopian context is assumed to be completion of the first cycle primary education. If a student drops out of primary school without completing the first cycle, the costs consumed by the dropout will be accumulated for the number of years that individual remains within the education system prior to dropping out. This will include the costs consumed by the students for repeating a grade or grades.

The cost accumulation for dropout and repetition will stop after the completion of the threshold level. The assumption is that after the completion of the threshold level (first cycle primary), completion of every additional year of schooling adds to the human capital through augmenting the skill level of the individual. For example, if a child drops out of grade 6, only the cost incurred by the child in grade 6 will be included in the financial cost to the system. This is on the assumption that once the child attains the threshold level of education, it will bring some benefits to the society and to the individual even if it drops out without completing the entire primary grades.

3.4.2 Education as certification: Implications for calculation.

One of the purposes of schooling is to obtain appropriate certification to prove to the society and to the economic system that the individual has completed a certain level of education and therefore possess a certain level of skills expected from an individual completing that level of education. The society values certification. Without certification, the individual has very little chance of obtaining employment no matter what skills the individual may possess. Certification is proof of an individual's educational attainment and therefore ability to contribute to the economy.

In Ethiopia, the first certification of educational attainment of an individual takes place at grade 8. The regional bureaus of education award a certificate of successful completion to all students who sit for the 8th grade examination and meet the minimum criteria for passing the required examinations. Without this certification further progression in the formal school system is virtually impossible. More and more, the informal and private sector education system that provide skills through short term courses also value certification for admitting students to their educational programs.

If we consider certification as one of the primary objectives of education, successful completion of 8th grade examination is the first hurdle. From this perspective, if a student leaves the education system without obtaining the 8th grade completion certificate, the private

and public costs incurred to support the student in school can be considered as being wasted. Under this scenario, the costs will be cumulative for as long as the student remains in the education system until finally deciding to quit without obtaining the expected certification.

3.4.3 Universal Primary Education as the objective of primary education and implications for cost calculations.

Ethiopia, through its Education and Training Policy and through its various commitments to the international goal of Education for All, is determined to reach the goals of UPE by the year 2015 or soon thereafter. Though a clear definition of UPE is yet to be established, there is some consensus in the country that completion of 8 years of schooling by school age children is the minimum requirement for achieving UPE. If 8 years of education is the minimum requirement for achieving universal primary education, the implication for calculating the cost of dropout and repetition is similar to that of the certification scenario described above. The cost consumed by the students who dropout of the system will be cumulative till the year in which the student leaves the system without meeting the minimum number of years of schooling required for achieving UPE.

3.4 Dimension 4: Timeframe for the calculations of the costs.

The timeframe for the calculations of the cost looks into the future. This is done so to give the calculations more realism based on the future scenarios that the Ethiopian Education system might want to consider. One of the future scenarios that Ethiopia is seriously considering is the achievement of the UPE and the costs involved and the strategies to be followed. The costs incurred by the dropouts and repeaters are huge. These costs remain invisible. Without rapid reductions in the dropout and repetition, the goal of attaining UPE will remain elusive.

The target year for achieving UPE is year 2015. This is only 13 years away from 2003/2004 school year. To give the education system some time to adjust for slippages, a fifteen year time horizon for calculating the costs are taken. Thus projections and costs will be calculated for the time period 2003/2004 to 2017/2018.

Chapter 4

Methodology and Results

4.1 Introduction.

As described Chapters 1 and 3, the primary objective of the study is to estimate the cost incurred by the Ethiopian Education System to support the dropouts and repeaters in the primary schools of the country. Given the importance of the goal of achieving Universal Primary Education by 2015, these estimations of the costs are undertaken with future enrollment, dropout, and repetition rate scenarios to achieve universal primary education. A 15-year time frame, 2003/2004 to 2017/2018 (1996 –2010 E.C.), is taken for projections and estimation costs.



Active learning is being promoted in Ethiopian primary schools to improve quality of classroom interaction and to reduce dropout and repetition.

4.2 Three projection scenarios.

The estimation of the cost for supporting the dropouts and repeaters will be undertaken under three projection scenarios: In Projection Scenario 1, the costs will be calculated under the assumption that the Ethiopian education system will achieve the necessary reductions in dropout and repetition rates required to achieve the coverage and completion rates required to achieve UPE. In Projection Scenario 2, the cost calculations will be based on projections under

the assumption that the Ethiopian Education system will achieve only a moderate success in reducing the dropout and repetition rates. This moderate reduction in the dropout and repetition rates will constitute 50% of the reductions required for achieving UPE by year 2015. In Projection Scenario 3, the cost calculations will be done based on projections under the assumption that no reductions in dropout and repetition rates will be achieved and they will continue during the 15 year projection period at the same rates as in the base year, 2001/2002. In all projection scenarios, the intake rates into grade 1 will remain identical throughout the 15-year projection period.

4.3 *Estimation of costs by purposes of primary education.*

Under each of the above three scenarios, three separate estimation costs for supporting dropout and repetition will be undertaken based on the three purposes of primary education identified and outlined in chapter 3. These three purposes are: First, the goal of primary education as investment human capital to increase the productivity of the labor force, especially the population engaged in agriculture in the Ethiopian context. Second, goal of primary education as obtaining certification that will enable the graduates of the primary education system to advance further in the education system or to find appropriate employment in the job market. Third, the objective of primary education as achieving universal access to primary education to create citizens who are able to participate in, contribute to, and benefit from the country's development process.

4.4 *Methodology: Major steps.*

The sections below outline in detail the methodology that will be followed to achieve the above objectives in the estimation of costs incurred by the education system to support the dropouts and repeaters.

The first step in the methodology is to project the enrollment of students, the number of dropouts and repeaters under each of the three projections scenarios for the 15-year projection period. The standard cohort flow model will be used for the enrollment projections.

The second step in the methodology is estimation of the total cost of investment in the education system and the per-student expenditure. These will be calculated separately for the first cycle and the second cycle.

The third step in the methodology is estimation of the annual cost incurred by the dropouts and repeaters.

4.5 Projections of student enrollment, dropouts and repeaters, 2003/2004 to 2017/2018.

Projection Scenario 1: Reductions in dropout and repetition to levels required to achieve UPE. Based on an operational definition for Universal Primary Education (UPE) developed for the Ethiopia to fit the country's socio-economic and educational context, the targets for apparent intake rate (AIR) and for reductions in dropout and repetition rates were set so as to achieve UPE by year 2015 according to the definition.¹

According to the operational definitions for UPE, the target for apparent intake rate will reach a high of 130% by 2006/07. After remaining at that level for a few years to cover the out of school, over age children in the communities, the AIR will begin to decline and reach 110% by 2016/17 and will continue around that level for a few additional years. (See Annex 1, Table 1.)

Under this scenario, as the base year 2001/2002 dropout rate for grade 1 is at a much higher rate than that of the other grades, Grade 1 dropout rate will be reduced annually at a faster rate than that of the rest of the primary grades. Grade 1 dropout rate will be reduced at a compounded rate of 25% per annum, while for all the other grades the dropout rate will be reduced at a compounded annual rate 20% per annum. Thus the dropout rates for all the grades will be brought below 5% by school year 2007/2008 (2000 E. C.) as required by the operational definition for UPE. Details of the projected dropout rates and number of dropouts for the 15-year period by grade are presented in Annex 1, Tables 3 and 4.

Similarly, the repetition rates for all the primary grades will be brought down annually at a compounded rate of 20% to bring the repetition below 5% by year 2007. See Annex 1, Tables 5 and 6 for the projected repetition rates and number of repeaters.

4.6 Estimation of per pupil expenditure per annum.

The second step in the methodology is the estimation of the cost of total investment during the fifteen-year projection period. Chapter 3, Scope of the Study, identifies ten cost elements to be included in the study. Unit costs of these elements, minimum quality standards to be achieved, where these may have implications for estimating the investments required, and the time period for achieving these minimum quality standards are also identified. (See Annex 4, Tables 1 and 2.)

¹ For a detailed exposition of the definition, see: Bastian, *Universal Primary Education: An Operational Definition for Ethiopia*, AED/BESO II Project, Ministry of Education, Ethiopia, 2004. A summary of the definition is provided in Annex 10 of this document.

For example, the minimum quality standards for student-teacher ratio which for the base year 2002-2203 stood at 69:1 for the first cycle primary is to be reduced to 50:1 by year 2015. Similarly the student-section ratio is to be reduced from the base year ratio of 72:1 to 55: 1 by year 2015. Using these and other minimum quality standards, the volume of all the key inputs that will be required, annually, to meet the needs of the projected enrollments of students during the fifteen-year period was established for each of the three enrollment projection scenarios.

Annex 5, Tables 1-3, provide the details of the investments required by each of the ten cost elements, annually, for the fifteen-year projection period and the total investments required for each of the three Projection Scenarios. From these total investments required, annual per-pupil expenditure is calculated based on annual total enrollment. A weighted average for the per-pupil expenditure is derived from these data. Since the unit costs are different for the first and second cycles the total investment costs and per-pupil expenditures are calculated separately for the first and second cycles of primary education.

The Table IV. I below summarize the total investment costs and average per-pupil expenditure for the fifteen-year projection period by Projection Scenario

Table IV. I

Summary of Total Investment and Per-Pupil Expenditure by Projection Scenario for the Fifteen-Year Projection Period 2002/03-2017/18

No.	Projection Scenario	Investment Costs			Per –Pupil Expenditure per Annum	
		First Cycle	Second Cycle	Total Primary	First Cycle	Second Cycle
1	Scenario 1	45,865,486,787.00	54,293,399,374.00	100,158,886,161.00	292.80	473.57
2	Scenario 2	43,123,334,614.00	45,306,619,316.00	88,429,953,930.00	291.57	473.62
3	Scenario 3	35,242,741,919.00	27,083,070,157.00	62,325,812,076.00	283.45	459.50

Under Projection Scenario 1, where the reductions in dropout and repetition take place as required in the UPE operational definition to achieve UPE goals by year 2015, the total investment required for the first cycle primary is Birr 45,865,486,787.00 and for the second cycle primary is Birr 54,293,399,374.00. The total investment for the entire primary education system for the fifteen-year period will come to Birr 100, 158,886,161.00.

Weighted, average per-student annual expenditure for the fifteen-year projection period (2003/04 to 2017/08) under Projection Scenario 1 for the first and second cycle primary is estimated to be Birr 292.80 and 473.57 respectively.

Under Projection Scenario 2, where the reductions in dropout and repetition rates take place at 50% of that in Projection Scenario 1, the total investment costs for the first and second cycle primary are Birr 43,123,334,614.00 and Birr 45,306,619,316.00 respectively. The total investment for the entire primary education system for the fifteen-year period will come to Birr 88,429,953,930.00. The average per-pupil expenditure per annum comes to Birr 291.57 and Birr 473.62 for the first and second cycles respectively.

Under Projection Scenario 3, where no reductions in dropout and repetition rates take place, the total investment costs for the first and second cycle primary are Birr 35,242,741,919.00 and Birr 27,083,070,157.00 respectively. The total investment for the entire primary education system for the fifteen-year period will come to Birr 62,325,812,076.00.

The average per-pupil expenditure per annum comes to Birr 283.45 and Birr 459.50 for the first and second cycles respectively.

As expected, the total investment costs are the lowest for Scenario 3, as the enrollments in this scenario are also the lowest because of the high dropout rates. The per-pupil expenditure also shows some variations within the three scenarios. The highest per-pupil expenditure is for Scenario 1 and the lowest per-pupil expenditure is for Scenario 3.

4.7 Estimation of the annual cost incurred by the education system to support the dropouts and repeaters.

Step 3 in the methodology is the estimation of the annual cost of supporting the dropouts and repeaters in the primary schools of the country. In estimating the cost of supporting the dropout, the study assumes that irrespective of the amount of time a student attends school in a school year before dropping out, that student consumes the average per student expenditure the education system expends for the whole year.



A classroom with very little facilities. Bringing such classrooms up to the minimum quality standards will require substantial additional investments.

Section above presents estimations of per-pupil expenditure per-annum for each of the three projection scenarios. Though there are some minor variations between the estimated per-pupil expenditures for the three scenarios, for estimating the cost of supporting the dropouts and repeaters under all scenarios, we use the per-pupil expenditure calculated for Projection Scenario 1. These are Birr 292.8 and 473.57 respectively for the first cycle and second cycle. (These numbers will be rounded of to Birr 293 and 474 in the calculations.)

These annual costs will be calculated for each of the three Projection Scenarios for the fifteen-year projection period, 2003/04-2017/18.

Annual cost of supporting the dropouts and repeaters under Projection Scenario 1: Reductions in dropout and repetition to levels required to achieve UPE by year 2015.

Annex 6, Tables 1-3, provide details of the annual cost of supporting dropouts and repeaters under Projection Scenario 1. The total annual cost of supporting dropouts for all 8 grades for the 15- year projection period is estimated to be Birr 2,155,998,797.00. The annual cost will come down from Birr 328,932,652.00 in year 2003/04, the first year of the projection period, to 29,033,800.00 in 2017/08, the last year of the projection period (Annex 6, Table 1).

Even under this maximum reduction in Grade 1 dropout rate scenario, the total annual costs incurred to support the dropouts will be the highest for grade 1. During the 15-year projection period, the grade1 dropouts will consume a total of Birr 525,872,314.00. The annual cost consumed by grade 1 dropouts will come down from Birr 118,166,900.00 in year 2003/04 to Birr 2,401,151.00 in year 2017/18, if the reductions in the dropout rates is achieved as outlined in the UPE operational definitions and presented in the projections, Annex 1, Tables 3-4.

The total annual cost consumed by the repeaters, for the entire primary grades, during the 15-year period comes to Birr 1,884,100,836.00. The annual cost of supporting the repeaters in all primary grades will come down from Birr 250,570,489.00 in year 2003/2004 to Birr 35,086,796.00 in year 2017/18, under Projection Scenario 1. (Annex 6, Table 2.)

Just as in the case of dropouts, the highest cost of supporting the repeaters will be for Grade1 at Birr 333,900,456.00 followed by Grade 7 at Birr 305,594,436.00. The total cost consumed by the dropouts and repeaters is given in Annex 6, Table 3. This total cost comes to Birr 4,040,099,633.00. At a high of Birr 579,503,141 in year 2003/04, this total cost consumed by dropouts and repeaters of the entire primary education system will come down to Birr 64,120,596.00 in year 2017/18. This will happen only if the education system attains the annual targets set for reductions in dropout and repetition, approximately 20% for all grades except for Grade 1, which is set at 25%.

Annual cost of supporting the dropouts and repeaters under Projection Scenario 2: Moderate Rates of Reductions in the Dropout and Repetition Rates.

Annex 7, Tables 1-3, provide details of the annual cost of supporting dropouts and repeaters under Projection Scenario 2. The total annual cost consumed by dropouts from all 8 grades during the 15- year projection period under Projection Scenario 2 is estimated to be Birr 4,860,036,745.00. This is approximately 2.25 times more than the cost consumed by the dropouts under Projection Scenario 1. The annual total cost consumed by the dropouts under the Projection Scenario will come down from Birr 424,773,349.00 in year 2003/04, the first year of the projection period, to Birr 188,411,473.00 in 2017/08, the last year of the projection period. (Annex 7, Table 1.)

As in the Projection Scenario 1, the total annual costs incurred to support the dropouts will be the highest for grade 1. During the 15-year projection period, the grade 1 dropouts will consume a total of Birr 1,365,642,217.00. This is approximately 2.6 times the cost consumed by the Grade 1 dropouts in Projection Scenario 1.

The total annual cost consumed by the repeaters, for the entire primary grades, during the 15-year period under the Projection Scenario 2 comes to Birr 4,112,956,620.00. The annual cost of supporting the repeaters in all primary grades will come down from Birr 283,757,222.00 in year 2003/2004 to Birr 237,134,979.00 in year 2017/18, under Projection Scenario 2.

Unlike in Projection Scenario 1, the highest cost of supporting the repeaters will be for Grade 7 at Birr 982,438,944.00 followed by Grade 1 at Birr 656,013,229.00. (See Annex 7, Table 2.)

The total cost consumed by the dropouts and repeaters under this scenario is given in Annex 7, Table 3. This total cost comes to Birr 8,972,993,365.00. This is approximately 2.2 times the cost consumed under Projection Scenario 1.

Annual cost of supporting the dropouts and repeaters under Projection Scenario 3: No Reductions in Dropout and Repetition Rates.

Annex 8, Tables 1-3, provide details of the annual cost of supporting dropouts and repeaters under Projection Scenario 3. As mentioned earlier, this projection scenario assumes that the education system will not be able to bring down the dropout and repetition rates and that these rates will remain unchanged from the base year performance of the education system on these indicators.

As can be expected, the total annual cost consumed by dropouts from all 8 grades during the 15- year projection period under Projection Scenario 3 will be the highest of the three scenarios. (Annex 8, Table 1.) This total cost consumed

by dropouts is estimated to be Birr 10,337,160,405.00. This is approximately 4.8 times more than the cost consumed by the dropouts under Projection Scenario 1, and 2.1 times greater than the cost consumed by the dropouts in Projection Scenario 2.

The annual total cost consumed by the dropouts under the Projection Scenario will show no decline. This will go up from Birr 528,124,255.00 in year 2003/04 to Birr 746,424,757.00 in year 2017/08, the last year of the projection period (Table 1). As the intake into grade 1 increases and the enrollment increases, without reductions in dropout rates, the total number of dropouts will increase from year to year. This is the major reason for increase in the cost consumed by dropouts during the projection period.

The total annual costs incurred to support the dropouts in Grade 1 alone in Projection Scenario 3 will be a phenomenal sum of Birr 4,006,699,026.00. This is close to twice the cost of supporting the dropouts in the entire primary system for the 15-year projection period under Projection Scenario 1.

The total annual cost consumed by the repeaters, for the entire primary grades, during the 15-year period under the Projection Scenario 3 comes to Birr 6,740,952,287.00. (Annex 8, Table 2.) Just in the case of cost of supporting dropouts, the cost of supporting the repeaters will also show an increasing trend in the Scenario 3. The annual cost of supporting the repeaters in all primary grades will go up from Birr 313,207,912.00 in year 2003/2004 to Birr 526,803,072.00 in year 2017/18, under Projection Scenario 3. The highest cost of supporting the repeaters will be for Grade 1 at Birr 1,499,288,032.00 followed by Grade 7 at Birr 1,069,040,166.00.

The total cost consumed by the dropouts and repeaters under this scenario is given in Annex 8, Table 3.. This total cost comes to Birr 17,078,112,692.00. This is approximately 4.2 times the cost consumed under Projection Scenario 1 and 1.9 times the cost incurred in Projection Scenario 2.

4.8 Estimation of costs incurred to support the dropouts and repeaters under each of the three objectives of primary education.

Chapter 3 identified three objectives of primary education relevant to this study. These are: First, the objective of primary education as investment in human capital to increase the labor productivity to improve the private and public returns on education. Second, the objective of primary education as obtaining necessary certification further studies or for acceptance in the job market. Third, the objective of primary education as provision of minimum skills to all the future citizens of the country through achieving the goals of Universal Primary Education. Under each of these objectives, costs will be estimated for each of the three projections scenarios.

4.9 Objective of primary education-investment in human capital: Cost incurred to support the dropouts and repeaters.

One of the basic assumptions within this objective is that for every individual it is essential to attain a threshold level of primary education to sustain the skills learned in the school and thus to benefit from the primary education through improved productivity and better life skills. Unless an individual attains this threshold level of education, sustainability of the modest levels of skills obtained in the schools will be difficult after leaving the school. As we saw in Chapter 3, this threshold level is assumed to be about four to five years of schooling. In the Ethiopian context, for the purposes of this study, we have taken this threshold level as completion of the first cycle of primary education or completion Grade 4.

If completion of grade 4 is considered as essential for an individual and the society to benefit from investment in primary education, then if a student leaves the school before completing the grade 4, then all the years spent by that individual in the primary school, whether it is one year or three years, is wasted. Therefore, this has implications for the calculations of cost of supporting a dropout under this objective.

Let us assume that a student drops out of grade 4. The student has not completed Grade 4 which is the minimum for achieving the desired threshold level. Therefore, the total investments in educating this child successfully through Grade 3, and the investment in Grade 4, because it drops out in that grade are considered as being wasted.

On the other hand if a child drops out of Grade 5, under this objective of primary education as investment in human capital, only the cost of educating the child for one year, in Grade 5, will be considered as being wasted. This is based on the assumption that the child has already attained the threshold level of education by completing Grade 4 and that the skills obtained by the child will be sustainable. Each year of additional schooling will further enhance the skills and thus the productivity of the individual. Thus if a student drops out of school from any grade after completing Grade 4, only the cost incurred by the system to support the students in the grade from which it drops out will be taken into consideration. The calculations of cost for repetition are not affected by the objective of primary education.

Projection Scenario 1. Annex 6, Tables 4-6, present the costs incurred by the system in support of dropout and repeaters under Projection Scenario 1, where the reductions in dropout and repetition takes place as needed to achieve UPE. The total cost incurred to support the dropouts is estimated to be Birr 3,600,654,635.00. As the cost of dropout is additive up to and including Grade 4,

the total cost of supporting the dropouts increases up to Grade 4. From Birr 525,872,314.00 in Grade 1, the cost incurred by the dropouts in Grade 4, increases to Birr 843,821,926.00. After grade 4, the cost decreases as it is not additive. However, the cost incurred by dropouts in Grades 5 and 7 stand above the rest of the grades in the second cycle. This reflects the higher dropout rates for these grades during the initial years of the fifteen-year projection period.

The cost incurred by the repeaters will amount to Birr 1,884,100,836.00 for the entire projection period. This cost incurred by the repeaters will be the same as in the total annual cost incurred by the repeaters in Projection Scenario 1.

The total cost incurred by dropouts and repeaters is given Annex 6, Table 6. This amounts to Birr 5,484,755,471.00. This is only marginally higher than the total annual cost incurred under this Projection Scenario. The difference is only Birr 1,444,655,838.00. This is a reflection of the fact that through faster rate of reductions in dropout and repetition, more students complete the threshold level of education and beyond and the resources wasted is minimized.

Projection Scenario 2. Annex 7, Tables 4-6 present the costs incurred by the system in support of dropout and repeaters under Projection Scenario 2, where the reductions in dropout and repetition takes place at a moderate rate, 50% of the rates that are needed to achieve UPE. The total cost incurred to support the dropouts is estimated to be Birr 7,836,065,873.00.

The cost incurred by the repeaters will amount to Birr 4,112,956,620.00 for the entire projection period. This cost incurred by the repeaters will be the same as in the total annual cost incurred by the repeaters in Projection Scenario 2.

The total cost incurred by dropouts and repeaters is given in Annex 7, Table 6. This amounts to Birr 11,949,022,493.00. This is 1.33 times greater than the annual total cost for dropouts and repeaters incurred by the system under Projection Scenario 2.

Projection Scenario 3. In Projection Scenario 3, where no reductions in the dropout and repetition rates are expected, the total cost of supporting the dropouts comes to Birr 15,577,084,798.00 if we consider investment in human capital as the objective of primary education. The cost of supporting the repeaters amount to Birr 6,740,952,287.00.

The total cost of supporting the dropout and repeaters amount to Birr 22,318,037,085.00. (See Annex 8, Tables 4-6.) This is about twice the cost consumed in Projection Scenario 2, and nearly 4 times the cost consumed in Projection Scenario 1 by the dropouts and repeaters if we consider investment in human capital as the objective of primary education.

4.10 Objective of primary education certification: Cost incurred to support the dropouts and repeaters.

Certification is regarded by the students, the parents, and the economy as an important outcome of education. Primary education, being at the bottom of the educational ladder, plays significant role in the certification process. In Ethiopia,



Primary school children expecting a bright future through successful graduation.

performance in the 8th grade examination, to a large measure, determines the future performance of the students in the academic ladder.

Even though there are no public examinations conducted at the end of the first cycle primary, Grade 4 does perform certain gate keeping function as far as the passage of the students into second cycle primary are concerned. As the automatic promotion policy is implemented more vigorously, the importance of this gate keeping function of the Grade 4 is likely to increase. Therefore, for the purposes of the calculations we will consider Grade 4 as the first instance in the certification process and Grade 8 as the second instance in the certification process.

Any student who drops out of primary school in or before Grade 4 will be considered as having not attained the objective of receiving the certification for the successful completion the first cycle. Therefore as in the case of the calculations for cost consumed by the dropouts in the objective of primary education as investment in human capital, the costs of supporting the dropouts will be additive. That is, if a student dropouts of Grade 4, the costs consumed by

that student will be equal to sum of the four years of annual per student expenditure. If a student repeats a grade this will be additional cost incurred.

Similarly if a student drops out of any grade in second cycle without successfully completing grade 8, the costs will also be additive. For example, if a student drops out from Grade 7, the total cost incurred by those students will be equal to the sum of the three years of per-student expenditure for the second cycle.

Projection Scenario 1. If we consider certification as the objective of primary education, the cost incurred by the education system to support the dropouts and repeaters in the Projection Scenario 1 will amount to Birr 4,675,174,111.00 and Birr 1,884,100,836.00 respectively. The total cost of supporting the dropouts and repeaters will come to Birr 6, 559,274,947.00. This is approximately Birr 2.5 billion more than annual total cost of supporting the dropouts and repeaters and a little over Birr 1 billion more than the costs incurred by the dropouts and repeaters under human capital investment objective, both under the same Projection Scenario 1. (See Annex 6, Tables 7-9.)

Projection Scenario 2. Under Projection Scenario 2 - projections with only modest reductions in dropout and repetition - the total cost of supporting the dropouts will go up to Birr 10,305,940,408 and the cost of supporting the repeaters will remain at Birr 4,112,956,620.00 as in all projections under Projection Scenario 2. The total cost of supporting the dropouts and repeaters will amount to Birr 14,418,897,028.00 under Projection Scenario 2, with certification as the objective of primary education.

This total cost is about 1.6 times the annual cost of supporting the dropouts and repeaters and about 3 times the cost of supporting the dropouts and repeaters in the certification objective under the same projection scenario. (See Annex 7, Tables 7-9.)

Projection Scenario 3. If no reductions in dropout and repetition rates take place during the entire fifteen-year projection period, as in Projection Scenario 3, the cost of supporting the dropouts and repeaters will amount to Birr 20,139,384,097.00 and Birr 6,740,952,287.00 respectively. The total cost will be Birr 26,880,336,384.00. This total cost is approximately 1.9 times the cost incurred in Projection Scenario 2 and approximately 4 times the cost incurred in Projection Scenario 1 under certification as the objective of primary education. (Annex 8, Tables 7-9.)

4.11 Objective of primary education – Provision of Universal Primary Education: Cost incurred to support the dropouts and repeaters.

The place of Universal Primary Education in the Ethiopia's development strategies is unquestionable. But achieving UPE will require efficient utilization of the resources and policies and programs to improve the quality of education to reduce the dropout and repetition rates. Without reducing the dropout and repetition rates to levels suggested in the Projection Scenario 1, it will not be possible for Ethiopia to achieve the goals of UPE. Therefore the calculations of cost incurred to support the dropouts and repeaters and therefore wasted without achieving the goals of UPE is of importance.

The calculations of costs of supporting the dropouts and repeaters under UPE objective differs only marginally from that of the calculations under certification objective. Since, completion of eight years of primary schooling is the minimum requirement for UPE, if any student dropouts of school before completing the Grade 8, the total number of years spent in the school including the grade from which the student drops out will be included in calculating the cost incurred as a dropout. For example, if a student drops out of Grade 6, under the objective of UPE, the cost incurred by that student to the system as dropout will be equal to the sum of per-student expenditure per annum for the four years of the first cycle and two years of the second cycle.

Projection Scenario 1. If the Ethiopian primary education system is able to bring the dropout rates and repetition rates as projected in Scenario 1, and is able to achieve UPE by 2015, the cost incurred by the system to support the dropouts and repeaters will come to Birr 8,012,640,963.00 and Birr 1,884,100,836.00 respectively. The total cost of supporting the dropouts and repeaters will come to Birr 9,896,741,799.00. This is approximately Birr 5.8 billion more than annual total cost of supporting the dropouts and repeaters under projection Scenario 1. (See Annex 6, Tables 10-12.)

Projection Scenario 2. If the Ethiopian education system is able to achieve only modest reductions in dropout and repetition rates over the 15-year projection period, the target year for achieving UPE will be extended far beyond year 2015. Under this scenario during the 15 year projection period the cost of supporting the dropouts will go up to Birr 17,576,519,954.00 and the cost of supporting the repeaters will remain at Birr 4,112,956,620.00 as in all projections under Scenario 2. The total cost of supporting the dropouts and repeaters will amount to Birr 21,689,476,574.00 under Projection Scenario 2 if we consider achieving UPE as the goal of education.

This total cost incurred by dropouts and repeaters under Projection Scenario 2 is about Birr 12 Billion more than the cost incurred by the dropouts and repeaters in Projection Scenario 1. What is more, the goal of UPE will not be achieved by year 2015 and will take a much longer time horizon. Thus, in reality the cost incurred by dropouts and repeaters will be much higher if we extend the projection period till we achieve UPE. (See Annex 7, Tables 10-12.)

Projection Scenario 3. If no reductions in dropout and repetition rates take place during the entire fifteen-year projection period, as in Projection Scenario 3, and dropout rates and repetition rates continue as at present, the goal of UPE will never be achieved.

The cost of supporting the dropouts and repeaters for the 15-year projection period under this scenario will amount to Birr 32,853,440,869.00 and Birr 6,740,952,287.00 respectively. The total cost will be Birr 39,594,393,156.00. This total cost incurred by the education system support the dropouts and repeaters is approximately Birr 30 billion more than the cost incurred in Projection Scenario 1 and approximately Birr 18 Billion more than the cost incurred in Projection Scenario 2 under UPE as the objective of the primary education. (Annex 8, Tables 10-12.)

Despite this high cost of supporting the dropouts and repeaters in Projection Scenario 3, and because of the high cost, unlike in Projection Scenarios 1 and 2, the Ethiopian education system will never achieve UPE. These costs will accumulate year after year without any tendency to decline.

(For Annual cost summaries and Total Cost summaries see Tables 1 and 2 in Annex 9)

Chapter 5

Findings, Analysis, and Recommendations

5.1 Major Findings

Table 1 below provides summary of investments in primary education and the total cost likely to be incurred by the education system to support the dropouts and repeaters annually under each of the three Projection Scenarios. Table 1 also provides the volume of financial resources consumed by dropouts and repeaters under each of the three purposes of primary education.

The total cost to the primary education system of Ethiopia under Projection Scenario 1 is estimated to be Birr 100,158,886,161.00. Under this scenario the dropout and repetition rates would be reduced to levels required to achieve UPE by 2015. Of this total cost, Birr 4,040,099,633.00 or 4.03% will be consumed by dropouts and repeaters during the 15-year projection period.



Happy students in a primary school compound.

Table 1
Cost of Supporting the Dropouts and Repeaters as a Percentage of the Total Investment
by Projection Scenario and Purpose of Primary Education

Projection Scenario	Total Investment (Birr)	Cost of Supporting Dropouts and Repeaters:				Cost of supporting dropouts and repeaters as a percentage of total investment:			
		Total annual cost of Dropouts and repetition (Birr)	Ed. Objective: Human capital Investment (Birr)	Ed. Objective: Certification (Birr)	Ed. Objective: Achieving UPE (Birr)	Annual Total Cost to Total Investment (%)	Human capital to Total Investment (%)	Certification to Total Investment (%)	UPE to Total Investment (%)
Projection Scenario 1: Reductions in dropout and repetition to achieve UPE	100,158,886,161	4,040,099,633	5,484,755,471	6,559,274,947	9,896,741,799	4.03	5.48	6.55	9.88
Projection Scenario 2: Moderate reductions in dropout and repetition.	88,429,953,930	8,972,993,365	11,949,022,493	14,418,897,028	21,689,476,574	10.15	13.51	16.31	24.53
Projection Scenario 3: No reductions in dropout and repetition.	62,325,812,076	17,078,112,692	22,318,037,085	26,880,336,384	39,594,393,156	27.40	35.81	43.13	63.53

Under Projection Scenario 2, the total cost during the 15-year projection period would amount to Birr 88,429,953,930.00 and the total annual costs consumed by the dropouts and repeaters would amount to Birr 8,972,993,365.00 or 10.15% of the total cost.

Under Projection Scenario 3, the total cost of the primary education will be Birr 62,325,812,076.00 and the costs consumed by dropouts and repeaters will be Birr 17,078,112,692.00 or 27.4% of the total costs during the 15-year period.

If we assume the purpose of primary education as human capital development, and a threshold level of primary education (four years) as essential to achieve sustainable levels of basic skills, then the costs consumed by dropouts and repeaters will mount to Birr 5.48 Billion or 5.48% of the total cost of primary education under Projection Scenario 1. This cost of supporting dropouts and repeaters increases to Birr 11.94 Billion or 13.51% of the total cost of primary education in Projection Scenario 2 and to Birr 22.31 Billion or 35.81% in Projection Scenario 3.

If we consider certification as the purpose of primary education, the education system would incur 6.55% (Birr 6.56 Billion) of the total cost under Projection Scenario 1 and 16.31% (Birr 14.42 Billion) of the total cost in Projection Scenario 2 and 43.13% (Birr 26.88 Billion) of the total cost under Projection Scenario 3 to support the dropouts and repeaters.

As expected, percentage of the total cost of primary education consumed by the dropouts and repeaters are the highest if we consider the purpose of primary

education as achieving UPE. During the 15-year projection period, 9.88% (Birr 9.89 Billion) and 24.53% (Birr 21.69 Billion) of the total cost of primary education under Projection Scenarios 1 and 2 respectively will be consumed to support the dropout and repeaters. Under Projection Scenario 3, the percentage of the cost consumed by dropouts and repeaters will go up to 63.53% or Birr 39.59 Billion.

Even worse is the reality that, under Projection Scenario 2, it will prolong the number of years required to achieve UPE far beyond the 15-year projection period. The consequences of this are enormous for the Ethiopian education system in terms of the additional costs required by prolonging the target year for achieving UPE and the loss incurred by the economy of Ethiopia through lost productivity. Under Projection Scenario 3, UPE will never be achieved by Ethiopia.

Analysis and Recommendations: *One of the hidden assumptions that runs through all three Projection Scenarios is that the cost of inputs and therefore the quality of the inputs envisaged in the projections of costs will not be sufficient to bring about significant improvements in the quality of education required to achieve the desired levels of reductions in the dropout and repetition rates to achieve UPE.* In the projection scenarios and in the cost calculations, only modest improvements in the quantity and quality of inputs are envisaged. As specified in the minimum quality standards employed in the projections, only improvements envisaged are modest reductions in student-section, student-teacher, and student textbook ratios.

How much additional resources should the society pump into the Ethiopian primary education system to improve the quality and therefore to reduce the dropout and repetition rates to the levels required to achieve UPE and to bring greater private and public benefits from the investment in the primary education?

Table 1 provides a range of answers. The value of investments irretrievably lost by the education system, through supporting dropouts and repeaters, ranges from a low of approximately Birr 4.04 Billion to a high of Birr 39.59 Billion. Additional investments, anywhere in between these values, could be easily justified from a financial and economic point of view to bring down the dropout and repetition rates to the levels required to achieve UPE.

Under Projection Scenario 1, the total value of investments consumed by dropouts and repeaters, annually, during the fifteen-year period amounts to Birr 4.04 Billion or 4.03% of the total cost of primary education for the 15-year projection period. This is the lowest. Therefore, if the education system can invest an additional Birr 4.04 Billion and reduce the dropout and repetition to the levels expected in the Projection Scenario 1, to achieve UPE, then this additional investment would be justified.

But, this is not a very feasible scenario. Projection Scenario 1 assumes that the dropout and repetition rates will be brought down drastically during the fifteen-year period. But, as described earlier, the unit costs of investments do not increase sufficiently to allow for concomitant improvement in the quality of education required to reduce dropout and repetition. The investment is only sufficient to maintain the statusquo as far as the quality is concerned. Birr 4.04 Billion is consumed by dropouts and repeaters, who persist in the system, after achieving the reductions envisaged in the Projection Scenario 1 by itself may not be sufficient to bring about the improvement in the quality of primary education that would be required to achieve the total reductions in dropout and repetition required to achieve UPE under Projection Scenario 1.

At the opposite extreme is Birr 39.59 Billion estimated to be lost by the education system to support the dropout and repeaters under Projection Scenario 3, if we consider achieving UPE as the goal of primary education. Under this scenario, the dropout and repetition rates remain unchanged at present levels and there is no possibility that Ethiopia would achieve UPE ever.



If the Ethiopian education system spends this Birr 39.59 Billion in addition to Birr 100.158 Billion investment required to support the enrollment levels in Projection Scenario 1, and is able to achieve the required reductions in dropout and repetition, the benefits to the society will come from two different sources. First, this Birr 39.59 Billion will bring to productive use the Birr 39.59 Billion that otherwise would be lost by the education system by substantial number of students not attaining the desired educational objective of attaining UPE because of high dropout and repetition rates. Second, the society will also benefit from greater economic returns brought to the society by the additional number students completing primary education successfully through reductions in dropout and repetition this additional investment will achieve.

A middle level option is provided by the total estimated financial resources consumed annually by the dropouts and repeaters under Projection Scenario 3. If we sum up the

annual financial resources consumed the dropouts and repeaters for the entire fifteen-year period, it comes to Birr 17.078 Billion. If the Ethiopian education system can achieve the required reductions in dropout and repetition rates as required in Projection Scenario 1, by investing Birr 17.078 Billion, in addition to the approximately 100.158 Billion investment required, at present levels of unit costs, under Projection Scenario 1, this will put to productive use Birr 39.59 Billion investment that would be otherwise lost because the education system's inability to achieve the goal of UPE. This alone brings approximately 130% return on the addition investment.

This study looks at only the financial costs incurred by the dropouts and repeaters. A complete assessment of the loss to the society will require inclusion of opportunity costs incurred by the students who dropout and repeat. At least three types of opportunity costs need to be studied. First, the income foregone by the family and the students by attending school while they are in school before dropping out or income foregone by the repeaters by remaining in school longer than needed. Second, if a student drops out of school without attaining the desirable level of education how much cost does the society incur through diminished productivity caused by dropping out of the school. Third, opportunity cost for alternative use of the resources lost by supporting the dropouts and repeaters. Only when these economic costs to the education system are included, the true dimension of the cost to the society caused by the dropouts and repeaters could be assessed

This study does not get into how additional resources should be spent to improve the quality of education to reduce dropout and repetition. This will require benefit-cost analysis of the various educational programs and their impact on dropout and repetition. Given the status of the educational research and paucity of organized data makes it difficult to come up with answers immediately. Models are available. But, it will take a sustained effort to come up with objective answers to this question.

Annexes