



**Consortium for Research on
Educational Access,
Transitions and Equity**

**Access, Attendance and Achievement
in Rural Schools in Sri Lanka**

**Angela W. Little
H.N. Upul Indika
Caine Rolleston**

**CREATE PATHWAYS TO ACCESS
Research Monograph No. 73**

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Consortium for Research on
Educational Access, Transitions & Equity

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The Consortium for Educational Access, Transitions and Equity (CREATE) is a Research Programme Consortium supported by the UK Department for International Development (DFID). Its purpose is to undertake research designed to improve access to basic education in developing countries. It seeks to achieve this through generating new knowledge and encouraging its application through effective communication and dissemination to national and international development agencies, national governments, education and development professionals, non-government organisations and other interested stakeholders.

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List of Acronyms

CDMA	Code Division Multiple Access (telephone)
CREATE	Consortium for Research on Educational Access, Transitions and Equity
EFA	Education for All
GCE O	General Certificate of Education Ordinary Level
GCE A	General Certificate of Education Advanced Level
GER	Gross Enrolment Ratio
ISA	In-Service Advisor
MDG	Millennium Development Goal
M.V.	Madhya Vidyalaya
NER	Net Enrolment Ratio
NIE	National Institute of Education
OLS	Ordinary Least Squares
PCA	Principal Components Analysis
Q1	Lowest Quintile
Q5	Highest Quintile
Rs.	Sri Lanka Rupees
SLPS	Sri Lanka Principal's Service
SLTS	Sri Lanka Teacher's Service
STR	Student Teacher Ratio
TMV	Tamil Madhya Vidyalayam

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The research would not have been possible without the active participation of community members, school principals and teachers and local government officers in the villages of Madugalle and Nachchaduwa and in the Park Estate and the nearby Methodist school in Kandapola. We dedicate this study to them and to their continuing efforts to increase access to high quality teaching and learning in their schools.

Preface

This is a detailed and meticulous study based on evidence from three rural case study sites including over 650 children. It is important for CREATE in a number of ways. First Sri Lanka provides a context where there is virtually full enrolment, and very little drop out until the end of the nine years of basic education. Few children are ‘over-age’ and there is little repetition. This has been achieved despite low levels of income and a remarkably small commitment of public financing to education of less than 2% of GDP. And it has been sustained for at least the last two decades. Second, though participation is high, inequalities persist. The three communities show that behind the impressive national achievements, there remain pockets of under achievement and vulnerability. Generous subsidies have reached down to rural populations to make the direct costs of schooling to households affordable. Despite this differences in achievement persist and these are associated with parental levels of education, location, access to private tutoring, and health status. Community effects predict absenteeism and tuition. Within communities absence and household size correlate with poor performance. Poverty remains linked to absenteeism and poor health status.

These case studies highlight how concerns for physical access have been overtaken by issues more concerned with the equity of access to similar learning opportunities, with quality of learning, and with more effective ways of managing disadvantage that could lessen differences in learning outcomes.

The case studies also indicate the need to develop more refined Zones of Exclusion for use when drop out ceases to be a major issue (Zone 2 and 5) and where silent exclusion among those enrolled but learning little (Zones 3 and 6) does not lead to physical exclusion. But nor does physical inclusion lead to effective enrichment and remediation to lessen the learning gap between the highest and lowest achievers.

Sri Lanka’s success in achieving Education for All is a reminder of what is possible through consistent policy, political will and effectively managed resources, and that physical access is only part of an expanded vision of access that should define Education for All.

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Summary

Historically, Sri Lanka has performed well on most indicators of progress towards Education for All and the Millennium Development Goals. Nationally, enrolment in some form of pre-school provision is high, enrolment in primary education near universal and completion of nine years of compulsory, basic education is around 90%. At the same time, achievement levels are low, with disparities between provinces, type of school attended, location, medium of instruction and gender.

This monograph records research undertaken in three diverse rural communities comprising 397 households, 1,952 household members and 657 children aged 5-16 years. Household survey interviews were complemented by interviews with local officials, school principals and teachers and by analysis of school records. School level practices designed to improve attendance and achievement are described.

The CREATE model and its Zones of Exclusion are used to describe the inclusion/exclusion status of these 657 children. Descriptive statistics are used to describe inclusion and exclusion in Zone 0 (excluded from pre-schooling), Zone 1 (never-enrolled and unlikely to attend school), Zone 2 (drop out before completion of primary education), Zone 4 (non transition from primary to secondary) and Zone 5 (dropout before completion of secondary). Ordinary Least Squares and Community Fixed Effects regression models are used to assess the predictive power of a range of household and child characteristics in Zones 3 and 6 (at risk of dropout for reasons of low attendance, repetition and low achievement and silent exclusion from learning in primary and secondary education respectively).

Our findings suggest that there are strong rural community effects in the prediction of absenteeism and attendance at private tuition. Within communities, student achievement at Grade 5 performance is associated positively with the vernacular literacy level of the adult household member and attendance at private tuition. Performance on school-based tests is associated negatively with absence from school and household size, and positively with education assets at home and adult literacy in the vernacular and in English. Performance in the GCE O level examination is associated with the housing index, with private tuition and with adult literacy in English. Attendance at private tuition is associated positively with the availability of education assets at home and negatively with household size. Absenteeism is associated with economic status, as indicated by a housing index, and health problems.

The main challenges facing Sri Lanka currently lie in increasing the achievement levels of all social groups and in reducing dropout in the early secondary grades. Disparities need to be reduced between girls and boys, between urban and rural areas, between school types and between income groups in terms of enrolment in junior secondary and senior secondary education.

Conceptually the study adds to the CREATE model through a modification of the definition of Zones 3 and 6. In the Sri Lankan case dropout rates are very low and the reasons appear to be related to the child's 'dislike of school' and household factors. Dislike of school may in turn be related to low achievement and absenteeism, though probably not repetition. It is suggested that Zones 3 and 6 be extended to 3A and 6A to refer to those who are at risk of remaining in school but dropping out of learning because of a failure to achieve sufficient learning at one level in order to learn effectively at the next.

Access, Attendance and Achievement in Rural Schools in Sri Lanka

1. Access to Basic Education in Sri Lanka

1.1 Introduction

The CREATE model of educational access employs the concept of Zones of Exclusion (www.create-rpc.com). It focuses on children excluded from basic education according to several types of exclusion, termed 'zones'. The Zones are:

Zone 0 children who are excluded from pre-schooling

Zone 1 children who have never been to school, and are unlikely to attend school

Zone 2 children who enter primary schooling, but who drop out before completing the primary cycle

Zone 3 children who enter primary schooling and are enrolled but are 'at risk' of dropping out before completion as a result of irregular attendance, low achievement, and silent exclusion from worthwhile learning

Zone 4 children who fail to make the transition to secondary school grades

Zone 5 children who enter secondary schooling but who drop out before completing the cycle

Zone 6 children who enter secondary schooling and are enrolled but are 'at risk' of dropping out before completion as a result of irregular attendance, low achievement and silent exclusion from worthwhile learning

Historically, Sri Lanka has achieved much in terms of provision of basic education. Among the international development community Sri Lanka has been hailed for her achievements in literacy, educational enrolment and equality of educational opportunity. Pre-school facilities (Zone 0) in Sri Lanka are increasingly available, mainly in the private sector. Very few children fail to enrol in Grade 1 (Zone 1) and dropout rates at primary and secondary (Zones 2 and 5) are very low by South Asian standards (Korale, 2004). Repetition rates are low and transition rates from the primary to the secondary grades education are high (Zone 4). It is in Zones 3 and 6, in which children who are enrolled in primary and secondary education respectively, but are 'at risk' of dropping out before completion as a result of irregular attendance, low achievement, and silent exclusion from worthwhile learning, where challenges arise (Jayeweera, Sanmugam and Ratnapala, 2001, Jayeweera, Gunawardene and Maunaguru, 2004)).

The purpose of this study is to explore education access in Sri Lanka in the light of equity-oriented education policies over many decades (Section 1), apply the CREATE model of Zones of exclusion to describe access to education in three rural communities (Sections 2-3), analyse community and household level differences in school attendance and achievement (Section 4), and to reflect on contemporary policy and practices in the light of these findings (Section 5).

1.2 Policies on Education Access

Policy interventions to improve access to education in Sri Lanka can be traced to at least as far back as the nineteenth century when the British colonial government made grants in aid available to a range of religious bodies to expand access to schooling. As early as the early twentieth century, ordinances were introduced (but not enforced) to make

education compulsory in both town and rural areas. And already by 1911 the adult male literacy rate was 43% and the female 12%. Free vernacular-medium (i.e. Sinhala or Tamil) primary education was provided by the government from the late nineteenth century.

Enlightened policies for social development were introduced in the 1930s and 1940s in the run up to independence. In the 1940s the Free Education Bill was based on the concept of the right to education and embraced free education from kindergarten to university. With its focus on the entire education system it was more inclusive than the international declarations of EFA at Jomtien (1990) and Dakar (2000) which have focussed on basic education. Although vernacular medium primary education had been free for decades, the significance of the Free Education Bill lay in the opening up of opportunities for poor families in rural areas to a fee-free education in the English-medium. Since English medium education provided the best channel to economic opportunity later in life, this initiative provided a huge fillip to the general level of social demand for education, even if subsequent measures to relegate English as a medium of instruction stymied the economic advantages that an English-medium education conferred (Jayasuriya, 1979, Little, 1999, 2010).

Successive governments after independence in 1948 placed considerable emphasis on social development, especially in education and health. Power swings and regime changes between Sri Lanka's two major political parties in the early years after independence did not reduce commitments to fee-free education from the primary stage through to the secondary and tertiary stages of education. Moreover, in the two decades after independence the intergenerational benefits of education became apparent. Children were born to families where both parents were educated to at least the primary level, and often more. These parents had begun to see the benefits of education and wanted these same benefits and more for their own children. Parental perceptions and aspirations provided another fillip to the social demand for education (Aturupane, 2009).

In the current context Sri Lanka has a wide array of demand-side and supply-side policies in place to promote school enrolment and attendance, many of which have been in place for a long time (World Bank, 2011, MOE (forthcoming). Demand-side policies include

- Education is provided free from tuition costs in all government primary and secondary schools.
- Free material for a school uniform for each child each year.
- A set of free textbooks for each child for each subject
- Subsidized transport in buses and trains.
- Free school meals for children in primary classes in poor areas.
- The enactment of compulsory education legislation, making it a legal requirement for all children aged 6-14 years to complete nine years of education, supported by the appointment of local school attendance committees

Supply-side policies include

- A comprehensive network of primary and secondary schools in the country, with the availability of access to the primary stage of education available within two kilometres of home and to the secondary stage within five kilometres of all households
- Automatic progression from Grades 1-11.

- Special education programmes for children with special learning needs.
- Non-formal education programmes for adolescents who either never enrolled in school or dropped out at a young age, and who need skills for the labour market. Non-formal education is offered through functional activity learning centres for children and a network of community learning centres for children over 16 years of age.

1.3 Access Policy Outcomes

The results of the policies of longstanding are apparent in Table 1, which shows the trends in education provision in government schools and literacy attainment over the six decades since independence.

Between 1950 and 1991 the number of government schools and the number of students increased more than threefold, and the number of teachers almost fivefold. Student teacher ratios (STRs) decreased from 35:1 to 24:1, while the adult literacy rate increased from 65% to 87%. Declining birth rates in the 1980s led to a decline in grade 1 admissions from the early 1990s and to a reduction in the numbers of places that needed to be provided. Between 1991 and 2008 the number of students in government schools declined from 4.26 million to 3.93 million, while the number of teachers increased by 20%, resulting in a decrease in the STR from 24:1 to 18:1. Over the same period the adult literacy rate increased slightly from 87% to 93%.

Table 1: Trends in education provision and attainment, 1950-2008¹

	1950	1960	1971	1981	1991	2002	2008
Government schools	3,188	4,394	8,585	9,521	9,998	9,826	9,662
Students in government schools	1,349,345	2,192,379	2,828,070	3,451,358	4,258,698	4,027,075	3,929,234
Teachers in government schools	38,086	69,658	94,858	135,869	177,231	191,812	212,683
STR in government Schools	35	31	30	25	24	21	18
Student:School ratio	423	499	329	362	426	410	406
Adult literacy rate	65	72	79	87	87	91	93

Approximately 92% of children currently in school attend government schools. The remaining 8% attend private schools, *pirivena* (temple) schools and international schools (World Bank, 2011). Schools are classifiable along a number of dimensions, including whether they are managed by the country's nine provinces (the majority) or the central Ministry of Education (a minority), whether they offer most of their courses in the vernacular languages of Sinhala or Tamil (the majority) or English (a minority) and whether they are graded as Type 1AB, Type 1C, Type 2 or Type 3. Type 1AB schools, comprising 7% of the total number of government schools enrol students from Grades 1-13 or 6-13 and offer GCE A level courses in Science, Commerce and Arts. Type 1C schools, comprising 21% of the total, offer the same grade spans and GCE A level classes in Arts and/or Commerce. Type 2 schools, comprising 42% of the total, enrol students

¹ Source: Figures for 1950-2002 are drawn from Aturupane (2009) and based on Department of Census and Statistics, Ministry of Education and Central Bank of Sri Lanka. Literacy rates are for Census Years, 1953, 1963, 1971, 1981 and 2001 respectively. The literacy rate for 1991 is estimated from the Household Survey. The rate noted for 2008 is the 2006 Household Survey figure. School data for 2008 are based on the Ministry of Education, School Census, Preliminary Report, 2008

from Grade 1-11 or 6-11. Type 3 schools, comprising 30% of the total, enrol students from Grades 1-5 (MOE, 2010).

By 2008 Sri Lanka's net enrolment ratio (NER) was estimated to be 99% among boys and girls in primary education (Grades 1-5). Approximately 99% of boys and nearly 100% of girls completed primary education. The basic education cycle in Sri Lanka extends to Grade 9 and all children are expected by law to enter Grade 1 at 5+ and to complete nine years of education by the age of 14. The survival rate to the end of Grade 9 is 93% for girls and 89% for boys. The senior secondary stage of education spans Grades 10-13, with high stakes national examinations at Grade 11 (GCE O level) and Grade 13 (GCE A level). In 2006/7 the NER in senior secondary education was 69% for girls and 65% for boys (World Bank, 2011).

Nationally, dropout rates in primary education are very low at 0.7%² and 0.5% for males and females respectively. They increase at secondary level to 7.1% and 4.6% for males and females in Grades 6-10 respectively (MOE, 2008). The greater availability of paid work for boys is sometimes cited as a reason for their higher rates of dropout from secondary education (World Bank, 2011).

Our three case-study communities are located in the districts of Kandy, Nuwara-Eliya and Anuradhapura. In 2008 the dropout rates of students from Grades 6-10 were, in the Kandy district, lower than the national average (3.5% and 2.1% for males and females), around the national average in Anuradhapura district (7.2% and 4.7%) and higher than the national average in Nuwara-Eliya district (10.5% and 6.2%).

With a national policy of automatic promotion from grade to grade, repetition rates are very low. In 2008 the national repetition rates for Grades 1-5 were 1.0% for males and 0.7% for females. The rates in Kandy district were lower than the national average (0.4% and 0.2%), around the national average in Anuradhapura district (1.0% and 0.9%) and higher than the national average in Nuwara-Eliya district (1.5% and 1.2%). This repetition pattern was repeated in the post primary grades of Grades 6-10. The national figures for males and females were 1.8% and 1.0%; in Kandy district 0.5% and 0.2%, in Anuradhapura district 1.8% and 1.0% and in Nuwara-Eliya district 2.1% and 1.5%.

Principals, teachers, children and their families give different reasons or at least different priorities to the reasons for dropping out. Principals and teachers attribute dropout to parental illiteracy, poverty, parental disinterest, absent parents, children's disinterest. Children and their families are more likely to attribute dropout to children's lack of interest in learning or the heavy burden of the curriculum. School-related reasons for dropping out include unfriendly schools, teacher absence, weak teachers, poor teaching, heavy school curriculum, poor schools facilities, learning difficulties, difficulties faced by children in making up work lost because of absence and teachers who do not pay attention to the needs of individual pupils (Ministry of Education and UNICEF conference report, 2010). Clearly there is a wide range of factors that contribute to dropout, the reduction of which involves intervention at both the school and community level.

² Percentages for dropout and repetition rates are rounded

These figures suggest that the EFA and Millennium Development Goals (MDGs) on enrolment and gender equity have been close to being achieved over a long period of time, especially in relation to other countries in the South Asia region. However, completion of nine years of basic education falls some way short of 100%.

Sri Lanka's quantitative achievements are all the more remarkable given her rather low percentage of GDP spent on education and the extremely high proportion of students attending fee-free government schools. Between 2001 and 2010 government education expenditure as a proportion of GDP ranged from a high of 2.67% in 2006 to a low of 1.86% in 2010.

Low government expenditure on education is compensated for by household expenditures. Although most children attend government schools that do not charge tuition fees, most schools charge 'facilities fees' and a number of other costs are met by families (e.g. exercise books, pens/pencils, equipment, text books, boarding fees, donations and private tuition). Furthermore, large numbers of children attend private tuition. In 2001 the highest income decile households spent 5.4% of non food expenditure on education and the lowest income decile 0.4%. By 2009/10 these proportionate expenditures had increased to 5.9% and 1.8% respectively (Department of Census and Statistics, 2002 and 2011).

1.4 Academic Achievement

High levels of access are counterbalanced by rather lower achievement in respect of academic performance. Low achievement levels have given rise to concern in recent years, resulting in a series of National Assessments of Learning starting in 2003. Table 2 presents the results of national assessments of achievement in Grades 4, 8 and 10 undertaken by the National Education Research and Evaluation Centre (NEREC) in recent years.

Table 2 indicates the increasing proportions over time of Grade 4 children who achieve at least 50% in first language (Sinhala and Tamil), mathematics and English assessments. These tests are based on the Essential Learning Competencies (ELCs) designed by the National Institute of Education (NIE) for these subjects (NEREC, 2009). ELCs are viewed as essential for progression to subsequent grades of the curriculum. The official expectation is that the 'mastery' of essential competencies implies success in 80% of the essential learning competencies, not 50%. Using a cut-off score of 80% instead of 50%, 52% fail to reach mastery levels in First Language, 47% in Mathematics and 81% in English. Compared with official expectations, performance among large proportions of the Grade 4 population therefore remains low (NEREC, 2009).

The achievement scores for Grades 8 in first language, science and technology and mathematics are presented as mean scores. In general these hover at around 50% and are lowest in mathematics. Mean scores in Grade 8, the penultimate year of basic education, improved between 2005 and 2008 and varied between 50 and 60% in first language, science and technology and mathematics in 2008 (NEREC, 2008).

Table 2: National assessments of learning outcomes, grades 4 and 8

Province	Grade 4 Proportion of students scoring over 50 %								
	First Language			Mathematics			English		
	2003	2007	2009	2003	2007	2009	2003	2007	2009
WP	81.7	88.2	86.3	80.5	88.8	86.5	53.1	68.0	74.1
CP	67.0	79.4	78.5	63.5	79.0	76.8	31.6	44.6	55.9
SP	72.0	83.3	86.1	71.5	84.5	85.2	36.0	54.8	62.4
NP	61.0	78.7	83.7	53.3	76.5	79.5	22.9	39.9	54.8
EP	57.7	72.7	73.7	52.3	74.6	70.2	21.9	44.3	41.9
NWP	75.1	85.5	87.1	74.0	85.7	86.4	32.0	54.9	64.8
NCP	70.7	83.4	83.1	72.1	84.5	81.8	29.3	43.3	50.6
UP	64.2	77.4	79.8	62.5	78.1	80.8	27.3	40.3	51.9
SaP	70.8	81.4	86.5	68.5	82.6	87.1	33.4	46.7	64.2
SL	68.9	81.1	82.9	66.5	81.5	81.8	31.9	48.5	58.4

	Grade 8 mean values					
	First Language		Science & Technology		Mathematics	
	2005	2008	2005	2008	2005	2008
WP	63.30	64.13	56.73	63.78	48.45	56.90
CP	59.10	51.62	52.85	57.54	44.83	49.30
SP	58.80	59.08	50.33	56.06	44.27	48.64
NP	58.36	59.27	55.68	47.09	43.72	47.53
EP	57.79	57.14	53.15	48.69	44.78	45.98
NWP	61.04	65.21	51.34	59.38	45.26	52.69
NCP	60.43	58.97	47.29	56.12	46.94	48.35
UP	58.74	56.39	52.93	52.29	43.27	45.57
SaP	59.65	61.90	54.43	58.36	44.68	50.42
SL	59.89	59.87	53.19	56.32	45.19	50.45

Source: National Education Research and Evaluation Centre (2005, 2007, 2008, 2009). Provinces: WP Western Province; CP Central Province; SP Southern Province; NP Northern Province; EP Eastern Province; NWP North Western Province; NCP North Central Province; UP Uva Province; SaP Sabaragamuwa Province; SL Sri Lanka

1.5 Disparities in Access and Achievement

Despite gradual improvements in mean levels over time, a number of disparities in enrolment and performance persist in the education system.

Enrolment in the primary stage of education (Grades 1-5) is near universal in all provinces. Net enrolment rates are 100% for girls and 99% for boys. Survival rates to the end of the junior secondary stage (Grades 1-6) are 93% for girls and 89% for boys. Net enrolment rates at the senior stage of education (Grades 10-13) are 69% for girls and 65% for boys. Enrolment rates diverge between the poorest and richest income groups at the junior and senior stages of education. At junior secondary, the net enrolment rate ranges from 89 percent for the poorest quintile to 97 percent for the wealthiest quintile. At senior secondary, the income gap in enrolment is considerably greater, ranging from 52 percent for the poorest quintile to 77 percent for the wealthiest quintile (World Bank, 2011).

There are wide disparities in student performance in the national assessments in maths, first language and English at Grade 4 and 8. More developed provinces, such as the Western Province, perform better than less developed areas such as the Northern, Eastern and Uva Provinces. Within provinces, there are disparities in performance between zones and divisions. Students in urban schools perform better in achievement tests than students

in rural and estate schools. Children in Type 1AB schools perform better than children in other types of schools. Primary school-age children in Type 2 schools perform worse than those in Type 1AB, 1C and 3. Students in Tamil medium schools perform worse than students studying in the Sinhala medium. Indeed, in contrast with increasing performance of Sinhala medium students over time, performance of Tamil medium students stagnated or declined between 2007 and 2009.

Girls perform better than boys on average. Students in urban areas typically perform better than students in rural areas. It should also be noted that the distributions of scores vary by subject. In first language and mathematics scores are negatively skewed: more children are achieving high scores than low scores. In English the distribution is bi-modal, indicating distinct groups of high and low performers (NEREC, 2008, 2009).

National achievement data are also available for the competitive Grade 5 scholarship examination, which facilitates access to Grade 6 Type 1AB national schools, managed directly by the central Ministry. In 2008 only 10.9% of all children who sat the exam scored higher than the 'cut-off' mark required for the award of the scholarship. In the three districts where our case communities are located, the percentages are lower: 9.1% in Kandy district, 9.7% in Anuradhapura district and 6.7% in Nuwara-Eliya district.

At the 2008 GCE O level examination, 48.5% of all students who sat more five or more subjects qualified for progression to the GCE A level classes. In the districts where our three case communities are located, the comparable figures were 49.6% (Kandy district), 40.6% (Anuradhapura district) and 37.3% (Nuwara-Eliya district). The lower GCE O level performance of schools in the Nuwara-Eliya district is attributable to several factors, including the remoteness of many habitations and the large proportion of schools that serve children from the estate areas. Historically, schools serving the estate areas were very under-developed compared with schools in the rest of the country, and enrolments in post primary very low (Little, 1999). Their gradual take-over from estate management by the government since the 1980s has led to major improvements in access to primary and post primary, but severe teacher shortages in critical subject areas such as maths, science and English remain.

Disparities in achievement are in part attributable to disparities in teacher deployment. Sri Lanka enjoys an enviable Student Teacher Ratio (STR) across Grades 1-13 of 18.2:1. However, there are wide disparities between schools in the size of the STR, and in the numbers and qualifications of teachers available to teach key subjects such as English in the primary and secondary grades and maths and science in the secondary grades.

2. Communities and Households

2.1 Introduction and Methods

Our detailed exploration of access, absence and achievement was undertaken in three communities. Our choice of communities for study was based on an earlier survey of youth conducted by some members of our team in 2002-3 (Little, ed. various years). Our three communities are rural and diverse (i) Madugalle: a rural Sinhala Buddhist community in Kandy district, (ii) Nachchaduwa: a rural Muslim community in the North Central province and (iii) Park: a rural tea estate Tamil community in Nuwara-Eliya district. Our studies were based on interviews with household members and school principals and analysis of documentary evidence from school records. Additional evidence on the community characteristics were sought from officers in respective Divisional Secretariats.

In each geographically-defined community we surveyed every household with at least one child aged 3-16 years. In Madugalle we surveyed 146 households and 651 household members; in Nachchaduwa 156 households and 762 members, and in Park 95 households and 539 household members. In all, our research has covered 397 households and 1,952 household members, among whom 98% of all children aged between five and sixteen were enrolled in school at the time of the survey. All children had enrolled in school and fourteen children had dropped out.

The household survey and analysis of school records were carried out in Madugalle in October and November 2008, in Nachchaduwa in March and April 2009, and in Park in September and October 2009. Return visits were made during 2010 to all three communities to collect information on student achievement levels (2008) and school attendance (for 2007 and 2008). Further return visits to schools and telephone contacts were made with school principals in 2011 to feed back and discuss results with principals and teachers, to discuss school-based practices to promote access and to complete data collection.

Our key informants were adult household members. Our original intention was to interview the child's primary care giver, assumed in most cases, to be the child's mother. This was not possible in all cases, either because an adult male (usually the father) preferred to be interviewed or because the mother was absent. In these cases we interviewed usually the father or another adult household member. In our subsequent analyses we did not assume that an adult males and adult female in the same household would respond to our questions in the same way. Nor did we assume that males and females in the same household would have the same literacy competencies and practices. Hence we include in our analyses a variable for the gender of the adult household member whom we interviewed.

2.2 Profile of the Case Communities

2.2.1 Madugalle

Madugalle is a traditional Sinhala, Buddhist village, located in the Udumbara division of the Kandy district in the Central Province, about 180 km from Colombo. This village is named after Madugalle Disaw, a local chief of the Sinhalese King Sri Wickrama

Rajasinghe who ruled the Kandyan Kingdom in 1818. On siding with the British against the King, Chief Madugalle was found guilty of high treason, sentenced to death and escaped to an isolated mountain pass subsequently named Madugalle. The village comprises a number of large *walawwas* – large houses symbolising status and wealth. Relatives of those who own the *walawwas* live close by in their own homes and look after the *walawwas* in various ways. The majority of villagers belong to the *Govi* (Cultivators) caste. Others belong to the *Nekathi* (Dancing), *Padu* (Weaving) and *Hena* (Washing) castes. Despite these caste ascriptions, most villagers engage in agriculture, especially rice paddy, vegetable and *chena* cultivation. The majority of households (89%) live in separate dwellings, many of which are located far apart. Two households live in what are described as ‘huts’.

The British introduced tobacco cultivation to Madugalle in the nineteenth century and a few small tobacco farms continue to this day. Most of the older generation earn their living from traditional paddy cultivation. Many youth migrate for work to nearby garment factories in Udadumbara (about 14 km away), to Kandy, and to the Katunayake and Biyagama free trade zones in the western province near Colombo. In 2002 we had interviewed 42 youth, aged 15-29, residing at that time in Madugalle. By 2008, only eighteen, or 43% were still residing and working in or near to the village. One had migrated abroad for work, while five had migrated to the capital, Colombo, or the Free Trade Zone in Katunayake. A further five had migrated to another village, and two were in the Security Forces. Eleven youth had left the village with their families and could not be traced.

In 2008, the main source of household income in over half the households was cultivation (58.2%) (see Table 3). Among the 146 household respondents, around a third reported that they had a secondary source of income (Table 3). A small number of households derived their main income from the government sector working in the police, general government workers, or teachers. Three derived their livelihood from a government income support scheme known as *samurdhi*.

Table 3: Sources of household income, Madugalle

First Income Source	No.	%	Second Income Source	No.	%
cultivation	85	58.2	cultivation	16	28.1
daily paid worker	13	8.9	daily paid worker	15	26.3
driver	8	5.5	mason	5	8.8
security	7	4.8	self-employment	4	7.0
mason	6	4.1	driver	4	7.0
garment worker	5	3.4	government worker	3	5.3
carpentry	4	2.7	carpentry	2	3.5
policeman	4	2.7	businessman	2	3.5
government worker	4	2.7	garment worker	2	3.5
samurdhi	3	2.1	policeman	1	1.8
foreign employment	2	1.4	labourer	1	1.8
businessman	2	1.4	waiter	1	1.8
electrician	1	0.7	working in Middle East	1	1.8
bus conductor	1	0.7	Total	57	100.0
teaching	1	0.7			
Total	146	100.0			

The general infrastructure level of this isolated village is weak. The road was reconstructed recently after years of neglect but during the rainy season its condition is poor. The Ceylon Transport Board operates a modest public bus service, along with a few private operators. Local government officials judged that most families lived in poor conditions and that the village as a whole was at a 'primary stage of development'. The services of government and private institutions such as police station, banks, medical clinic, pharmacy and hospital are located 14 km away in Udadumbara. For commercial purposes villagers travel further, to Kandy (62km) or Mahiyanganaya (36 km). Most children attend the co-educational Madugalle Maha Vidyalaya, which offers education from Grades 1-13. The school was established more than ninety years ago, in 1920, and most of today's parents and grandparents attended the same school.

2.2.2 Nachchaduwa

Nachchaduwa is a Muslim village, located in the Thirappane division of the Anuradhapura district in the North Central Province, about 210 km from Colombo. Before the beginning of the 20th century Nachchaduwa was a traditional agricultural area with an irrigation tank dating back to very early times. At the beginning of the 20th century, the British reconstructed the tank and its irrigation system, around which a small number of traditional Sinhala-Buddhist families lived. Because these families were unwilling to labour for the British in the maintenance of the irrigation system, the British settled some Muslim families near the tank and in an area that became the present Nachchaduwa town area. They were given lands for paddy cultivation to supplement their work on the irrigation system. The Muslim and Sinhalese families lived in the same general area, with the Muslim population growing at a faster rate than the Sinhalese.

Population growth and a shortage of agricultural land led to overcrowding, dense residential compounds and an expansion of agricultural activities such as cattle-breeding, fishing and trade. Hettige (1992) describes how, by the late 1980s, cattle-breeding, rice milling and shop keeping were confined to a minority of village families. Being non regular, uncertain and subject to fierce competition, fishing and petty trade generated very limited incomes. Education levels, particularly among women, were, at that time, still low and the age of marriage lower than the national average. These factors, combined with land fragmentation, low social mobility, growing landlessness and high unemployment and under-employment rates led to a high dependency ratio and 'shared poverty'. However, growing poverty, landlessness and unemployment did not lead to a disintegration of the community. A strong community organization built around the village mosque acted as a unifying force. It was in this context of poverty that the process of migration to West Asia (Middle East) began. As Hettige (1992:5) records, the first migrant to West Asia, in 1979, was the wife of a petty trader. Notwithstanding the public outcry, other women and men followed, and by the late 1980s 83% of village households included at least one current or returned migrant. The majority of households (97%) live in separate dwellings located close together.

Our study focussed on those living in the Nachchaduwa areas of Kasawa and Pandikulam where the population density is higher than in surrounding areas. Household income derives from a greater range of sources than is found in Madugalle (Table 4). Just 16.1% derive their main income from cultivation while 25.2% derive it from business and 9.1% from work in the government sector as general government workers and as teachers. A small number (16%) reported a secondary source of household income, the majority

(40%) of whom reported remittances from household members working in the Middle East (West Asia)³.

Youth migrate from the village for work. In 2002 we interviewed 42 youth, aged 15-29, residing at that time in Nachchaduwa. In 2009 just over half (55%) still resided in the village. In line with village tradition, nine had migrated abroad for work, two had migrated to another village and eight were no longer residing in the village and could not be traced.

Table 4: Sources of household income, Nachchaduwa

First Income Source	No.	%	Second Income Source	No.	%
cultivation	25	16.1	working in Middle East	10	40.0
self-employment	2	1.3	businessman	4	16.0
carpentry	3	1.9	cultivation	3	12.0
driver	6	3.9	labourer	2	8.0
electrician	1	0.6	teaching	2	8.0
security worker	1	0.6	daily paid worker	1	4.0
labourer	26	16.8	carpentry	1	4.0
businessman	39	25.2	other family members	1	4.0
government worker	4	2.6	cooking	1	4.0
mason	2	1.3	Total	25	100.0
garment worker	2	1.3			
working in middle east	20	12.9			
teaching	10	6.5			
money from other family members	2	1.3			
fishing	5	3.2			
pension	1	0.6			
painter	1	0.6			
cooking	1	0.6			
mechanic	1	0.6			
tailor	1	0.6			
mawlavi	1	0.6			
Total	155	100.0			

The general level of infrastructure of the area is more developed than in Madugalle. Public and private buses ply the paved roads from Anuradhapura and motorcycle ownership is high. In 2009 at least one household member owned a motorcycle in 49% of households, compared with just 9.6% of households in Madugalle and 4.3% in the Park estate. Electricity and telephone facilities are well developed. Government offices and other public and private services as banks and a hospital are located in Sawasthipura, a small developing town 14 km away. For commercial purposes villagers generally travel 15 km to the district capital, Anuradhapura. Most children attend the co-educational Nachchaduwa Maha Vidyalayam, a Type 1C school which offers education from Grades 1-13 in the Tamil medium. The school was established more than ninety years ago, in 1920, at the same time as the school in Madugalle. Most of today's parents and grandparents attended this school.

³ In the 1980s and 1990s it was becoming commonplace in Sri Lanka to refer to the Middle East as West Asia. Latterly, the term Middle East is once again more prominent.

2.2.3 Park Estate

Park is an up-country tea estate in the Nuwara-Eliya division of the Nuwara-Eliya district in the Central Province, about 186 km. from Colombo. It is situated close to Kandapola town. The majority of those who live in the Park estate are Tamil Hindus of Indian origin. Tea was introduced to this area by the British in the late 19th century. The management of the Park Estate was nationalised in the 1970s but was returned to a private company in the 1990s. The estate is currently managed by the private company, Udapussellawa Plantations Limited. Estate labour has traditionally been drawn from among the Indian Tamils who ancestors were brought by the British from South India in the mid nineteenth century. In contrast with dwellings in Madugalle and Nachchaduwa, the majority of households (40%) live in close proximity to others in ‘line rooms’, simple terraced rooms with *verandahs*. A similar percentage (36%) live in separate dwellings and a smaller percentage (21%) in semi detached dwellings.

In most households in 2009 both the mother and father worked in the estate as labourers (Table 5), supplementing their income with root vegetable cultivation on small areas of land made available by the estate company. In a very small number of households the main source of income derives from cultivation, from supervisory jobs in the estate and from government sector jobs including teaching and the police. Compared with Madugalle and Nachchaduwa more households reported a second source of income, with the majority deriving once again from estate labour and from cultivation. The Kandapola area is well known for its productive and high quality vegetable cultivation. Kandapola town is a vegetable wholesale collection centre just half a kilometre from Park Estate. Much of the vegetable crop is exported to the capital, Colombo. Kandapola town also offers medical and banking facilities. The district capital, Nuwara-Eliya, a large commercial centre, is 11 km away and accessible by bus.

Table 5: Sources of household income, Park

First Income Source	No.	%	Second Income Source	No.	%
labourer	63	67.7	labourer	37	56.1
cultivation	16	17.2	cultivation	9	13.6
businessman	4	4.3	foreign employment	5	7.6
field officer	4	4.3	working in Middle East	4	6.1
teaching	3	3.2	government worker	3	4.5
driver	1	1.1	driver	2	3.0
working in police	1	1.1	businessman	2	3.0
cooking	1	1.1	garment worker	2	3.0
Total	93	100.0	cooking	1	1.5
			sewing	1	1.5
			Total	66	100.0

Compared with Madugalle, access to facilities in Park is favourable, with a nearby paved road and hourly bus access to Nuwara-Eliya. Traditionally estate workers have been low-income wage earners, living in poor quality ‘line rooms’ and lacking political representation. In recent years political, land and property rights have improved; so too education and housing facilities. Quite recently, loyal and long resident Park estate households were given 2.5 perches of land by the estate owners. In another scheme workers were given 7 perches of land and a loan, repayable over 30 years, to build their own houses. This has given rise to a large number of simple detached and semi-detached dwellings in the estate. Compared with Madugalle and Nachchaduwa fewer youth

migrate long distances for work. In 2002 we interviewed 36 youth, aged 15-29, who were resident in the estate at that time. By 2008, only fifteen, or 42% of the 36 youth whom we interviewed in 2002 were still residing in the estate. One was known to have migrated to Colombo for work, ten had migrated to another estate for work under an estate labour transfer scheme and ten could not be traced.

Compared with Madugalle and Nachchaduwa, where the vast majority of children enrol in the same village school between Grades 1 and 13, the children of Park Estate attend a dispersed range of schools. The majority enrol in either the Park Tamil Vidyalayam, offering Grades 1-9 or in the nearby Methodist Maha Vidyalayam. A smaller group travel daily to a cluster of schools in the district capital of Nuwara Eliya, 11 km away. About 10% enrol in schools much further away in the district or neighbouring district.

2.3 Profile of Households

2.3.1 Demographic characteristics

Table 6 indicates that around one third, or a little less, of household members in each of our communities are aged 5-15. The majority are in the working age group 16-64. The population dependency ratio (the percentage of young people (under 16) and older people (over 64), compared with the percentage of people of working age (16 to 64)) is around 0.70 in Madugalle and Nachchaduwa and lower, at 0.59, in Park. The level of dependency on the working age population in Madugalle and Nachchaduwa is thus lower than in Park. All three communities have stable populations, with 95% of households in Madugalle, 92% in Nachchaduwa and 87% in the Park Estate being described as long term residents. In Madugalle 81% had lived there for more than 10 years, in Nachchaduwa 75% and in Park Estate 65%.

Table 6: Dependency ratio, Madugalle, Nachchaduwa and Park

	0-4	5-15	16-64	65+	Dependency Ratio
Madugalle	7.53	30.26	58.68	3.53	0.70
Nachchaduwa	6.40	33.47	58.53	1.60	0.71
Park Estate	6.55	29.22	62.92	1.31	0.59

2.3.2 Household Assets

A household assets index was developed to estimate the wealth/poverty of each household. The household asset index is constructed using 14 binary indicators for the ownership by a household of portable asset items, namely bed, table, stove, fridge, fan, clock, watch, TV, telephone, mobile phone, computer, bike, motorbike, car.

The pairwise correlations between owning one item and another were found to be positive in the vast majority of cases. Principal components analysis showed that the first principal component explains 24.7% of the variance among these items. All items were found to be positively correlated with this component, which has an Eigenvalue of 3.46. Thus, the first principal component may be considered a useful indicator of the underlying ability of households to acquire these items and was used to generate a household asset score for each household in the pooled sample across sites. The mean values of the asset score varied across the three sites, with a higher mean value of 1.17

(SD=1.63) in Nachchaduwa, compared with -0.85 (SD=1.49) in Madugalle and -1.03 (SD=1.36) in Park.

2.3.3 Housing Index

A housing index was constructed using indicators of housing quality. Principal components analysis was performed using five indicator variables – connection to electricity, source of water supply, type of toilet facility, house ownership and the number of rooms in the house. All these indicators are positively correlated with the first principal component which is found to explain 32.3% of the total variance among these indicators and which has an Eigenvalue of 1.62. The mean values of these varied across the three sites, with a higher mean value of 0.94 in Nachchaduwa, compared with 0.22 in Park and -1.29 (SD 0.92) in Madugalle.

2.3.4 Education Assets in the Home

Assets in the home that might support children’s education were noted and an education assets index created. We explored whether children had a table for homework, a chair, school books, exercise books, pen, a light source for doing homework, adequate ventilation, books other than school books and magazines/newspapers. These binary variables were used to generate an education assets index using principal components analysis. All these indicators were found to be positively correlated with the first principal component, which accounts for 40.4% of the total variance and has an Eigenvalue of 3.63. The highest mean on education assets was reported in Madugalle (0.53) followed by Nachchaduwa (0.12) and Park (-0.83).

2.3.5 Household Members’ Education Status

Table 7 describes the education status of household members. The educational characteristics of household members vary across the three sites, with those aged 21 years and over and living in Madugalle having had access to greater levels of schooling, on average, than those in Nachchaduwa and Park.

Table 7: Educational status of household members aged 21 years and over, Madugalle, Nachchaduwa and Park

	Madugalle %	Nachchaduwa %	Park %
Never enrolled	2.90	2.41	14.54
Preschool	0.29	0.80	0.35
Incomplete primary	12.17	13.94	15.96
Complete primary	7.54	20.38	9.57
Incomplete lower secondary	28.99	27.88	23.05
Complete lower secondary	33.33	18.23	17.38
Incomplete upper secondary	1.16	1.61	10.64
Complete upper secondary	12.17	10.72	7.80
Incomplete college or degree	1.45	2.14	0.35
Complete college or degree	0.00	1.88	0.35
Total	100.00 (N=345)	100.00 (N=373)	100.00 (N=282)

In Madugalle and Nachchaduwa less than 3% of all household members aged 21 years and over had never been to school. In Park the percentage is higher, at 14.5%, reflecting

the more restricted provision of schooling in estates historically. Similar percentages across the three communities have achieved incomplete primary and secondary schooling. In Madugalle complete primary is the highest level of schooling achieved by 7.5% of household members 33.3% had completed lower secondary and 12.2% completed upper secondary. In Nachchaduwa a greater proportion completing of primary (20.3%) is balanced by much lower proportions completing lower secondary (18.2%) and upper secondary (10.7%). In Park the percentages are lower, with 9.6% completing primary, 17.4% completing lower secondary and 7.8% completing upper secondary. Among adults aged 21 years and over the mean level of education is highest in Madugalle and lowest in Park.

Education levels do not necessarily reflect current literacy competencies and practices of adult household members. If the environment in which adults live does not require them to use the literacy skills developed through formal education, they are likely to lose those skills. The language and literacy practices of adult household members influence children's learning experiences at home which in turn influence their experience of and achievement in schooling. In Madugalle, Sinhala is the language usually spoken at home and in Nachchaduwa and Park, Tamil. Very few of those adult household members interviewed reported ever using English at home - only two in Madugalle, five in Nachchaduwa and two in Park.

In order to provide an indication of adult literacy competencies, as distinct from reported levels of schooling, we developed literacy tests in Sinhala, Tamil and in English. Sinhala and Tamil are the official languages of Sri Lanka, with Sinhala spoken by the majority of the population. English is classed as an official language alongside Sinhala and Tamil. We developed items to assess five types of literacy competency, ordered in terms of difficulty - letter recognition, word recognition, sentence reading, passage reading and passage comprehension. The vocabulary and grammatical structure of these items were based on the Grade 3 mother tongue language text books. Performance within each of the five competencies was graded progressively at five levels, with the scores for the two more difficult competencies, passage reading and passage comprehension, being weighted double in the overall score. With five competencies marked at five levels and with two competencies being double weighted, the overall maximum score per individual was 35.

The tests were administered individually to the adult respondent. In most cases this was the mother, the female primary care giver, but in some cases it was a male primary care giver or a household member other than the primary care giver. Among all 394 respondents who completed the literacy test 84% were female and 16% male. The percentage of male respondents varied from 23% in Madugalle to 12% in Nachchaduwa and 14% in Park. At each successive level of task difficulty the proportion of respondents scoring no marks increased and scoring maximum marks decreased, thus validating the *a priori* difficulty level of each.

In Madugalle, where the mother tongue is Sinhala the mean score was 32.0 out of a maximum of 35 (male = 31.7; female = 31.7). Since the test itself was based on literacy levels employed in the Grade 3 reading book we can infer that most parents were achieving at the Grade 3 level. In Nachchaduwa and Park, where the mother tongue is Tamil, the respective means were 29.7 (male = 31.6; female = 29.4) and 17.7 (male = 20.6; female = 16.8). The much lower level in Park reflects lower levels of schooling, and

perhaps also of achievement within any given level of schooling, among adult household members in the estate community. Literacy scores in English were, not surprisingly, low, with means of 6.8 (male = 5.9; female = 7.1) in Madugalle, 11.1 (male = 17.8; female = 10.3) in Nachchaduwa and 6.3 (male = 4.4 female = 5.3) in Park. The Tamil versions of tests were not administered in Madugalle where Tamil is barely understood and used. However, the Sinhala tests were administered in Nachchaduwa and Park, yielding means of 12.6 and 3.3 respectively. The higher competence in Sinhala in Nachchaduwa than in Park reflects the mixed ethnicity of the larger residential area of which the Nachchaduwa case community is a part, and the fact that much of the trading and business activity of Nachchaduwa households is transacted through both Sinhala and Tamil.

2.3.6 Educational Status of Children 5-16 Years

In Madugalle 194 children were aged 5-16 years. Among the 5-16 year olds all but one was enrolled in school. One child, aged 13 years in 2008, had dropped out (Zone 2) because of health problems. The majority of children (86.7%) attend the Madugalle Maha Vidyalaya. No children attended a private school. Almost all (99%) of children attended some form of pre-school prior to enrolling in Grade 1. The majority of children (92.3%) started primary school at the official entry age (5+). Respondents reported low rates of repetition. Only five children were reported to have repeated a grade once, and three twice. Almost half the children (48.2%) attend private tuition after school.

In Nachchaduwa 282 children were aged 5-16 years, among whom the majority were still enrolled in school. Six had dropped out. All were reported to have started school at the correct age of 5 years. The majority of enrolled children (97%) attend the government Nachchaduwa Tamil Vidyalayam. Four children attended private schools some distance away while four attended religious schools. The majority of children (95.4%) had attended pre-school before enrolling in Grade 1 and 84.7% attended private tuition after school hours.

In Park, 177 children were aged 5-16 years, among whom the majority were still enrolled in school and seven had dropped out. All were reported to have started school at the correct age of 5 years. As noted earlier the Park children, in contrast with those in Madugalle and Nachchaduwa, are dispersed among a large number of schools. Only five of the 177 attended private schools. A majority of children (78.8%) had attended pre-school before enrolling in Grade 1, though this percentage is smaller than in Madugalle and Nachchaduwa. A majority (64.7%) attended private tuition after school hours.

2.3.7 Parental Expectations for their Children

Parental expectations for their children are high. In Madugalle almost two thirds (61.5%) of respondents 'realistically expected' that their child would attain a university education; a further one third (33.3%) expect that their child will attain education up to the GCE A level, while just eight (4.1%) expect their child will reach GCE O level. Most respondents (59.1%) believed that there might be reasons why his or her child might not reach the expected level of education, while 40.9% do not anticipate challenges. Among those who expect that there might be problems the majority (86.0 %) cited poverty or economic problems. In Nachchaduwa more than nine tenths (92.7%) of primary care givers expected that their child would attain a university education of whom around one third (31.3%) believed that there may be economic reasons why their child might not

reach the expected level of education. In Park the same percentage (92.7%) 'expected realistically' that their child would study up to university level, though most of these also felt that economic reasons might prevent this.

Occupational expectations were also very optimistic. More than two thirds of Madugalle respondents expected that their children will gain jobs in the state sector - in the security forces, as teachers or in unspecified occupations. About half presented reasons why their child might not attain this job, the majority of which (72.2%) were poverty-related. A further 16 (16.5%) mentioned illness/disease. In Nachchaduwa government sector job expectations, especially teaching jobs, were even higher. Among the 97% who expected government sector jobs around 20% suggested that their child might not attain this job because of poverty. In Park the percentages of those who expected state sector jobs - as teachers, doctors, police - were less than in Nachchaduwa but slightly more than in Madugalle (72.3%). However, among these respondents about three quarters thought that economic reasons would prevent the realisation of these occupational expectations for their children.

3. School Profiles

This section provides a description of the schools attended by the majority of children in the survey households. It is based on data from interviews with principals and teachers, school observations and on school records. The school profiles are based on all children attending the respective school and not only those included in the household survey.

3.1 Madugalle School

The majority of children in Madugalle village learn through the medium of Sinhala at the government Madugalle Maha Vidyalaya. The school was established in 1920. Until very recently the school was a Type 2 school and was upgraded to a type 1C school at the beginning of the year of our survey. It admitted its first students to Grade 12 in 2008. The furthest distance any child has to travel to this school is 3km. Of the few dropouts recorded, all were in the post primary grades. In Grades 1-9 all children were in the correct grade for their age. In 2008 there were 23 teachers, including the principal. With an overall enrolment of 352 the STR was 15.3:1.

The general condition of the school buildings was judged to be acceptable, with access to space for sports, a school garden and a safe environment. Light, ventilation, school furniture, blackboards and learning materials were judged to be acceptable or excellent. There was no library. Science laboratory facilities were judged to be very poor in this school although there was a separate room for the laboratory items. Three latrines each for boys and for girls were judged to be in acceptable condition. There were no hand-washing facilities. The school had no facilities for treating sick children and the nearest clinic and hospital are 12km distant from the school.

3.2 Nachchaduwa School

The majority of children in our Nachchaduwa community learn through the medium of Tamil and attend the government Nachchaduwa Muslim Maha Vidyalayam. The school offers education from Grade 1-13 and is classified as a Type 1C school. In Grades 1-5 boys and girls study together while in Grades 6-13 they study in separate classroom blocks. In 2008 the total enrolment was 808, of whom 50.4% were girls. Girls' enrolment in the upper grades increased from 47% in 2002 to 54% in 2007 and 53% in 2008. Girls have outnumbered boys in the GCE A level grades since 2002, largely because boys who wish to study in GCE A level classes often travel to schools further away from home, while the girls are more likely to enroll in a school nearer to home. Repetition rates are low. Dropout rates in Nachchaduwa school in 2008 in Grades 1-5 were low at just 0.9% for boys and 0% for girls, but were rather high in the upper grades: 12.8% for boys and 10.9% for girls (against the district averages of 7.16% and 4.73%). These rates are higher than both the district and national averages. The principal attributed the dropout among boys to their tendency to engage in family business and among girls to their tendency of their families to prepare them for marriage and, in the case of households where the mother has migrated for work to the Middle East, to stay at home to look after younger siblings.

Table 8 indicates that children's ages corresponded with the official age for each grade in the first five years of enrolment in 2008. In 2008 all children in Grades 1-5 were in the correct grade for their age. Over-age children appeared in the school records only from

Grade 6; three in grade 6, 15 in grade 8, 13 in grade 9, 12 in grade 10 and 16 in grade 11. In grades 12 and 13 there appears to a marked shift in ‘over-age’ distribution. This is explained by the fact that Grade 11 students sit for their GCE O Level examination in December, receive their results in March and choose in which schools they would like to register for the A Level in the following months. They enrol for the GCE A Level classes only in the following January, thus wasting an entire year between sitting the O level examination and commencing studies leading to the A level examination. This year of waiting which is common to all children in the country represents a ‘silent exclusion’ from education among all young people aged 16-17 years who must rely on their parents to support them.

Table 8: Age of enrolled child by grade of current enrolment, 2008, Nachchaduwa

Grade	5+	6+	7+	8+	9+	10+	11+	12+	13+	14+	15+	16+	17+	18+	19+
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	79	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	71	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	74	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	79	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	53	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	59	3	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	68	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	73	15	1	0	0	0	0	0
9	0	0	0	0	0	0	0	0	74	10	3	0	0	0	0
10	0	0	0	0	0	0	0	0	0	38	9	3	0	0	0
11	0	0	0	0	0	0	0	0	0	0	44	13	3	0	0
12	0	0	0	0	0	0	0	0	0	0	0	1	21	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	1	8	3

In 2009 at the time of our visit there were 42 teachers. With a total student enrolment of 807, this yields an STR 19.2:1.

The general level of facilities in the Nachchaduwa school is good. The buildings are built of brick and concrete and are in acceptable condition. The school has space for sports, has some garden areas and is surrounded by fencing and a secure gate. Most classes are taught in separate classroom spaces, furnished with desks, chairs, blackboards and chalk. Only one classroom was found to be substandard. A house is available for the school principal but no accommodation facilities are available for teachers. One science laboratory is available but is judged to be of poor quality. The headteacher’s office is of excellent quality. A poor quality staff room is available for the use of teachers. A modestly equipped library is available but there are no store rooms, nor a covered assembly space or kitchen. A small, privately-run canteen serves snacks and drinks. The school has access to electricity and to pipe-borne water. Three pan toilets and one set of urinals is available for boys and four pan toilets and one set of urinals for girls. One toilet is available for staff. The condition of the latrines and toilets is acceptable. Pipe borne water for handwashing is available.

3.3. Park Estate school

Forty five per cent of the Park division children attend the Tamil-medium Park school, and forty four percent attend the nearby Methodist School or one of four government

schools in the district capital of Nuwara Eliya, 15 km away. The remaining 11% attend 13 schools further away within the district or the neighbouring district, or smaller schools in Nuwara Eliya town. Three students attend private English-medium 'international' schools in Nuwara Eliya. One attends a Sinhala-medium government school.

The Park Tamil Vidyalayam is a Type 2 school with nine grades (Grades 1-9). It serves children resident in both divisions of the Park Estate (Park division and the larger, adjacent Kandapola division) as well as the Eskdale division of the neighbouring St John's estate. It is not clear when the school was established though we know that it was functioning in the 1950s. Initially run by the estate management, it was taken-over by the government in 1979 but closed for a few years during which time teachers were sent for training. During this time children attended the nearby Methodist school. A new building was opened in the late 1980s and a new principal appointed in 1990. The school is located on two sites, the result of an amalgamation in 1999. The primary section (Grades 1-5) is located in the adjacent Kandapola division and the upper section (Grade 6-9) in the Park division. The principal's office is located in the upper section, some 1.5 km from the lower section. Access to the school is via a motorable road of poor quality to within 400 metres of both site entrances. Children access both schools through a series of pathways and short cuts through the estate lands. The nearest preschool facility is located within 200 metres of the upper section school. The nearest pharmacy/clinic is within 500 metres of the upper section school and the nearest hospital 10 km.

Total enrolment during the third term of 2009 was 306, of whom 144 (47%) were girls. In Grades 1-5 50 % were girls; in Grades 6-9 43% were girls. The majority of children were enrolled in the correct grade for their age. Just seventeen (5.5%) of children were one year older than the official age for their respective grade. Enrolment numbers have declined very slightly over the past few years. In 2005 total enrolment was 332, declining slightly to 319 and 310 in 2006 and 2007 respectively.

Park school records indicate that no student repeated a class between 2004 and 2008, reflecting the school's adherence to the national policy of automatic promotion. However in each of the years between 2005 and 2009, a small number of dropouts from the school are recorded - in 2005 10 boys and 11 girls; in 2006 3 boys and 4 girls; in 2007 6 boys and 4 girls; in 2008 13 boys and 11 girls; and in 2009 6 boys and 4 girls. With an enrolment of 306 in 2009, this gives a low dropout rate of 3.4% across Grades 1-9. Dropout was more likely to occur from Grades 5-9 than from Grades 1-4. The principals of both the Park school and the neighbouring Methodist School attributed dropout, among boys and girls, to the availability of well paid casual work on vegetable farms in Kandapola.

Success in the Grade 5 scholarship examination facilitates transfer to a national school or a high ranking provincial school for further education. If household income falls below a defined level, exam success attracts some financial support. However no student in Park was successful in 2000, 2002, or 2005-09. One was successful in 2003 and 2004 and two in 2001. Despite this record of failure, the school adopts a policy of providing free extra classes for those preparing to sit for this exam. The majority of children who sat in 2009 achieved less than 80/200. Failure in the exam does not prevent students from continuing with their education beyond Grade 5. It merely restricts access to the best schools. And the national policy of automatic promotion enables some children to continue their education beyond Grade 5 with very weak foundations. Indeed more than half of the

children who sat the exam in 2009 achieved less than 30% of the marks. One girl in the Park school who sat the exam in 2006 had, despite having achieved only 18 marks out of 200, transferred to another school in Nuwara-Eliya town. By 2009 she had progressed to Grade 9. Private tuition is pursued during the afternoons by many of the children attending the Park school. Hitherto, much of this tuition was pursued in classes run in the town area, but recently two teachers resident on the site of the primary section have encouraged children to attend classes run by them for a modest fee during the afternoons. By 2011 this practice appeared to have ceased to be replaced by free extra tuition run by youth educated to the GCE A level in the library of the local community centre.

In 2009 there was a male principal and 13 teachers (6 male and 7 female) for 306 students, yielding an STR of 21.9:1. At 37.2:1 the ratio in the primary grades is much higher than in the upper grades, where it is 13.3:1.

The general level of facilities in the Park school is only minimally acceptable. While the buildings are of acceptable brick and concrete construction, repairs to guttering and pavements were found to be long overdue. Both sites have limited space for sports activity, poorly maintained garden areas and poor security arrangements. The primary section has two buildings. In one, Grades 1 and 5 are separated by a full wall. In the other, grades 2, 3 and 4 are taught in the same 60 X 20 ft. space, with no classroom dividers or walls between. The upper section consists of two buildings. In one is a teachers' residential room, an activity-cum-storage room plus the principal's office. In the other are Grades 6-9, with classrooms separated by walls of three quarters height. While classroom spaces are adequately ventilated, they are not well lit by natural light. Desks, chairs, blackboards and chalk were available. Teaching aids and children's work was displayed only minimally. Two teachers resided in simple quarters in the primary section, while a third occupied a room in the upper section. No library or science laboratory is available. In 2011 six computers had been delivered to the school – but these had not been set up for want of a suitable room in the upper section. At the time of a return visit to the school in March 2011 all the children in grades 1-9 were studying in very cramped conditions in the lower school building. The upper school building had been requisitioned by the estate to house a number of 'refugee' line room residents whose building had burned down some three months earlier due to an electricity power failure.

Pit latrines and urinals were available in adequate numbers for girls and boys, with a separate latrine available for the use of staff. Their condition was adequate. While water was available for handwashing, soap was not. Pipe-borne water and electricity were available on both sites. The general cleanliness of the school sites was acceptable. The teachers reported that there were no major health problems among either students or teachers. The school keeps health records of children and the Public Health Inspector visits the school to conduct examinations of children in Grades 1, 3 and 7.

School textbooks were available for every child and teachers had guides and syllabi for most subjects. The availability of reading and writing material, the general classroom environment, visibility of children's work, marking quantity of work covered were judged to be acceptable to poor (on a four point scale of excellent, acceptable, poor and unacceptable).

We conclude the profile of Park with some information about school absence. Average monthly attendance⁴ ranged from lows of around 60% in January, the first month of the school year, to 65% in the holiday season month of April, to highs of around 90% in the end of year test month of December. While the average attendance of the new entrants to the school in Grade 1 is high in January (84.0% for Grade 1) the averages for all other grades were considerably lower (57% for Grades 2, 6, 7 and 8 and between 62 and 65 for Grades 3, 4, 5 and 9). The explanation for this is that January is the start of the New Year when new exercise books and new shoes need to be purchased, and school facilities fees paid. For daily and monthly paid workers with several children attending school, these start-of-year charges place household income and expenditure under stress. As money becomes available then children re-enroll and begin to attend more regularly. By February 2009 average monthly attendance ranged from 67% in Grade 4 to 88.8% for Grade 3. In some months absenteeism is very high. It fluctuates seasonally and varies from grade to grade.

3.4 Methodist School

Because so many of the Park Estate children attend the nearby Methodist Tamil Maha Vidyalayam we include a brief profile. The Methodist school is a Type 1C school, established in 1927 and offers mixed-sex classes from Grade 1 to 13 in the Tamil medium. It is located near to the main road and is very close to the Park estate school described above. In 2009 its total enrolment was 748, of whom 388 or 52% were girls. Most of the children in Grades 1-5 are from the nearby Kandapola town. At Grade 6 there is a surge in enrolment as children from five neighbouring estates, Concordia, Eskdale, St Johns, Heathersett and Goatfell, which have Type 3 schools offering education up to Grade 5 make the transition to secondary education. A secondary surge in enrolment occurs in Grades 10 and 11 as children from the nearby Park estate leave Grade 9 and move to the Methodist school's Grade 10. A very small number of children enter school 'over-age' attributed by the principal to a lack of awareness among parents and reasons of poverty. Admission to school incurs some costs (e.g. shoes, jumpers, exercise books).

Performance in the Grade 5 and GCE O level examinations has improved in recent years. In 2008 37 children sat the Grade 5 scholarship exam and 18.9% gained marks above the district cut-off marks. In the same year 80 students had sat for the GCE O level examinations and 31.3% had qualified for the GCE A level classes. In 2011 no boys were enrolled in the GCE A level classes which offer only Arts and Commerce streams. The boys who had qualified for GCE O level had chosen to move on to schools in Nuwara-Eliya which offered GCE A level streams in Science and perhaps also the chance of better marks in the Arts and Commerce GCE A level examination. All the Grade 12 and 13 students were female.

In addition to the male school principal there were, in 2009, 33 teachers, among whom three were graduates and the rest were A-level qualified. Two teachers had worked in the school since 1997. The remainder had been appointed since 2001. Eight of the teachers were SLTS 2 ii, 12 were 3-i and 12 were 3-ii. The STR was 22.6:1.

⁴ The average monthly attendance of students is calculated in the school registers as the total number of student attendances, divided by the number of days the school was open each month for teaching multiplied by the number of children enrolled in the respective grade.

The principal is an old-boy of the school, having started his education in the Heathersett estate school, moving on to Methodist and moving on again to St Xavier's college for his GCE A level. Having followed teacher training through the distance mode, he was not only the principal but also the only trained Maths teacher in the entire school. In 2011 there was only one trained science teacher and one trained English teacher. The number of students justifies a cadre of six teachers for maths/science and two teachers for English. In 2011 the approved cadre of teachers for Grades 1-5 was 10. The Methodist school only had seven.

The total area available for the school site is constrained and classrooms crowded. In general, facilities were judged to be acceptable, including a library, a room for computers. The science teaching facilities consisted of a room, poor quality tables and chairs, some equipment and chemicals. There was little evidence that the equipment or chemicals were used regularly or frequently. Three sets of latrines were available for boys and three for girls, the condition of which judged to be poor. Hand washing facilities were available.

3.5 School Practices Designed to Reduce Exclusion

In this section we describe some of the policies and practices employed in our schools to improve enrolment, attendance and achievement in the different CREATE zones.

3.5.1 Initial Enrolment (Zone 1)

1. What things do you, your teachers and/or your school development society do to ensure that all children coming up to the age of five enter school at the correct time?

Nationally, parents are informed through the newspapers and the government gazettes that they need to apply for initial enrolment during the month of May for the following January. In Mandugalle parents are informed and reminded about the need to enrol their children in school at the correct age through the private Montessori pre-school and the Madugalle School Development Society meetings. Instructions and reminders are also given to older siblings at the end of the year in the year-end assembly. The school conducts two interviews, the first with the parent and second with the parent and child. During the latter, some simple questions are posed for the child to assess achievement and ability. During these meetings parents are encouraged to send their child to school regularly and are advised of the benefits of schooling to the school. They are also informed about the free distribution of school uniform and text books. On the first day of school there is a cultural programme for parents and children where refreshments are served and a warm welcome extended.

In Nachchaduwa the Mosque plays an important role in encouraging fathers to enrol their children at the correct age. The Mosque is fully supportive of children's schooling, boys and girls alike. The school principal and male teachers who pray at the Mosque pass on instructions about initial enrolment at meetings with fathers. Mothers are not included in these meetings. Household members who are working overseas are expected to contribute to an education development fund managed by the Mosque, some of which is used to fund scholarships to assist with children's schooling. Parents are provided with information about the distribution of school uniforms and text books and the means by

which children are admitted to Grade 1 through the newspapers and the government gazette, through the school development society and religious societies. Like in Madugalle, the principal and teachers of the Nachchaduwa School organise a welcome party/cultural programme for parents and their children on the first day of school.

The principal of Park school explained how he and his staff adopt a pro-active stance on initial enrolment. Each year he collects the names of children eligible for entry to Grade 1 from the day care centres and the Montessori private preschools located in the three estate divisions that send children to the Park school. Parents are invited to visit the school in the October preceding the January admission date. Parents are encouraged to send their children to school and are 'given instructions' about the material for uniforms that will be given for each child and the wish that parents provide children with shoes. Material for the first school uniform is provided before and soon after admission to Grade 1. On the first day of school, a cultural programme is arranged for the newly admitted children and refreshments provided. If, subsequently, children are absent, a parent is invited to visit the school for a discussion with the teacher. If the parent does not come to the school, the teacher will visit the child's home. If that fails, the principal visits the home. The principal of the nearby Methodist school explained that officially applications are called for from parents in the May preceding entry the following June. The Ministry places advertisements in newspapers, his school informs parents and siblings at parent's meeting, asking them to let those who do not currently have children in school know. Because of teacher shortages he does not ask his teachers to visit the homes of children. Although parents are supposed to apply for admission in advance of the start of the school year, some parents turn up after the start of the school year. Their children are admitted.

3.5.2 Over-age Enrolment (Zone 1)

2. Do any children enrol in school before or much later than the official entry age? If so what are the reasons?

Officially children enter school in the January in which they are or will become five years of age. A child whose birthday falls on February 1st is required to wait another year before admission. Across the three schools there are no cases of under-age enrolment and just a few cases of over-age enrolment. The few cases in Nachchaduwa were attributed by the principal to financial reasons. In both Park and Methodist school, the small number of over-age admissions was attributed to a lack of awareness on the part of the parents, to mothers working in the Middle East or to poverty. Expenditures on exercise books, pens/pencils, shoes, jumpers and school 'facilities fees' can be prohibitive for very poor families. In a few cases migrant families with no permanent residences admit their children late in the school year. The school always admits over-age children. The Mandugalle principal did not perceive finance to be a valid reason for over-age enrolment, explaining that, in addition to the government provision of free school uniforms and text books, his School Development Society was able to provide exercise books for children from low income households.

3.5.3 Irregular Attendance (Zone 3 and 6)

3. What things do you and your teachers do when you see that a child is not attending school regularly?

In all schools irregular attendance arises mainly because of poor health for health reasons, usually of the child but sometimes because of parental illness. In Madugalle irregular attendance of male children occurs around the time that the paddy is harvested or when family agricultural activity is intense. This is was not an issue in Nachchaduwa. In the Park and Methodist schools it was suggested that irregular attendance sometimes occurs when the mother has gone abroad for work or if the child is hungry. Attendance tends to be low in Park and Methodist in the months of traditional Hindu festivals which often involved several days of celebrations in the estate. The principal of the Methodist school explained that it was difficult to enforce good attendance during such periods. Instead the principal tries to influence it, sometimes calling the parent for a meeting. Attendance is also low in the first month of the school year. This is because some parents cannot afford the expenditures for all of their school-going children – exercise books, shoes, facilities fees etc. School expenditures may be said to be subject to a ‘seasonality effect’ (Hadley, 2009). While expenditures peak during January, household income does not, leading in some cases to the late enrolment of the child and low attendance for that month. The Park principal explained that, like those who eventually drop-out from school, low attenders among the older age groups are often to be found working on a daily basis on vegetable lands, either on their household lands (where 4 perches are often available to estate workers) or on the farms of others. Children from around 11 years of age can earn Rs 200-300 per day (£1.21 - £1.83) in vegetable cultivation. Their parents who can earn Rs 300-400 per day (£1.83 - £2.44) working on the tea estate can more than twice as much (Rs 700 - 1000 per day) on private vegetable farms. Regular absentees and their parents are ‘sometimes’ given advice about attending school, but many become drop-outs and parents do not seek their readmission to school.

3.5.4 Dropout (Zones 2 and 5)

4. Do children in your school ever dropout? If so, what things do you and your teachers do if you see that a child is at risk of dropping out, or has stopped coming to school altogether.

In all schools dropout was more likely to occur in the post primary grades than in the primary grades, and was most likely in Grades 8, 9 or 10. Even then it is declining. The main reason for dropout among males is economic opportunity in the private or informal sector. In Madugalle this work is found in the private and informal sectors within the area or in the free trade zones. In Nachchaduwa it is more likely to be work in the family business. And in Park and Methodist it is work in vegetable cultivation or in shops in the local area of in the district or national capital. In a very few cases students have dropped out from Park or Methodist because of the influence of older unemployed peers and a peer pressure drift into smoking, liquor and gambling. Among girls dropout was highest in the Muslim school in Nachchaduwa, for reasons of preparation for marriage and caring for younger siblings, especially if the mother is working abroad in the Middle East. The main strategy used to prevent dropout has been advice against leaving school at the point at which the student wishes to collect his or her school leaving certificate. This advice appears to be less effective if the young person is planning to work in a family business and more effective, not least as a character reference, for work in the government or corporate private sectors. In the Madugalle school the principal indicated that in the past some boys had been punished for trying to dropout from school. As it became the norm for boys to aspire to sit the GCE O level examination in Grade 11 so dropout rates had declined.

3.5.5 Low Achievement (Zone 3 and 6)

5. What things do you and your teachers do when you see that a child is struggling with their learning? Do you make special provisions for children who are achieving at low levels? And what use do you and your teachers make of the term and annual achievement tests?

In both the Madugalle and Nachchaduwa schools extra classes are organised by teachers on a voluntary basis for all students preparing for the national exams at Grade 5 and the GCE O and A Levels. In the Madugalle school subject teachers give their time voluntarily to help Grade 6-10 students who are weak in Maths, Science, First Language and English and in Nachchaduwa in Maths, Science and English. Additionally, the zonal office organises 'educational sassy's' (talks, seminars) for all students to help them to prepare for the Grade 5 and GCE examinations.

A teacher in the Park school indicated that the scores on end-of-term and end-of-year achievement tests were scrutinised closely by teachers and students. In the case of older students, group discussions of how to approach test questions are encouraged. Extra classes are arranged for those preparing for the Grade 5 scholarship examination and in some cases for low achieving children in other grades. The Methodist school principal indicated that achievement tests were analysed in detail by both teachers and In Service Advisors (ISAs) and used to influence their teaching of the next cohort of students. Extra classes for low achieving students were not organised in the Park school. The Methodist school had organised extra classes for Grade 6 children who had entered the school at Grade 5 from the surrounding estate schools. In contrast with children who had been enrolled in the Methodist school since Grade 1 the Grade 6 new entrants were found to be achieving at rather low levels in first language and maths. Teachers were invited to volunteer their one or two 'free' periods per day (officially used for preparation and marking) to offer extra classes for these children over a period of about 3 months during both 2009 and 2011.

4. Predicting Exclusion

Section 2 provided an overview of our three diverse rural communities and of the characteristics of households. Section 3 provided profiles of the schools attended by most of those who resided in the communities and a description of a range of practices determined by the school to improve access and achievement. In this section we examine the status of our students and former students in relation to the CREATE model of Zones of Exclusion. We provide an in depth analysis of performance in Zones 3 and 6, the zone of 'silent exclusion' at the primary and junior secondary school stage and link school attendance/absence and academic achievement with community, household and individual student characteristics. We identify important 'predictors' of exclusion in our data but do not assert that associations are necessarily causal.

4.1 Zones 0, 1, 2, 4 and 5

With respect to Zone 0 - enrolment in pre-school education - we found remarkably high levels of enrolment in at least one year of pre-school provision. In Madugalle 99% of children aged 5-16 had attended some form of pre-school provision; in Nachchaduwa 95.4% and in Park 78.8%.

With respect to CREATE Zone 1 all of the children aged 5-16 years in our samples had enrolled in school at some point. Zone 2 refers to children who enter primary schooling but who drop out before completion. Zone 5 refers to those who drop out of secondary school before completion of Grade 11. In our case communities, only 14 children dropped out, of whom three children dropped out during the primary grades. Table 9 below indicates the highest grade completed by each of the 14. These very small numbers of dropouts overall, with higher numbers in the secondary grades than in the primary grades conform to the national picture.

Table 9: Highest grade completed by dropouts

Highest Grade	No.
3	2
5	1
7	3
8	2
9	1
10	5
Total	14

The reasons reported by the adult household member for dropout are various. The majority (5) spoke of the child's dislike of school. Others mentioned economic problems, child illness, parental illness and caring for siblings. Three children dropped out of the government school system to follow studies in the Mosque.

Zone 4 refers to those who fail to make the transition from primary to the post primary grades but who complete primary schooling. Table 9 above indicates that only one child completed Grade 5 and did not make the transition. It should be noted however that in some countries transition to secondary requires the child to move to a school in a new location. In our case communities all the schools offered both primary and secondary grades to at least Grade 9.

4.2 Zones 3 and 6

CREATE Zone 3 includes children who enter primary schooling and are enrolled but are at risk of dropping out before completion, as a result of irregular attendance and low achievement. CREATE Zone 6 refers to equivalent exclusion at the post primary level. As we have seen already, dropout in both the primary and post primary grades is very low nationally and in our case communities. Few children are excluded from schooling through dropout. However, as noted in Section 1 achievement levels are low and, as we have seen already in our profile of the Park school absence is very high in some months, fluctuates seasonally and varies across grades. We suggest that the combination of absence from school and low levels of achievement constitutes ‘exclusion from worthwhile learning’.

In the following sections we link a range of background child and household (explanatory) variables with two main outcomes- absence from school and learning achievement in school. In brief, the explanatory and outcome variables are:

Variable	Description
Gender of child	Dummy variable for gender of child, 1=female , 0=male
Age	Age of pupil at time of household survey
Absence (log)	Log of the proportion of a year a child was absent from school
Ever attended preschool	Dummy variable for ever-attendance at pre-school 1= ever attended, 0= never attended
Attends private tuition	Dummy variable for attendance at private tuition 1= attends 0= does not attend
Housing index	Index of housing quality: Score for first principal component from a PCA including binary variables for housing ownership, electricity connection, toilet facilities, water supply and a continuous variable for the number of rooms in the dwelling
Household assets score	Index of portable asset ownership: Score for first principal component from a PCA including common household assets e.g. television
Educational Assets	Index of assets in the household used for educational purposes: Score for first principal component from a PCA including common educational assets e.g. school books
Adult Literacy in Vernacular	Adult interviewees’ combined score on 5 progressive vernacular literacy tests: Sinhala in Madugalle and Tamil in Nachchaduwa and Park
Adult Literacy in English	Adult interviewees’ combined score on 5 progressive English literacy tests
Health problems	Dummy variable for interviewee reporting health problems of child in the last month 1= health problems, 0= no health problems reported
Household size	Number of individuals in the household
Gender of interviewee	Dummy variable for the gender of the respondent in the household (who completed the literacy tests) 1= male, 0=female
O Level results	Result in O-level coded 5(A) 4(B) 3(C) 2(S) 1(W) in relevant year
Grade 5 Mark	Mark in the Grade 5 examination in relevant year
Class level z-score	Within class z-score for class-based tests in English/maths/language in 2009

Tables 10 and 11 (overleaf) present the descriptive statistics for each of these variables and variable means by community.

The modelling strategy employed is to compare OLS (ordinary least squares) regression results with those from a community fixed effects model which take account of within community homogeneity. Thus in the fixed-effects model, the coefficients on child and household level variables reflect only within-community variation, removing the effects of community-level factors. When modelling the determination of a binary outcome, a probit model is used. This model estimates the associations between explanatory variables and the dichotomous outcome, so that marginal effects (reported in the tables)

may be interpreted as effects on the probability of ‘success’ i.e. a 1 as opposed to a 0 outcome.

Table 10: Descriptive statistics for variables included in the analysis of absence, achievement and private tuition

Variable	Observations	Mean	Std. Dev.	Min	Max
<i>Child characteristics</i>					
Child gender	657	0.51	0.50	0	1
Age	661	11.45	4.21	2	51
Attendance in 2007	383	0.90	0.10	0.37	1
Attendance in 2008	456	0.87	0.14	0	1
English (class-level z score)	360	0.95	1.40	-3.36	5.35
Language (class-level z score)	360	-0.39	1.12	-3.66	2.80
Maths (class-level z score)	372	0.30	1.15	-3.05	8.18
Grade 5 examination score	359	70.50	30.07	12	152
O Level Maths	93	3.21	1.16	1	5
O Level Language	93	2.32	1.03	1	5
O Level English	93	3.68	1.11	1	5
Ever attended pre-school	635	0.92	0.27	0	1
Attends Private Tuition	637	0.70	0.46	0	1
Health Problems	518	0.74	0.44	0	1
<i>Household characteristics</i>					
Adult Literacy Vernacular	657	26.85	12.6	0	36
Adult Literacy English	657	7.96	11.77	0	35
Educational Assets Score	657	-0.03	1.93	-8.70	2.00
Household assets score	657	-0.02	1.85	-5.07	4.38
Housing Index	657	0.087	1.25	-4.60	3.14
Household size	661	5.28	1.51	2	12
Gender of Interviewee	656	0.15	0.36	0	1

Table 11: Descriptive statistics for variables included in the analysis of absence, achievement and private tuition by community

Variable	Madugalle	Nachchaduwa	Park Estate
<i>Child characteristics</i>			
Gender	0.52	0.52	0.51
Age	11.34	11.31	11.17
Attendance in 2007	0.91	0.93	0.80
Attendance in 2008	0.87	0.92	0.78
English (class-level z score)	1.97	0.48	1.43
Language (class-level z score)	-1.13	-0.04	-0.73
Maths (class-level z score)	0.52	0.28	0.08
Grade 5 examination score	70.87	76.74	59.11
O Level Maths	1.59	3.22	2.81
O Level Language	2.82	3.76	4.00
O Level English	1.59	2.56	2.31
Ever attended pre-school	0.99	0.96	0.79
Attends Private Tuition	0.52	0.85	0.65
Health Problems	0.73	0.78	0.68
<i>Household characteristics</i>			
Adult Literacy Vernacular	32.0	29.7	17.7
Adult Literacy English	6.78	11.15	6.63
Educational Assets Score	0.53	0.12	-0.83
Household assets score	-0.86	1.17	-1.03
Housing Index	-1.27	0.93	0.24
Household size	4.72	5.23	6.19
Gender of Interviewee	0.23	0.11	0.14

All of the models rely on the assumption that explanatory variables are conditionally independent so that variables which are closely inter-related should not be included, requiring the selection of appropriate indicators, especially given the relatively small sample size. For example, we hypothesised that the literacy level of an adult household member closely related to the child would have an impact on the child's achievement. We also had information about the level of education achieved by the adult household member who was interviewed. Since adult literacy and adult education may be strongly associated (collinear) it is only appropriate to include one indicator from these two in a regression model. The estimated coefficient gives a measure of the partial correlation (controlling for the effects of other variables included in the model) between that indicator and the outcome, but serves as an indicator of the broader concept behind the indicator, so that adult literacy is not strictly isolated from closely related phenomena. In this example, adult literacy will absorb to a large extent the (highly correlated) effects of education and other literacy-related factors.

We present below five separate analyses. The first explores the determinants of absence from school in 2007 and 2008. The next three explore the determinants of academic achievement at different levels of schooling - the national Grade 5 examination sat by almost all Grade 5 children and used for selection into high status Type 1AB schools and, in the case of poor children, financial bursaries; school achievement tests in 2009; and the national General Certificate of Education Ordinary level (GCE O level) examination in maths, first language and English. Finally, because of consistent effects of attendance at private tuition on each of these achievement outcomes, we also include a probit analysis of the determinants of private tuition. In the case of absence, Grade 5 performance and attendance at private tuition, sample sizes permitted analyses of within community effects. School achievement tests are not comparable across communities so the correlates of school test achievements can be examined only within communities. In the case of GCE O level performance sample sizes are small, requiring pooling of data across communities.

4.2.1 Absence/Attendance

Table 12 shows results of a regression model with absence from school as the outcome. The absence variable was computed from a variable for the percentage of school days attended in 2007 and 2008 was computed from monthly attendance figures collected by the schools. This was transformed into an absence variable by subtraction from 100 and transformed onto a logarithmic scale for regression modelling purposes. For the community fixed effects analysis, the reference community is Park, where absence is typically highest.

Table 12 indicates that whether or not community effects are introduced there are no significant differences between male and female pupils in respect of attendance, controlling for other factors. Older children appear to be less likely to be absent than younger children in 2007 but not 2008. Better housing, a proxy for household wealth, was found to be associated with lower levels of absence in 2008 but not in 2007. Children who had experienced health problems in the thirty days prior to the household interview were also likely to have been absent more often, suggesting, unsurprisingly, that our health variable indicates persistent health problems that affect annual attendance percentages.

When communities are not controlled for, household assets are important correlates of absence from school. When community effects are introduced however, it is apparent that community effects themselves are large and that within communities asset levels are not significant correlates of attendance indicating that differences between communities on asset levels are associated with absence from school.

Table 12: Variables associated with absence from school

	OLS		Community Effects	
	2007	2008	2007	2008
Madugalle			-0.997***	-0.752***
Nachchaduwa			-1.056***	-1.097***
<i>Child characteristics</i>				
Male child	-0.187	0.010	-0.124	0.040
Child's age	-0.058***	-0.019	-0.046**	0.015
Health problems	0.460***	0.281**	0.373***	0.227**
<i>Household characteristics</i>				
Adult literacy vernacular	-0.019***	-0.007	-0.004	0.006
Educational assets	0.048	0.009	0.041	-0.008
Household asset score	-0.117***	-0.096***	-0.035	0.002
Housing index	-0.039	-0.210***	-0.044	-0.166**
Household size	0.084*	0.063*	0.021	-0.002
Gender of interviewee	0.180	-0.138	0.051	-0.236
Constant	-1.206**	-1.665***	-0.716	-1.019***
Observations	277	336	277	336
Adjusted R-squared	0.19	0.15	0.30	0.27

*** p<0.01, ** p<0.05, * p<0.1

4.2.2 Grade 5 Examination

Table 13 shows the results of a regression model to examine the factors associated with performance in the Grade 5 examination. The mean performance of children on the Grade 5 examination is higher on average in Nachchaduwa and Madugalle than in Park but the differences are not statistically significant when controlling for other explanatory variables. There is no significant difference between boys' and girls' performance. However, older children appeared to have scored higher, other things being equal. This may reflect changes in the nature of the Grade 5 test over time and/or the fact that, until quite recently, not all Grade 5 children were entered for the examination.

Household assets did not seem to be important predictors of achievement, nor did other economic variables. More important were the vernacular literacy score of the interviewed adult and attendance at private tuition. The private tuition effect is particularly strong, although we have not been able to control for the fact that it may be the more able and more motivated pupils who are attending tuition. Moreover the private tuition variable refers to attendance at the time of the interview and not at a time (in some cases more than six years earlier) prior to sitting the Grade 5 examination. In these cases it may be that success in the Grade 5 examination in the past is linked to the motivation for greater investment in private tuition in the present.

Table 13: Variables associated with grade 5 examination

	OLS	Community Effects
Madugalle		10.365
Nachchaduwa		3.961
<i>Child characteristics</i>		
Male child	-3.332	-2.933
Child's age	1.280*	1.350**
Health Problems	-5.280	-5.562
Attends Private Tuition	9.008*	9.120*
<i>Household Characteristics</i>		
Adult literacy vernacular	0.705***	0.602***
Educational assets	-0.429	-0.675
Household asset score	-0.603	-0.799
Housing index	0.832	1.985
Household size	0.690	1.064
Gender of interviewee	-7.785	-8.047
Constant	26.576	21.733
Observations	280	280
Adjusted R-squared	0.13	0.13

*** p<0.01, ** p<0.05, * p<0.1

4.2.3 School Test Performance

Table 14 reports the partial correlations between within-class and subject z-scores and key predictors. Since school-based tests are not comparable across schools we report only the results of a class and subject fixed effects model. The model predicts within class and subject variation on standardised achievement scores, using school-based tests and the results reported are the average within-class and within-subject effects. The vernacular literacy levels of adult household members are important for achievements in school tests in vernacular language. The literacy level in English of the interviewed adult household member is positively correlated with higher standardized scores for English. These findings suggest an apparent benefit of higher levels of related forms of adult education and child achievement.

Absence from school in 2008 is associated with lower scores in all subjects. While household portable assets are not significantly correlated with scores in any subject, educational assets at home are correlated with scores in maths and vernacular language. Larger household size is associated with lower performance in all subjects.

Table 14: Variables associated with achievement in school tests (z-scores)

	Maths	English	Language
<i>Child characteristics</i>			
Male child	0.032	-0.058	-0.059
Child's age	-0.082	-0.142	-0.104
Health problems	0.083	-0.007	0.069
Absence in 2008 (log)	-0.205**	-0.232***	-0.266***
Ever attended preschool	0.187	0.101	0.075
Attends private tuition	0.178	0.102	-0.046
<i>Household Characteristics</i>			
Adult literacy vernacular	0.006		0.011*
Adult literacy English		0.016***	
Educational assets	0.133***	0.019	0.111***
Household asset score	-0.008	0.049	-0.043
Housing index	0.046	0.045	0.134
Household size	-0.112**	-0.162***	-0.108**
Gender of adult interviewee	-0.089	-0.333	-0.022
Constant	0.745	2.558**	0.347
Observations	233	228	228
R-squared	0.13	0.15	0.15
Number of classes	22	21	21

*** p<0.01, ** p<0.05, * p<0.1

4.2.4 GCE O level Performance

Table 15 presents the results for achievement at the GCE O level examination. Because the numbers of observations of O-level results are quite small it is not useful to distinguish between communities.

The housing index (a proxy for economic status) is an important predictor of achievement in maths, English and language at GCE O level. Attendance at private tuition is important for achievement in Maths, and the level of the adult household member's literacy in English is important for achievement in English.

Table 15: Variables associated with GCE O level results

	Maths	English	Language
Male	0.279	0.168	-0.148
Child's age	0.032	0.055	-0.062
Absence in 2008 (log)	0.057	0.178	0.101
Ever attended preschool	0.611	-0.783	-0.096
Attends private tuition	1.240**	0.458	0.611
Housing index	0.426**	0.345**	0.381**
Adult literacy vernacular	-0.005		-0.005
Gender of adult Interviewee	-0.562	-0.432	-0.797
Adult literacy English		0.033**	
Constant	1.125	2.085	5.251***
Observations	53	53	53
R-squared	0.34	0.35	0.30

*** p<0.01, ** p<0.05, * p<0.1

4.2.5 Attending Private Tuition

Because of its predictive power for academic achievement at Grade 5 and GCE O level in Maths we decided to explore the indicators associated with attending private tuition. Table 16 presents a probit analysis of variables associated with attendance at private tuition.

Table 16: Variables associated with private tuition (probit): Marginal effects

	(1)	(2)
Community effects included?		
	No	Yes
Madugalle		-0.393***
Park Estate		-0.117*
<i>Child characteristics</i>		
Male	-0.011	-0.009
Child's age	0.017***	0.016***
Health problems	0.042	0.053
<i>Household characteristics</i>		
Adult literacy vernacular	0.001	0.002
Educational assets	0.022*	0.036***
Household asset score	0.024*	0.011
Housing index	0.076***	0.015
Household size	-0.033***	-0.030**
Gender of interviewee	-0.054	-0.035
Observations	500	500
Pseudo R-squared	0.105	0.134

*** p<0.01, ** p<0.05, * p<0.1

Without controlling for communities (Column 1), greater household assets, higher housing indices and greater educational asset levels are important correlates of the probability of a child attending private tuition. Older children are also more likely to attend, other things equal.

When community is controlled for (Column 2) the housing assets and housing index correlations lose significance, indicating that these household effects are community-related. Within communities, educational assets in the household remains correlated with attendance at private tuition. A larger household size is associated with a reduced probability of attending private tuition. There is no significant correlation between the levels of adult vernacular literacy and the probability of attending private tuition.

4.3 Synthesis of Findings

In this section we synthesise the results of the analyses reported separately above for each of the outcome variables. Our objective is to explore the patterns of effects of explanatory variables on the selected outcomes across and within communities. Table 17 summarises the significant associations found in the regression models reported above.

Table 17: Variables associated with absence and achievement outcomes across communities

	Absence		Grade 5	GCE O level			Private tuition
	2007	2008		M	E	L	
<i>Household</i>							
Housing index		-		+	+	+	+
Household assets	-	-					+
Education assets at home							+
Household size	+	+					-
Adult literacy vernacular	-	-	+				
Adult literacy English					+		
<i>Child</i>							
Age	-		+				+
Attends private tuition			+	+			
Absence from school							
Health problems	+	+					

Note that variations in school-based test performances cannot be analysed across communities

When data are pooled across the three communities we find a patterning of effects. The housing index is associated with lower absence from school, higher performance at GCE O level in maths, language and English and greater likelihood of attending private tuition. It does not appear to be related to performance on the Grade 5 examination. Household assets are also associated with less absence from school and private tuition but with neither Grade 5 nor GCE performance. And education assets at home are associated only with the likelihood of attending private tuition. Household size, an indicator of within-household pressures on resources for education, shows a positive relationship with absence (children from larger families were absent more often) and a negative relationship with attendance at private tuition. In the case of the latter it is likely that the household income available to support tuition for each child is less in a larger household.

Household human capital measures in the form of adult literacy indicators also demonstrate effects in the expected direction. Higher levels of adult vernacular literacy are associated with lower levels of absenteeism and higher performance at Grade 5. Adult literacy in English is associated higher performance in GCE English. In contrast with studies that employ a single literacy score or years of schooling as a measure of generic literacy we have employed individually administered tests of adult literacy in mother tongue language and in English and have demonstrated the varied effects of different types of literacy on school performance. However, like the household economic measures above, the adult literacy effects are not found in relation to all outcome variables.

Child characteristics demonstrate some expected and unexpected results. Older children are more likely to have attended private tuition. This is not surprising given the use of private tuition to enhance performance in national examinations. But older children appear to be absent from school less often and to have performed better at Grade 5. There is no immediate explanation for the first finding, especially in view of the fact that most children lived close to the school. One possible explanation of the latter is shifts in the marking conventions and schemes employed in the Grade 5 examination over time. Children with health problems are likely to be absent from school more.

When variations in absence, achievement and private tuition are analysed within communities, some of the associations reported in Table 17 lose significance. Table 18

indicates the ‘effects’ of household and child variables that remain after controlling for the communities in which these children reside.

Table 18: Variables associated with absence and achievement outcomes within communities

	Absence		Grade 5	School tests			Private tuition
	2007	2008		M	E	L	
<i>Community</i>							
	M -	-					M -
	N -	-					P -
<i>Household</i>							
Housing index		-					
Household assets							
Education assets				+		+	+
Household size				-	-	-	
Adult literacy vernacular						+	
Adult literacy English					+		
<i>Child</i>							
Age	-						+
Attends private tuition			+				
Absence from school				-	-	-	
Health Problems	+	+					

The patterns of effects change when the effects of the community in which children resided are included. Most of the housing index effects lose significance, except for the effect on absence in 2008 which remains negative. While all the household assets effects disappear a positive relation between education assets and performance in school tests appears. The association between education assets at home and attendance at private tuition remains, irrespective of the community. Children with more education assets at home are more likely to attend private tuition. This may be a result of correlation with a ‘common cause’ at household level in the form of household preferences for education and for associated household human capital investment decisions. Children in larger families are more likely to perform less well in school tests, though there were no differences in the Grade 5 and GCE O level examinations. The absence of differences in the national examinations may be arising because of the small numbers of children in our samples for whom these measures are available. This deserves further exploration in the future.

The correlation between adult literacy in English and school test performance in English reflects the earlier finding reported in Table 17 for a correlation with GCE O level performance in English. And a correlation between adult literacy in the vernacular and GCE O level performance in vernacular language is found. These operate in the expected direction and underline the value of disaggregating the types of literacy skills of adults and of examining their relationships with different types of achievement outcome among their children.

The association between age and absence remains when modelling within communities as does the relationship between age and attendance at private tuition. The association between attendance at private tuition and Grade 5 performance also remains positive. But the relationship between age and performance in the Grade 5 examination becomes non-

significant when modelling within communities

Absence from school is consistently related with poorer performance in school tests in all subjects, but not performance on the national examinations (across or within communities). While this may be due, once again, to the size of the samples, it may be that other factors are at work as well. Are school tests more syllabus-bound than national examinations, meaning that losses in coverage through absence are more critical in the school tests? Do children who are absent from school make up school syllabus deficits by attending private tuition? Do school teachers penalise absent children in their marking of school tests? Are private tutors more skilled at teaching and making good deficits in children's learning than regular school teachers?

Within communities health problems remain positively related with absence they are not correlated directly with other outcomes.

Overall we find relatively strong intra-community homogeneity or clustering of outcomes at the community level, which may be due to community and/or school-level factors. Comparing across communities, children living in Nachchaduwa were more likely to attend school and attend private tuition than in Madugalle and in Park. Children were least likely to attend school in Park and least likely to attend private tuition in Madugalle. In Table 11, the mean values of each variable were presented by community. The overall development of the community, as indicated by greater mean household asset scores, higher mean adult literacy in English and higher mean performance by children at the Grade 5 national examination is associated with school attendance. The overall wealth of a community, as indicated by housing indicators, is associated with the mean level of attendance at private tuition and mean levels of performance in the GCE O level examinations in Maths and English. In the case of Nachchaduwa, where the school was the most developed, it is known that at least one of the teachers runs private tuition classes outside the school in the afternoons. More economically and educationally advantaged communities can rely on children and young people's labour less for survival, are more likely to be able to afford the indirect costs of schooling and the direct costs of private tuition. Higher literacy levels among community members also create expectations among the next generation for school attendance, school performance and private tuition.

5. Conclusions

Historically, Sri Lanka has performed extremely well on a range of indicators of educational access. There are few, if any children, who do not enrol in primary education. Of these, very few drop out before the end of the primary cycle (Grade 5). Transition to the first grade of secondary (Grade 6) is very high. While dropout rates are negligibly low in Grades 1-5, they begin to increase in Grades 6-9. An estimated 93% of girls and 89% of boys complete Grade 9, the end of the basic education cycle. Sri Lanka's equity-oriented policies on education and her record in terms of access to education will be of interest to other countries in the South and South East Asia region.

Our rural community case studies bear witness to the fruits of those policies. Three of the four schools in which we worked were established in the 1920s and the fourth was functioning from at least the 1950s. Among the children and young people aged 5-16 years whom we surveyed, 98% were currently enrolled in school. Ninety two per cent of children had attended some form of pre-school education. Only 8% had been excluded from pre-school education (Zone 0). All children had entered school and just fourteen (2%) had dropped out of mainstream schooling (Zone 2).

In addition to the country-wide policies on free education, free textbooks, free school uniforms, free midday meals in the primary sections and transport subsidies, our school principals and teachers had introduced a range of practices to encourage enrolment, reduce dropout and increase achievement. They had succeeded in reducing significantly the numbers of children in the CREATE Zones of Exclusion. All children of school age had enrolled in school (Zone 1), just two had dropped during the primary stage of education (Zone 2) and eleven during the secondary stage (Zone 5). Only one child who had completed Grade 5 failed to make the transition to Grade 6 (Zone 4). These practices varied from school to school and are included in this report for the benefit of principals and teachers in other schools.

However, as we have seen in Section 4, there remain wide variations in attendance and learning achievement among the children who are enrolled in schooling. The CREATE model identifies Zones 3 and 6 as the zones of 'silent exclusion' where children are at risk of dropping out through poor attendance, repetition and achievement in the primary stage and secondary stages of education respectively. The extent to which a child is 'at risk' of dropping out is difficult to assess prospectively. However we know that in these communities dropout has been very low and concentrated in the secondary grades. The reasons given for that dropout were the child's dislike of school (from which we might infer an element of 'silent exclusion') and a range of household factors. We also know that a national policy of automatic promotion that ensures that children move with ease from grade to grade repetition rates are extremely low. Children generally move through the grades with their age cohort and only small numbers dropout. At the same time there are wide discrepancies in attendance and achievement. The mean attendance of our sample children in 2007 was 0.90 (SD = 0.10) and in 2008 0.87 (SD = 0.14). Among the 357 children in our sample who had sat the Grade 5 examination the mean score across the communities was 70.4 marks out of 200, with a substantial SD of 30.1. Nationally, mastery of basic learning competencies is not achieved by all children. In Section 1 we described how, nationally, 52% 'fail' First Language, 47% fail Mathematics and 81% fail English at Grade 4 levels of 'mastery'. We do not have Grade 4 results on these same national assessment tests for the children in our three communities but we know from the

Grade 5 results reported above that achievement levels vary widely. Many children have only the weakest of foundations for learning at subsequent stages. They may move on to subsequent grades of learning ill equipped with the necessary pre-requisites for learning. As we saw in the short account of school level practices introduced to improve achievement the principal of the Methodist school organised extra 'catch-up' classes for Grade 6 children admitted from some of the feeder primary schools.

We suggest that in future applications of the CREATE model to the Sri Lankan case we include two more Zones - 3A and 6A - to refer to those who are not at risk of dropping out of school (because national and school-based policies are able to retain them) but who are dropping out of learning because of a failure to achieve sufficient at one level to learn effectively at the next.

The use of statistical models capable of separating out the effects of community characteristics from the effect of household and child characteristics within each community has generated findings not usually reported in the Sri Lankan context. We have been able to demonstrate strong effects of the community on absenteeism and the likelihood of attending private tuition. However our design and our focus on just three communities do not enable us to infer which particular aspects of a community or school are generating the effects. It may in any case be a number of factors acting in combination rather than individual factors. Absenteeism was highest in the Park estate, where education and literacy levels of parents and household assets for education were lowest, STRs highest and grade 5 student achievement levels lowest. Attendance at private tuition was highest in Nachchaduwa where the general level of wealth (as indicated by the housing index and household assets) was highest, adult literacy scores in English highest and where the large school had been functioning with GCE A level classes for many years and with a favourable STR. In other words the Nachchaduwa school offered the most favourable educational culture of the three sites. It is also the case that the ethnic composition of our three communities was very different - Sinhala in Madugalle, Muslims in Nachchaduwa and plantation Tamils in Park. How much the ethnicity of the communities in which we have worked might have contributed to our community effects is impossible to judge within the research design employed. Nonetheless, with much larger numbers of schools and communities the design could be very powerful in separating out a wide range of school, community and household effects. The national assessments of learning, undertaken periodically by the National Educational Research and Evaluation Centre, could borrow ideas from this study, include more community, school and household measures in their survey designs and employ fixed effects statistical models to improve the explanations of differences in achievements in learning across the country.

Over the next ten years, Sri Lankan education policy must focus on increasing overall levels of learning achievement for all and reducing disparities in that achievement. The achievement of these twin goals requires policies and programmes additional to those noted above. The Ministry of Education is currently developing a new five year development plan - the *Education Sector Development Framework Plan 2012-2016* - to promote access, quality and equity. Measures under discussion include the upgrading of 1000 secondary schools across the country linked with a network of 4000 feeder primary schools, the introduction of child friendly approaches to primary education, the introduction of differentiated learning materials in maths at the secondary stage of education and multi-level teaching methodologies at primary, the expansion of school-

based teacher development as the primary means of continuing teacher development and direct grants to schools to improve education outcomes. It also includes actions to promote health among school age children.

Whether and how these new measures will impact on the three communities in our research remains to be seen. In principle, measures to improve health should have a positive effect on school attendance. In turn measures to improve school attendance should have a positive impact on performance in school-based assessments in each of our schools.

The 1000 secondary schools linked with 4000 primary feeder schools programme is unlikely to include the Madugalle school since it is small and isolated. It needs to be upgraded in its own right. However there is no doubt that a stronger primary section, ongoing upgrading of teacher skills in relation to delivering the official curriculum, and an increase in the amount and quality of formative assessment in the classroom would be of enormous benefit to primary school children as they master the foundations for the secondary grades. The Nachchaduwa school would benefit from upgrading to a Type 1AB school with improved facilities for the teaching of mathematics, science and computing. The Methodist school already admits students from a number of feeder primary schools and, as such, acts as the hub of a network. It is a prime case for development as a secondary school of high quality under the 1000 secondary schools programme. The Park school, which currently 'feeds in' students after Grade 9, could be transformed into a high quality primary school whose graduates could move on to an upgraded, high quality Type 1AB Methodist school nearby.

In all schools due attention must be given to teacher deployment. In none of the schools with which we have engaged has the official teacher cadre been filled. Although the STRs (ranging from 15.3:1 to 22.6:1) appear positive by international standards, many of the teachers are unqualified to teach the classes to which they are assigned. Shortages of teachers to teach maths, science, English and computing at the secondary level - and English at the primary level - are pronounced in all the schools studied.

Underpinning the new national and provincial programmes under discussion is a commitment by the Ministry to improve the deployment of qualified teachers and principals to schools in line with the needs of communities and schools. Historically and currently teacher deployment and teacher transfers are aspects of education in which Sri Lankan politicians and community members demonstrate considerable interest. Individual interests often override the interests of communities and schools. Increasing access to high quality education for all in rural Sri Lanka requires concerted action by communities, school principals and teachers, education officials and politicians.

The continuing quest for social equity in a school system fashioned by a longstanding political rhetoric of equality of educational opportunity will persist well into the twenty first century. At just 1.86% of GDP, Sri Lanka's government expenditure on education remains very low by the standards of middle income countries. An increase to 2.5-3.0% would release considerable resources to improve standards for all children and reduce disparities. In some respects our findings suggest that households, communities and schools system is doing a good job of ensuring equality of opportunity. The housing index and household assets index, our proxies for wealth and poverty, were not associated with exclusion in every zone. A surprisingly high percentage of all children in

the households we studied had attended some form of pre-school education, though we know nothing about the standard of education provided nor the standard of children's competencies on entering school. We know that the numbers of dropouts from both the primary and post primary stages of education up to the GCE O level at Grade 11 were very low. And, unlike national figures on academic performance, which show an advantage for girls, we found that boys in our samples did not appear to be underperforming relative to girls.

In other respects, however, the school system is reproducing socio-economic disadvantage. Within our three case communities, the children of the poorest families are likely to attend school less often and to perform worse at the high-stakes GCE O level examinations. Children in the largest families are likely to perform worst on school tests, children with parents literate in the vernacular are likely to perform better at the Grade 5 scholarship examination and on school-based language tests, and children with parents literate in English are likely to perform better in the subject of English in both school tests and the GCE O level examination. As the goal posts of access to education and higher education shift ever upwards so the quest for reduction of disparities in education at all levels must and will be pursued relentlessly.

Compared to other countries at a similar level of economic development, educational exclusion among children aged 5-16 years is somewhat less pervasive in Sri Lanka, where the more obvious measures are concerned. Exclusion is more typically within than outside the school. While there are doubtless important benefits of access to education *per se*, which is almost universal, many of the extrinsic/instrumental benefits of education depend on its role as a positional good i.e. on its ability to distribute life chances. Issues of equity become as important as those of access. Our findings show that while almost all children gain access and remain in school to the age of sixteen years, inequity is apparent along well-established socio-economic dimensions.

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Report summary:

Historically, Sri Lanka has performed well on most indicators of progress towards Education for All and the Millennium Development Goals. Nationally, enrolment in some form of pre-school provision is high, enrolment in primary education near universal and completion of nine years of compulsory, basic education is around 90%. At the same time, achievement levels are low, with disparities between provinces, type of school attended, location, medium of instruction and gender. The CREATE model is used to describe access to education in three diverse rural communities comprising 397 households, 1,952 household members and 657 children aged 5-16 years. Household survey interviews were complemented by interviews with local officials, school principals and teachers and by analysis of school records. School level practices designed to improve attendance and achievement are described. There were marked differences between communities in levels of absenteeism and participation in private tuition. Within communities, student achievement at Grade 5 performance is associated positively with the vernacular literacy level of the adult household member and attendance at private tuition. Performance on school-based tests is associated negatively with absence from school and household size, and positively with education assets at home and adult literacy in the vernacular and in English. Performance in the GCE O level examination is associated with the housing index, with private tuition and with adult literacy in English. Attendance at private tuition is associated positively with the availability of education assets at home and negatively with household size. Absenteeism is associated with economic status, as indicated by a housing index, and health problems. The main challenges facing Sri Lanka currently lie in increasing the achievement levels of all social groups and in reducing dropout in the early secondary grades. Disparities need to be reduced between girls and boys, between urban and rural areas, between school types and between income groups in terms of enrolment in junior secondary and senior secondary education.

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Angela W. Little is Professor Emerita at the Institute of Education, University of London and directed the London partnership with CREATE between 2006 and 2010. She has written extensively on education in Sri Lanka, including *Labouring to Learn: towards a political economy of plantations, people and education in Sri Lanka* (Macmillan, 1999), *Primary Education Reform in Sri Lanka* (Ed.) (Education Publications Department, Government of Sri Lanka, 2002), *Education policy reform in Sri Lanka: the double-edged sword of political will* (Journal of Education Policy, 26, 4, 2011) and *The Politics, Policies and Progress of Basic Education in Sri Lanka* (CREATE Monograph no 38, 2010).

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