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Jamaica
Secondary Education:
Improving Quality and Extending Access
(In Two Volumes) Volume I: Main Report

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Human Development Department
Caribbean Country Management Unit
Latin America and the Caribbean Region

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Acronyms and Abbreviations

ACT	Association of Caribbean Tertiary Institutions
All-Age Schools	Schools mostly in rural communities that provide schooling from Grades 1 to 9
Basic Schools	Community-operated schools for children between 4 and 5
CASE	College of Agriculture
CEE	Common Entrance Exam (for selection and placement in secondary schools before 1998)
Comprehensive Highs	Secondary Schools with mixed academic and vocational subjects
CXC	Caribbean Examination Council Examination (for Grades 11 and 13)
ECE	Early Childhood Education
FAP	Financial Assistance Program
GNAT	Grade Nine Achievement Test
GOJ	Government of Jamaica
GSAT	Grade Six Achievement Test, administered by NAP, replaced the older CEE
HEART/NTA	Human Employment and Resource Training Trust National Training Agency
Infant Schools	Classes for children between 4 and 5, usually attached to Primary Schools
JBTE	Joint-Board of Teacher Education
JHSC	Junior High School Certificate Examination
JSC	Jamaica School Certificate (Grade 9) for entry to training programs or Teachers Colleges
MOE&C	Ministry of Education and Culture
MOF	Ministry of Finance
NAP	National Assessment Program, assesses students at Grades 1, 3 and 6
New Secondary Highs	Prevocational High Schools which were upgraded to Comprehensives in September 1998
P&JH	Primary and Junior High Schools
PIOJ	Planning Institute of Jamaica
PPP	Purchase Price Parity
ROSE Project	15-year program of Reform of Secondary Education launched in 1993
Secondary Highs	Secondary schools which emphasize academic subjects, also known as Traditional Highs
SFP	School Feeding Program
SLC	Survey of Living Conditions, conducted annually by PIOJ since 1989
SSC	Secondary School Certificate, given after Grade 11
STATIN	Statistical Institute of Jamaica
T&F/C	Tuition and Fees/Contributions
TCs	Teachers' Colleges
Technical Highs	Secondary schools with mixed academic and vocational subjects
TRS	National Textbook Rental Scheme
UTech	University of Technology
UWI	University of the West Indies
WTO	World Trade Organization

Exchange Rates (1997): JA$35.6 = US$1
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Preface

Jamaica stands out in the developing world as a country with a strong commitment to education. This is evidenced by its high level of public spending on the sector and resulting success in extending access well above the average of countries of similar income level. Having almost universalized nine years of education, the logical focus for the next stage is to extend coverage at the upper levels and to improve quality at all levels. This goal has guided a 15-year program to reform secondary education. The first phase of the reform spanned most of the 1990s, while the subsequent phases will extend into the first decade of the 21st century. The World Bank has been supporting the Government of Jamaica in this process and is committed to continue until the reform has come to fruition. This report was prepared at the conclusion of the first phase of the reform to review accomplishments to date, to identify outstanding challenges and to assess policy options for the next phase.

The report has been prepared in a collaborative manner. It drew heavily from the policy analyses of the Ministry of Education and Culture, and data analyses of household and labor force surveys by the Planning Institute of Jamaica and the Statistical Institute of Jamaica. The diagnosis was presented for public consultation in a conference jointly held with the Ministry of Education and Culture in January 1999. Feedback on the analysis of issues and recommendations for policy actions were sought from some 120 stakeholders representing teachers, students, parents, parliamentarians, employers, the mass media, and various government agencies, as well as bilateral and multilateral agencies. These inputs from stakeholders were then used to prepare the concluding chapter. Although the final report remains a World Bank document, its analyses and conclusions fully reflect this collaborative process.

Acknowledgments

The study is a result of a close collaboration with the Ministry of Education and Culture (MOE&C), the Policy Development Unit of the Planning Institute of Jamaica (PIOJ), and the Statistical Institute of Jamaica (STATIN). Special thanks are due to officials of the following ministries:

Ministry of Education and Culture

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Executive Summary

Jamaica has made impressive progress in providing universal coverage in primary education, near universal coverage in junior secondary education (Grades 7 to 9), and substantial coverage in early childhood education (ECE). These gains have been achieved despite its relatively low GNP per capita (US$1,680) and in the face of substantial increases in the school-age population during the 1980s and early 1990s. Females have higher enrollment ratios than males in secondary and tertiary education; gender equity in access has been achieved, indeed. These accomplishments reflect, in part, a successful focus of education policy and public finance at these levels, and, in part, the people's value for education.

Challenges, however, remain formidable. Enrollment in early childhood education, upper secondary education (Grades 10 to 11), and tertiary education still corresponds to economic status. An automatic promotion policy has moved children through public schools without ensuring that they have learned the requisite skills. The practice of sorting students by examination and tracking them into different types of secondary schools -- which have different academic emphasis, teacher quality, and levels of public subsidies and school fees -- has resulted in an inequitable system. Quality is particularly poor in schools in inner cities and rural areas. Many youths leave school without much employment prospects. Unemployment remains as high as 45 percent for youths between the ages of 14 and 19, and 27 percent for those between the ages of 20 and 24. The private returns to pre-tertiary education are generally low, as a consequence of weak demand in the labor market combined with the poor preparation now provided by the education system. The challenges are, first, to improve learning outcomes at all levels and, second, to increase the fraction of the population completing both lower and upper secondary cycles. In this way, the system can both expand the human capital base and improve equity.

In response to these challenges, the Ministry of Education and Culture (MOE&C) embarked upon an ambitious agenda in the 1990s to reform secondary education. The vehicle was a 15-year "Reform of Secondary Education Program", widely known as ROSE, which has already completed the first phase. Accomplishments of the first phase include: (a) development of a common core curriculum for junior secondary education to balance between academic development and preparation for the world of work; (b) provision of textbooks, teacher training, and selective infrastructure upgrading for disadvantaged schools; (c) rationalization and improvement of examinations; and (d) piloting of a planned universal core curriculum for upper secondary education. The next phase is to expand the Reform nationwide. The ROSE curriculum for junior secondary education has been extended from some 120 pilot schools to all secondary schools in September 1999. All students who have completed Grade 9 are to be provided a place in upper secondary education by 2002.

The principal beneficiaries of qualitative improvement and quantitative expansion are children in poverty, who are at the margin of both access and achievement. The social benefits are expected to be reduced crime and violence and a more productive workforce in the future.

This reform program has enormous resource and logistical implications for teacher training, textbook provision and infrastructure upgrading. While the total resource requirements will depend on the strategies adopted, it is certain that the amount would be substantial and must be sustained over time.

Financing these programs is a major challenge as public expenditure is severely constrained. Debt servicing amounts to over 60 percent of total public expenditure and external finance accounts for over 10 percent of total public expenditure on education. Public spending on education grew to 7.6 percent of GDP in 1997/98. This is complemented by an estimated household spending of about 6 percent of GDP, and payroll levy for vocational and technical education and training equivalent to about 0.5 percent of GDP. About 30 percent of total public expenditure was spent on primary education, 36 percent on secondary education, 23 percent on tertiary education, 4.5 percent on administration and common services, and 3 percent on early childhood education. Public spending on education is mainly absorbed in salaries with little left for quality enhancing inputs. Generous policy towards teachers' leave entitlement and workload, and rigid practice towards teacher deployment leaves much room for improvement in efficiency.

As in most countries, public expenditure on education has benefited the highest quintile more than others -- the top quintile received about 26 percent of the total recurrent public expenditure on education, as compared with only 15 percent by the bottom quintile in 1998. This is largely due to much higher per student recurrent expenditure in tertiary education where 54 percent of the students are from the top quintile. Per student expenditure in the University of West Indies, for example, was 14 times as much as that in primary education. The inequity in the incidence of public expenditure is also in part due to tracking students into different types of schools by means of examinations. Students from low income families tend to be tracked to All-Age and Primary and Junior High (P&JH) Schools, which have low recurrent expenditure per student -- only 14 percent of public spending on secondary education has benefited the poorest quintile, lower than their 16 percent share of enrollment at that level. The selective Secondary High Schools, which have a majority of students from upper quintiles, enjoy more than twice as much public subsidies as the All-Age Schools (in the form of having more academically qualified teachers at higher salaries and much lower student-to-teacher ratios). In spite of the Government of Jamaica's (GOJ) well-intended efforts to target financial assistance to the poor (in the form of student loans and grants, school feeding programs, and assistance for school fees and books), leakage in these programs add to the inequity of public finance for education.

This report endorses the government's policy of making secondary education available to all graduates of Grade 9. Yet, expansion without addressing issues of quality and efficiency may continue to leave graduates poorly prepared while expenditures escalate. This report's main recommendations cluster into three categories, each of which is designed to improve quality and efficiency in the course of expansion. The concomitant agenda for the second phase of ROSE entails focusing on learning outcomes, strengthening the teaching profession, and reforming education finance:

1) **Focusing on learning outcomes**. Improvement in quality will also improve equity. This entails setting standards by abolishing automatic promotion from primary through secondary education. To do so requires complementary improvements in early childhood education and in compensatory education. Improved efficiency gains resulting from better performance of

students entering primary (as a result of improved ECE) would reduce the requirements for remediation and free these resources for improvements in other parts of the system, including secondary. Also, these are needed to ensure that all children are ready for the primary curriculum. If not, the costs of remedial education and/or increased grade repetition would be very high.

2) **Strengthening the teaching profession.** A pre-requisite of improving quality of education is to strengthen the teaching profession. This constitutes a 2-part agenda. First are steps to improve teacher skills by (a) enhancing the subject matter content of the curriculum of pre-service and in-service training; (b) strengthening professional development of teacher educators; (c) rationalization and specialization of teachers' colleges with upgrading of libraries and laboratories; and (d) encouragement of joint degree programs with universities. The second part of the agenda is to improve efficiency in use of the services of teachers through (a) removing rigidity towards deployment of teachers, abolition of unnecessary positions, reduction in leave entitlement, and marginal increase in teachers' workload and student-to-teacher ratios; and (b) restructuring teachers' salary scale to provide incentives for experienced and highly qualified teachers.

3) **Reforming education finance.** To provide incentives for efficiency and to mobilize needed resources will require complementary reforms in education finance. These include (a) equalizing public allocation to various school types through capitation grants and supporting disadvantaged students through categorical grants; (b) differentiating cost sharing at the secondary levels and implementing the target of 20 percent cost recovery at the university level with financial aid for the poor; (c) reducing leakage of financial assistance programs in both secondary and tertiary levels; and (d) improving the coherence of overall finance and education policy.

Some measures are easier to implement (such as provision of educational materials) than others (such as setting standards to drive development of teacher professionalism or reform of educational finance) because the latter involves institutional and cultural change. Therefore the time frame of implementation will vary.

Jamaica has achieved the pre-conditions to initiate a major drive to consolidate equity gains and expand access while improving quality. Its success in meeting the challenges of the 21st century will depend heavily on its ability to impart skills to disadvantaged students, improve quality of its teaching force and reform education finance.

1. Accomplishments and Challenges

Jamaica stands out in the Latin American and the Caribbean Region as having provided a much broader coverage in early childhood, primary, and junior secondary education than most lower-middle-income countries (Figures 1-4). In spite of its relatively low GNP per capita of $1,680 per annum in 1998,[1] gross enrollment rates have reached 87 percent in early childhood education (ECE), over 100 percent in primary education, 97 percent in lower secondary education, 66 percent in upper secondary education and 6.1 percent in tertiary education. Net enrollment rates are very high -- 84 percent in early childhood education, 93 percent in primary education, 82 percent in lower secondary education, 49 percent in upper secondary education. Girls' enrollment ratios are slightly lower than those of boys in primary education, but higher from Grade 7 through tertiary education. Some 691,000 students or 26 percent of the total population enroll in the formal education system. (Table 1).

Table 1: The Education System in Jamaica, 1997/98

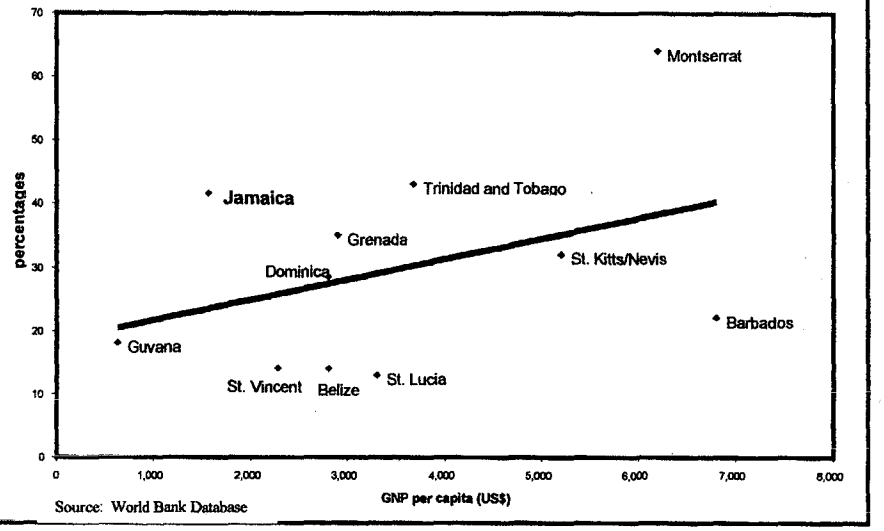
Level	Total Enrollment in Public Institutions	Gross Enrollment Ratio	Net Enrollment Ratio	Girls' Enrollment as % of Total
Early Childhood (3-5)	132,060*	87	84	50
Primary	302,090	>100	93	49
Secondary:	227,222			
Grades 7-9	152,982	97	82	51
Grades 10-11	69,316	66	49	54
Grades 12-13	5,014	1.5	-	63
Special Education	2,058	-	-	-
Tertiary	28,144	6.1	-	66

Sources: MOE&C Statistics; PIOJ, 1999, p. 37 – 45. (Also see Appendix 1 for the time series on student enrollment.)
Note: Enrollment in Grades 12 and 13 is not required for attending tertiary education institutions in Jamaica. Grades 12-13, which prepare for GCE A level exams, would give a competitive edge nationally and regionally in university admission.
* Data for 1997/98 are not available. The figure is from 1996/97.

This high level of education enrollment is rooted in the Jamaican people's long-standing value for education. During British colonial rule, there existed a two-tier school system—a classical education in the tradition of British "public" schools (which are super exclusive private schools) taught by missionaries to children of British planters, merchants, and civil servants, and a poor quality primary education for locals. After Independence in 1962, the Government of Jamaica (GOJ) embarked on a drive to achieve universal primary education and to expand secondary education. It has assumed principal responsibility for financing and providing education.

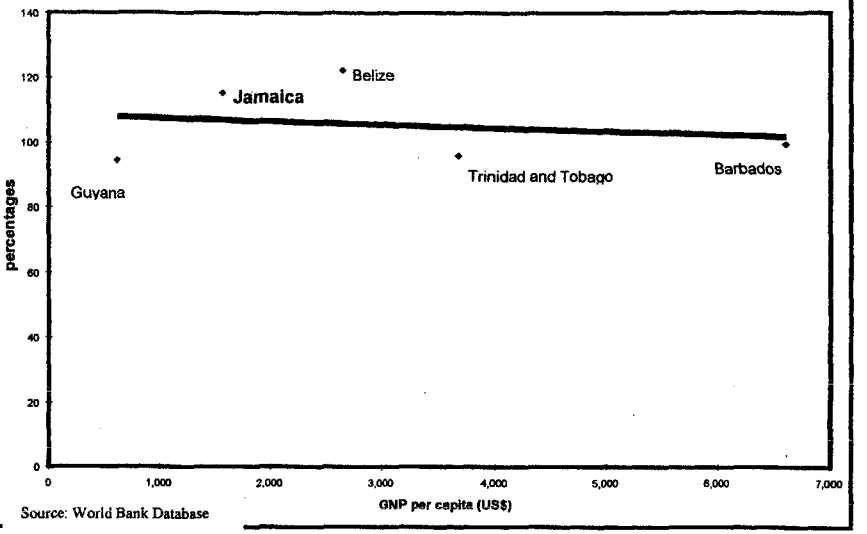
[1] World Bank, 1999. *World Development Report*, p. 230.

Figure 1: Gross Enrollment Ratio in Pre-primary Level



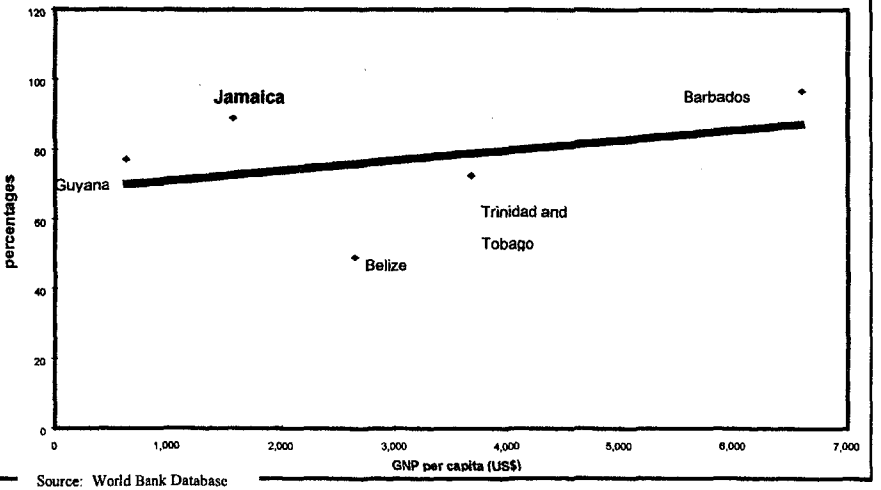
Source: World Bank Database

Figure 2: Gross Enrollment Ratio in First Level



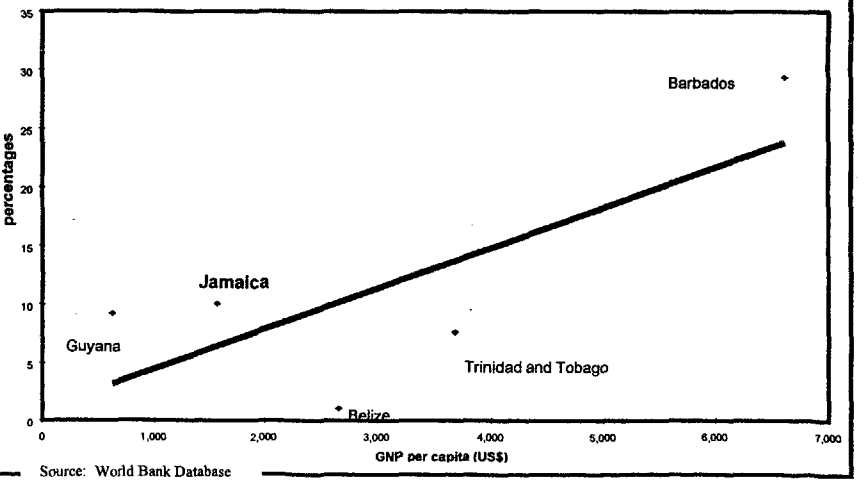
Source: World Bank Database

Figure 3: Gross Enrollment Ratio in Second Level



Source: World Bank Database

Figure 4: Gross Enrollment Ratio in Third Level



Source: World Bank Database

The expansion of public control in education has been achieved through two mechanisms: (a) by building and operating new public schools (mostly All-Age, New Secondary, and Comprehensive Schools), and (b) by extending public financing to Traditional High Schools (Secondary Highs), which were founded and continue to be operated by religious denominations. Public expenditure on education rose rapidly from 1.5 percent of Gross Domestic Product (GDP) in 1970/71 to 6.3 percent in 1980/81. By the early 1980s, universal primary education was attained, and secondary enrollment had been dramatically increased. (See Appendix 7 for a historical account of education development in Jamaica).

Church- or trust-operated schools are considered public due to government funding; there are few completely privately funded schools. Enrollment in private schools accounted for only 5 percent of the 6-to-11 age group, 2-3 percent of the 12-to-17 cohort, and 12 percent in tertiary education. The exception is ECE where 74 percent of the children attend the community-funded Basic Schools. (Appendix 1.21).

Challenges. While much has been accomplished in terms of coverage, the quality of education has been uneven. This is due to a combination of reasons, including (a) a policy of automatic promotion which moves students through the system without ensuring that they have learned the requisite skills; (b) selection of students by examination and tracking those of different abilities into various types of secondary schools, and (c) uneven public and private financial inputs in different school types (in the form of higher teacher-to-student ratios and higher salaries for more academically qualified teachers in better schools). Quality is particularly poor in inner city and rural schools. Thus, the issues of quality and equity are inextricably intertwined.

The existence and continuation of these practices reflect the priorities set and strategies pursued under past conditions in the country. Automatic promotion policy, particularly during a period of rapid growth of the school-age population, has enabled a smooth flow of students through the system so that space could be made available to new comers. The use of examination for selection has provided apparently objective, merit-based criteria for selection. Heavy tracking has enabled the concentration of scarce public resources on the more promising students, assuming that they would be more productive citizens later. In developing countries, where resources are constrained and the demand for education is high, these are common tradeoffs that policymakers have to make.

In the 1990s, however, the global environment and the demographic trend have changed, thus calling for different emphases and approaches to education. The establishment of the World Trade Organization (WTO) has changed the rules of the game of international relations and commerce. The case most pertinent to Jamaica is the WTO's ruling to make the European Union phase out the preferential import of Caribbean products, specifically bananas, by the first decade of the 21st century. The impact is expected to be devastating because Caribbean bananas are more expensive to produce than those in Latin America are. This has put tremendous pressure on Caribbean countries to diversify their economies in order to compensate for the expected loss. Because countries now have to compete for foreign trade and investment on the basis of cost and quality of their goods and services, the skills and productivity of the workforce can change the trajectory of a country's development. As the pace of technological change accelerates,

upgrading the skills of the future workforce will require higher cognitive skills and more advanced levels of education and training.

On the demographic front, after a period of rapid growth of the school-age population in the 1980s, the trend has reversed in the 1990s. Declining primary and secondary education enrollment has led to improved teacher to student ratios in recent years (Figure 5 and Appendices 2.22 and 2.23). This trend will change again in the 21st century. The 6-to-11 age group is projected to increase modestly until around 2008 when it would go on a decline. The 12-to-14, 15-to-16, and 17-to-19 age groups are projected to increase in the first 15 years of the 21st century. The pressure on secondary school places is likely to grow. Youthful energy not properly channeled to constructive ends through education and training could become issues for law and order.[2] The projected increase in these age cohorts, therefore, will pose a challenge to secondary education in the immediate future. (See Figure 20 and Appendix 6 for population projection).

In the 1990s, the Minister of Education and Culture (MOE&C) has embarked on an ambitious reform program[3] to improve quality and extend access. The Reform of Secondary Education (ROSE) is just one of the major education initiatives. The first phase of the 15-year ROSE has changed junior secondary education. The next phase aims at providing a place in Grades 10 and 11 to all those have completed Grade 9 by the year 2002. The major beneficiaries of these initiatives would be children from poor households, who have been on the margin of both access and performance. They would be the ones who are likely to be left out in a completely open economy if they are not brought into the system. Financing this reform requires substantial and sustained inputs.

Purpose of the study. The ambitious nature of the targets poses questions regarding finance, impact on the education system as a whole, and the absorptive capacity of the labor market for secondary school graduates. This study aims to provide the analysis to facilitate the formulation of a strategy to assist the secondary education subsector for the next decade. This report is structured as follows: Chapter 2 provides a sector overview to set the context for discussion in subsequent chapters. Chapter 3 examines system's performance by looking at the indicators for attainment, achievement and labor market outcomes. Chapter 4 reviews public and private expenditure on education, with a view to evaluation of the options for improving the equity and efficiency of resource use. Chapter 5 assesses the policy options.

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[2] The World Bank's study, *Violence and Urban Poverty in Jamaica: Breaking the Cycle*, clearly shows that this problem must be addressed as a serious development issue.

[3] The MOE&C has embarked on a very ambitious agenda in the 1990s: to restructure early childhood education to provide early stimulation of the age group from birth to three years; to improve the quality of primary education; to improve the quality of secondary education by streamlining the structure and providing a common core curriculum for Grades 7 to 9; to provide secondary education for all students up to Grade 11 by the year 2002; to restructure tertiary education with concentration on Community Colleges and Teachers' Colleges; to increase access to tertiary education through increased collaboration and selective expansion of existing institutions and by establishing more multidisciplinary colleges; to increase the numbers of trained personnel and improve the quality of skills training programs by developing an integrated technical and vocational education and training system, maximizing the use of existing training facilities and establishing additional ones; to improve the management capabilities of the system through increased community participation, continued restructuring of the programs of the Ministry, and improved human resources and information management; and to reduce adult illiteracy.

2. Sector Overview

This chapter describes the structure of education to highlight the problems of a multiple-track education system. It then reviews issues concerning teacher recruitment, training, compensation and conditions of service which affect the productivity and quality of teachers.

2.1. The Education Structure

The Ministry of Education and Culture (MOE&C) has overall responsibility for early childhood education, primary, secondary and tertiary education, although universities are autonomous.[4] The MOE&C exercises its oversight through six regional offices in 14 parishes.[5] The structure of education is presented in Diagram 1. The following paragraphs describe characteristics of each level of education.

Early childhood education (ECE) is provided to (a) children between the ages of 3 and 5 in nurseries and kindergartens, and (b) those between the ages of 4 and 5 in Basic Schools, Infant Schools, and in the Infant Departments of Primary and All-Age schools. Basic Schools are community operated and raise most of their operational resources through fees and donations. The vast majority of Basic Schools are recognized by the Government and receive subsidies to supplement teachers' salaries, and to provide instructional materials and meals. About 72 percent of 132,000 children attend Basic Schools, and 12 percent enroll in Government sponsored Infant Schools and departments.[6] Enrollment has been on the rise over the last decade. (Figure 5)

Primary education is provided to children between the ages of 6 and 11 in Grades 1-6 in: (a) 344 Primary Schools, (b) 396 All-Age Schools, (c) 54 Primary and Junior High Schools (P&JH), and (d) 127 private preparatory schools. Most of the schools have been operating on shifts. The enrollment trend has been on the decline due to a fall in the population of this school age. (Figures 5 and 20). As a result, the average pupil-to-teacher ratio is 31:1, below the recommended ratio of 40:1. About 66.8 percent are below this recommended ratio and 33.2 percent above it.

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[4] The Education Act of 1980 establishes four levels in the formal system and defines the power and responsibilities of the MOE&C, the rights and responsibilities of the teaching profession, and the relations between the MOE&C and private, independent schools.

[5] The Regional Director coordinates (i) school supervision of early childhood development, primary education, and secondary education (but not tertiary education); (ii) educational support services and community relations; (iii) maintenance and facilities management; (iv) administrative services; and (v) school personnel service. He/she reports directly to the Chief Education Officer.

[6] Since 1997, services for early childhood care, development, and education for children from birth to 5 have been integrated under the MOE&C. This involved the transfer of responsibility and personnel for children services from birth to three from the Ministry of Health to the MOE&C. Consequently the scope of work in this subsector will be vastly expanded.

Diagram 1. The Structure of Education in Jamaica

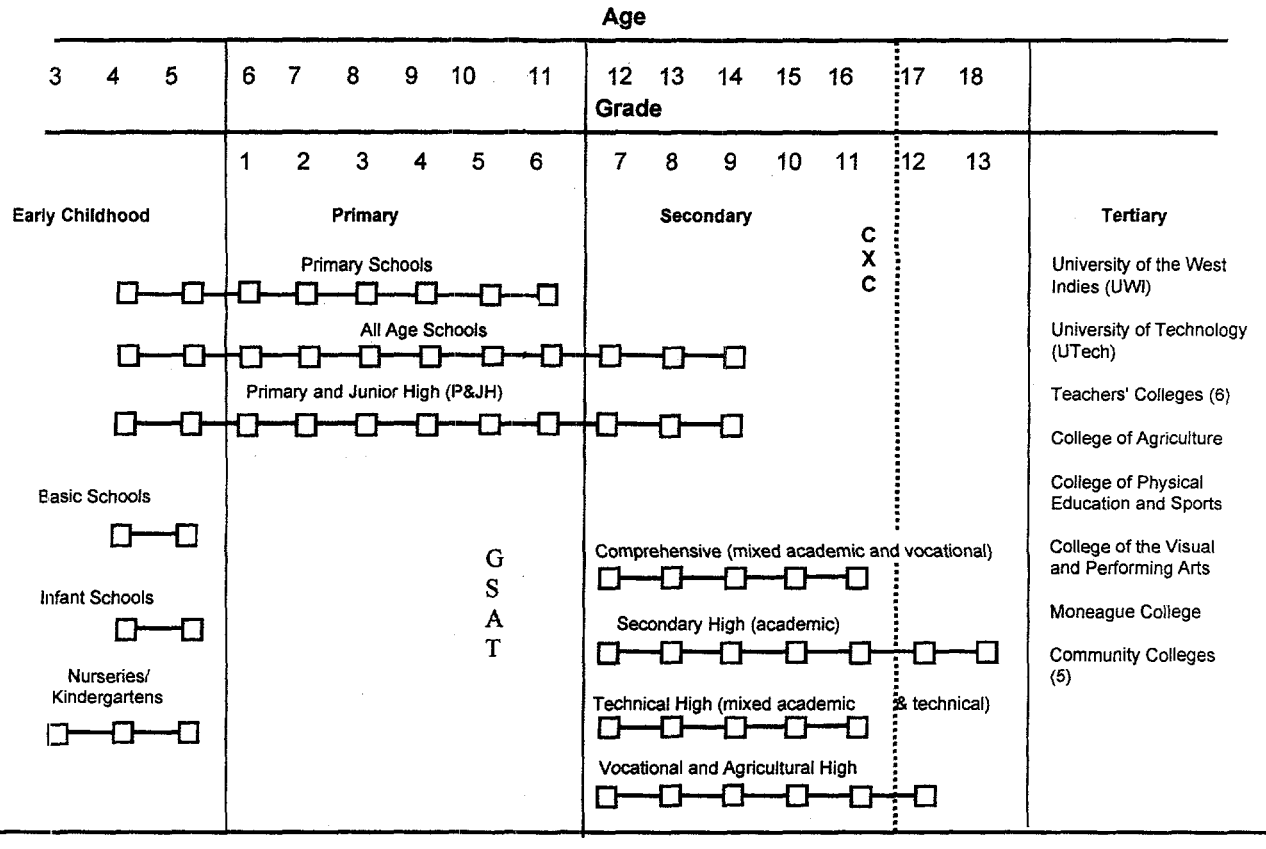


Figure 5: Enrollment by Level for Public Educational Institutions (1986/87-1997/98)

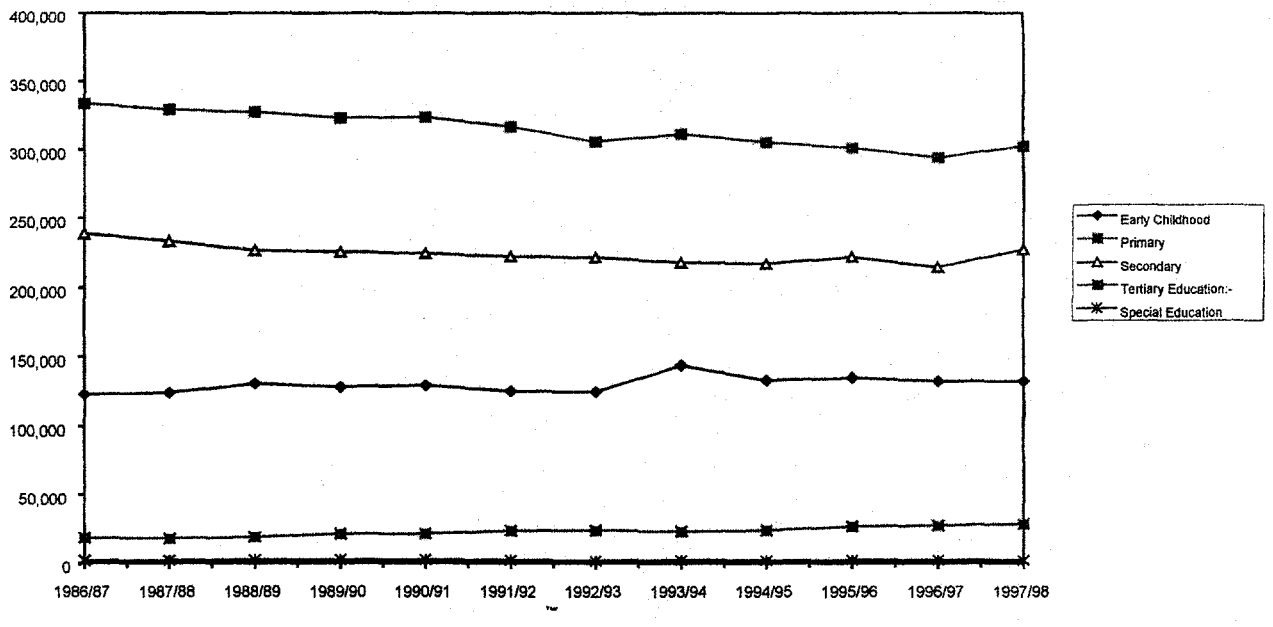
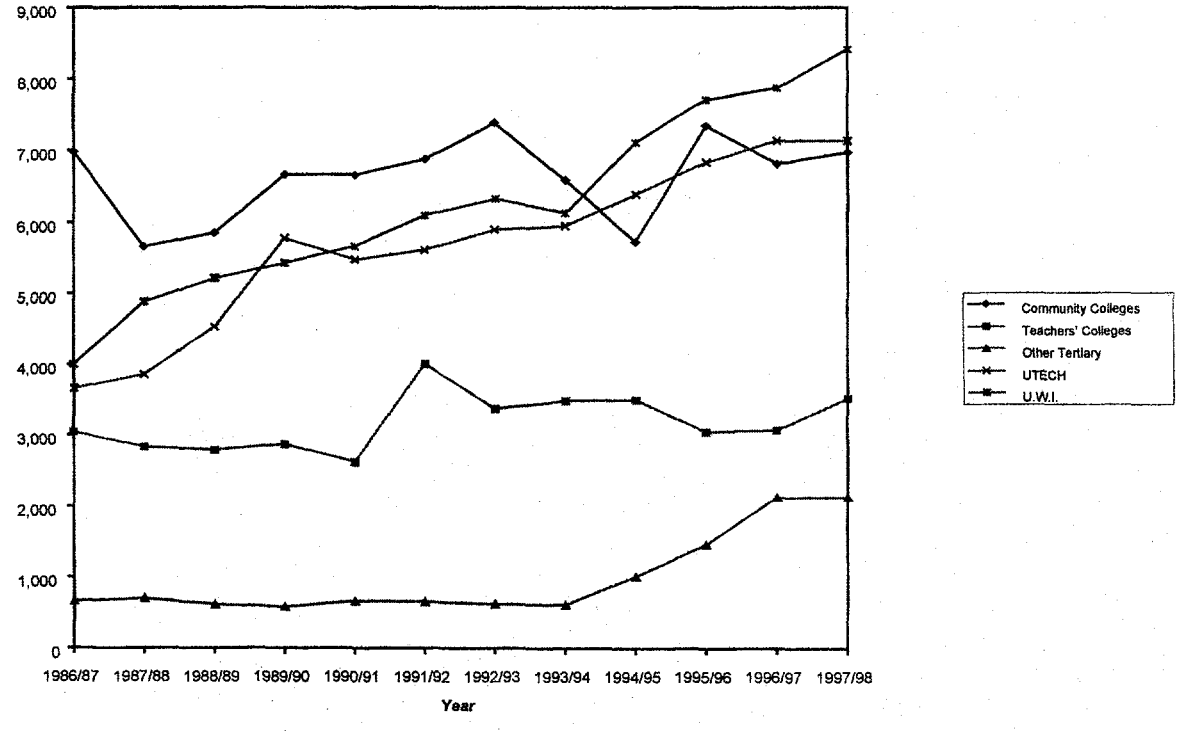


Figure 6: Enrollment in Tertiary Education Institutions (1986/87-1997/98)



Primary curriculum provides instruction in Language Arts, Mathematics, Science, Social Studies, Arts and Crafts, Music, Physical Education, and Religious Education. Textbooks in core subjects are provided free (language arts, math, science, and social studies). Schools meet for 190 days per school year. Only 6 percent of primary schools are on shift. Those on shifts have 4.5 contact hours per day (8 periods), not including recess and assembly time. Those not on shift have 5 contact hours per day. This amount of instructional hours is low in comparison with other countries. This will impact learning outcomes negatively.

Secondary education is often considered a transition stage with the dual mandates of preparing adolescents for the world of work and of equipping the academically inclined for the pursuit of tertiary education. These two mandates have segmented seven years of secondary education into three cycles with different entry requirements and exit points. They have also truncated the secondary curriculum into various tracks -- (a) academic, (b) mixed academic and technical, (c) mixed academic and vocational, and (d) prevocational. This multi-track system is an extension of a structure that was historically divided into the classical/academic stream for the elite and a vocational bent for the majority. (Table 2).

Table 2: Secondary Education by School Type, 1997/98

Grades offered	Existing School Types	# of Schools	Enrollment	Current Pupil: Teacher Ratio	MOE&C Guidelines' Pupil: Teacher Ratio	Future School Types
7 to 9	All-Ages	355	43,387	27:1	40:1	Primary and Junior Highs
	Primary and Junior Highs (upgraded from All-Ages)	54	9,706	18:1	30:1	
7 to 11	(New Secondary: prevocational)*	(18)*	(13,930)	(17:1)	(30:1)	Comprehensive Highs
	Comprehensive (mixed academic & vocational)	75	67,559	24:1	25:1	
7 to 13	Secondary Highs (academic)	59	75,071	18:1	20:1	Secondary Highs
7/8 to 11	Technical Highs (mixed academic & technical, vocational)	14	16,323	17:1	20:1	Technical Highs
10 to 11 or 12	Vocational and Agricultural Highs	5	1,246	9:1	25:1	Vocational & Agricultural Highs
Various	Independent Schools	n.a.	5,000	n.a.		Independent Schools

Source: MOE&C statistics and *MOF, 1999. Estimates of Expenditure.*
* Eliminated as a category and upgraded to Comprehensive Highs in September 1998.

The hierarchy of secondary schools is determined by the extent of academic subjects taught, the degree of selectivity for entrance, and whether the schools offer senior secondary education and the Sixth Forms (Grades 12 and 13). The most prestigious schools are the Secondary Highs (also known as Traditional Highs), which prepare students for the academic track. These are followed by the Technical Highs, the Comprehensive Highs, the New Secondary

Highs. The last school type was completely upgraded to Comprehensive Highs and disappeared as a category in September 1998. Schools which combine offering of primary and junior secondary education are All-Age (which are originally for rural students) and the P&JHs (which are recently upgraded from All-Ages).

About 7 percent of the All-Ages, 13 percent of P&JHs, 11 percent of New Secondary Highs, 12 percent of Secondary Highs, and 48 percent of the Comprehensive Highs are on shifts. The number of contact hours remains the same for secondary education as that for primary education – 4.5 hours per day per shift and 5 hours for extended day schools. Given that secondary education curriculum is more demanding, the lack of differentiation between the number of hours for these two levels of education undermines the quality of secondary education. There has been a debate about extending the school days to 200 for both levels, but a decision has yet to be made. Enrollment in secondary education has also been on the decline, thereby reducing the student-to-teacher ratios in most school types. However, the secondary school-age population is projected to increase in the next century and the demand for this level of education will grow correspondingly (Figures 5 and 20).

Tertiary education is offered in the following institutions: the University of the West Indies (UWI), the University of Technology (UTech), six Teachers' Colleges (TCs), the College of Agriculture (CASE), College of Physical Education and Sports, College of the Visual and Performing Arts, Moneague College for teacher education and community-related courses, and five community colleges. The criteria for admission to all of these institutions differ enormously. The universities require high passes in the Caribbean Examination Council (CXC) Examinations. To be competitive, applicants tend to have finished Grade 13 and have passes in General Certificate of Education (GCE) Advanced ("A") Level. The TCs and Community Colleges require only graduation from Grade 11 with passes in CXC.

UWI is the premier regional university in the Caribbean and is co-financed by governments of countries in the region. Its campus in Mona, Jamaica, has an enrollment of over 7,000 in first degree, certificate, and diploma programs (of which 60 percent were full-time students) and over 1,000 in post-graduate studies (of which 32 percent were full-time students).[7] UTech was formerly the College of Arts, Science and Technology or CAST, and was upgraded to university status in 1996.[8] It has an enrollment of over 7,000 students, of which 40 percent studied full-time, 17 percent part-time, 13 percent in the evening, and 28 percent in in-service and modular programs. There is also the privately owned, church affiliated Northern Caribbean University with some 2,000 students. Enrollment in various tertiary institutions has been on the increase (Figure 6).

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[7] UWI offers first degree programs in Agriculture, Arts and General Studies, Education, Engineering, Medicine, Natural Sciences, Social Sciences, Law, and Nursing. Its certificate courses cover the fields of Education, Nursing, Public Administration, Management Studies, Social Services, Theology, and Business Administration. The diploma courses cover Mass Communication, Public Administration, Management Studies, Education, Medical Science, and Social Work/Sociology. Postgraduate studies are offered in Agriculture, Arts and General Studies, Education, Engineering, Law, Medicine, Natural Sciences, and Social Sciences.

[8] UTech offers first degree courses in Building, Commerce, Computer Studies, Engineering, Institutional Management and Food Service, Science, Technical Education, and Architecture. It also trains teachers in vocational and technical subjects.

Vocational and technical training is offered by the Human Employment and Resource Training Trust National Training Agency (HEART/NTA) to individuals aged 17 functioning at a grade nine level in Math and English. Training emphasizes vocational and technical skills, and is provided in vocational training centers, academies, automotive schools, and special programs. The training is financed through a payroll levy of 3.5 percent.

Selection and Placement. The use of examinations to screen, certify and place students has been central to maintaining this stratified, multi-track system. There exist four types of tests administered by the Ministry annually (see Table 3):

(a) National assessment tests intended for monitoring and diagnostic uses – National Assessment Program (NAP) throughout primary education;
(b) Secondary school placement tests – Common Entrance (CEE 11+[9] and 13+), NAP Grade Six Achievement Test (GSAT), Grade Nine Achievement Test (GNAT), and Junior High School Certificate (JHSC);
(c) National certification examinations – JHSC and Jamaican School Certificate (JSC) at the end of Grade 9, and Secondary School Certificate (SSC) at the end of Grade 11;

[9] Although the CEE has been abolished in 1998 after 32 years in operation, its function in selection and placement to Secondary Highs (and later to Comprehensive Highs) has left an impact on the Jamaican education system beyond its life span. The CEE tested Mathematics, English, and Mental Ability, potentially allowing as many as three sittings between the ages of 10 and 12; henceforth, it was also known as CEE 11+. Some parents and teachers encouraged students to sit the CEE as early as Grade 5. In some schools, only unsuccessful students or students who were too young to take CEE went on to the 6th Grade. This practice compressed primary education from six years to five years for some students.

Approximately half of the some 100,000 students in Grades 5 and 6 sit for the CEE each year; fewer than one-third of the test-takers were placed. The percentage who were selected and placed each year was based on the number of available seats as well as external pressure to place an increasing percentage of students. In addition, principals of Secondary High Schools had the discretion of selecting up to five per cent of the pupils. The rest entered Comprehensive Highs or New Secondary Highs through a feeder school system by free flow or continue in their All-Ages and P&JHs for junior secondary education. Placement by CEE, however, was often affected by where the student goes to school. In parishes which had fewer high school places, placement rates were much lower even for students who scored higher than those in parishes with plenty of high school places (McGinn et al., 1996; PIOJ, 1999). Similarly, because girls generally performed better than boys, they often faced higher cutoff scores than boys in order to give boys a better chance to enter secondary education.

Not only did the CEE drive activities at the upper primary level at the expense of a balanced development in primary education, but it also gave impetus to the wealthy to enroll their children in expensive private preparatory schools in order to enhance the opportunity of their children to gain admission to publicly funded Secondary High Schools. On average, about 54 to 60 percent of preparatory school students were placed, nearly 2.5 times higher than the placement rates of students from All-Ages and P&JHs. The irony was that those who could afford private preparatory fees were much more likely to be awarded a place in a low cost public high school of good quality. The CEE had also resulted in imbalances in public primary schools because parents enrolled students in schools which had highest pass rates. This resulted in overcrowding of good schools and under utilization of schools that did not perform well. While the replacement of CEE by NAP's Grade Six Achievement Test could reduce the distorting effects on primary education, it remains unclear how the equity of placement can be improved when the new test will still service the function of selection for replacement.

(d) External certification examinations – Caribbean Examination Council (CXC) and General Certificate of Education Ordinary Level (GCE "O" Level) examinations at the end of Grade 11, and GCE Advanced Level ("A" Level) at the end of Grade 13.

Table 3: Examinations in Jamaica, 1999

Grades	Existing Tests	Type of Tests	Implemented since	% Participating	% Placed/ Pass	Future of Exam
1	National Assessment Program (NAP)	Readiness Inventory	1990s	Nationwide		In place.
3	NAP	Diagnostic	1990s	Nationwide		In place.
4	NAP	Literacy	1998	Sample		Pilot.
6	NAP Grade 6 Achievement Test (GSAT)	Language, Math, Science, Social Studies, and Writing	1990s	All 6th Graders, 50,000		Replaced CEE 11+ in 1999.
5 or 6	Common Entrance (CEE 11+) for 10-12 year-olds	Language, Math, & Mental Ability	1950s	Used to be about 52,000 of 10-12 year-olds	~32%; based on # of places	Last test conducted in January 1998. Replaced by NAP in 1999.
7 or 8	CEE 13+ (for 12-14-year-olds)	Language, Math, & Mental Ability	1950s	20,000	~10%	Required as long as Technical High Schools start in Grade 8.
9	Grade 9 Achievement Test (GNAT)	Math and English for All-Age students seeking admission to Grades 10 & 11.		Used to be 8,000	~20%	Replaced by JHSC Exam in 1999.
9	Junior High School Certificate Exam (JHSC) for placement in Grades 10 & 11.	Language, Math, Science, Social Studies, Resource & Technology, and Extended Writing	1995	21,000 (projected to be 50,000)	To be 100%	Will be expanded to cover all schools in the future.
9+ and out of school	Jamaica School Certificate (JSC)	4 vocational and technical subjects left		Used to be 25,000 for academic; 3,000 for tech/voc	47% 34%	All academic subjects replaced by JHSC Most Voc/Tech subjects moved to Heart/NTA (1999)
11	Secondary School Certificate (SSC)	National certification exams; 20 subjects (6 acad. 14	1970s	Optional: for certification of completion		Voc/Tech subjects to be moved to HEART/NTA in 2000.

		voc/tech left)		of senior secondary education	
Out of school exam	NCTVET	Language & communication, calculation & computation, general technical studies	1990s	For entrance to non-formal training programs	
11+	Caribbean Council Examination (CXC)	Regional certification test. CXC-Basic (20 subjects); CXC-Proficiency (27 subjects)	Since the 1970s	Attaining Proficiency levels 1-3 is needed for admission to tertiary education and formal sector job.	Remains unchanged.
11	GCE "O" Level	United Kingdom.		Useful for overseas study and for competing to enter universities.	Remains unchanged.
13	UWI Admis-sion Tests	Subject based test			Remains unchanged.
13	GCE "A" Level	United Kingdom			Remains unchanged.

Source: MOE&C.

Note: The shaded areas indicate that the examination was abolished or on its way to abolition.

With the exception of NAP, the main purpose of these examinations are to screen, place and certify students, not to improve learning. Most of the tests are norm-referenced which compare how a student performs relative to other test takers, not criteria-referenced which measure against an absolute standard. The proliferation of exams has resulted in many low volume and low efficiency tests as resources are spread thinly to develop, administer, and grade them instead of being used to enhance the validity (to measure what the test purports to measure), reliability (consistency of measurement), and comparability across years.

The examination system has been instrumental in determining the quality of education students will receive by tracking them into different school types. The best students are selected first by CEE and then by GSAT for placement in Secondary Highs, which have the lowest student-to-teacher ratios, and the largest percentage of teachers being university graduates or trained in Teachers' Colleges. Students who performed less well in CEE are tracked to Comprehensives, which are much less endowed in terms of teacher qualifications and student-to-teacher ratios. The low achievers who failed to get a place in a comprehensive school are sent to All-Ages or P&JHs which have the largest percentage of pre-trained teachers and the lowest student-to-teacher ratios.

The Reform of Secondary Education (ROSE) aims to address some of the problems identified above. The first phase (1993 to 1998) focused on junior secondary education. A key element is to provide a common curriculum for all students in all school types that will balance between the demand for academic development and preparation for the world of work. This is intended to strengthen the common core within the multiple track system. Through five core subjects—Math, Language Arts, Science, Social Studies, and Resource and Technology (which covers home and family management, resource management, product design and development, agriculture and the environment, and visual arts) -- the ROSE curriculum aims to develop an effective level of oral and written communication skills, numeracy and problem-solving skills, critical and creative thinking, the ability to work collaboratively in groups, and an appreciation of learning. Through career development education, which is infused into all subject areas, students are prepared to make decisions about careers linked to their interests and skills. The first phase of ROSE also developed textbooks specially for those reading below grade level in junior secondary education. It also provided in-service teacher training and align pre-service training in ROSE methodology which emphasizes cooperative learning. Infrastructure of disadvantaged schools were also upgraded.

Concurrently, the Ministry has reduced the school types by gradually upgrading All-Age schools to P&JHs, and by having eliminated New Secondary Highs. In the future, there will be six rather than eight types. Meanwhile, ROSE has also gradually reduced the redundancy of examinations (by replacing the tests on academic subjects of JSC with JHSC, and by directing the tests of vocational subjects to HEART/NTA, and downsizing SSC) while introducing the JHSC which has much better validity and reliability. These steps which complement the curricular reform have helped reduce the fragmentation of the curriculum. Further steps are needed to build up the assessment program for secondary education for monitoring and diagnostic uses, and also to lay the foundation of an accountability system.

The upper secondary education reform has just begun. A core curriculum has been designed and piloted.[10] In parallel with the junior secondary curriculum, the upper secondary program also requires all students to follow a common core of five subjects: Language, Math, a Science subject, a Social Science/Humanities subject, and a Technology subject. Furthermore, there is an expanded school experience program to help students develop responsible behaviors and prepare them for community participation through (a) membership in a school group or club, (b) provision of community services, and (c) a guidance and counseling program, including career education. Programs in Technical Highs will be streamlined to be consistent with the reform and to provide expanded opportunities for specialized technical training at the upper secondary level.

[10] At the pilot stage, upper secondary education offers two tracks: Route 1 (a two-year track) which will be attended by those who will have no difficulty with the current CXC examinations at the end of Grades 10 and 11, and Route II (a three-year track) which prepares students who need an additional year to complete these two grades. Route I students can select between two and four additional optional subjects, while Route II students will select only one or two additional subjects if their performance in the first year suggests that they are capable of completing the additional subject or subjects in two years. This two track system has enormous logistical and financial implications and may not be implemented nationally.

While the first phase of ROSE has met or exceeded most of its targets, it has not touched structural issues that affect the quality of education and sustainability of the reform. These issues are: (a) to ensure that all students have learned the requisite skills; (b) to formulate a more effective policy towards teachers; and (c) to improve educational finance. These unfinished business needed to be taken up by the second phase. The following section begins by reviewing the policies towards teachers.

2.2. The Teaching Profession

Teachers are one of the most critical of all schooling inputs[11] and their salaries account for over 90 percent of public education expenditure. That is why effective strategies towards teacher recruitment, deployment, conditions of services and training not only will improve the efficiency of resource use but also will affect student achievement.

Teacher qualifications. The teaching profession from infant classes to secondary education in Jamaica is about 20,000 strong, and is predominantly female. Teachers at all levels are classified and paid according to their academic qualifications. There are four major categories:

a) trained teachers who constitute the majority, and who are graduates of Teachers Colleges (TCs);
b) trained graduates who have a university degree as well as pedagogical training;
c) untrained graduates who have a university degree but not pedagogical training; and
d) pre-trained teachers who are not professionally trained but might have some form of tertiary education or only secondary education.

Pre-trained teachers are only hired to fill immediate staff needs and are not supposed to stay in the system for more than six years, during which they should be trained. But many untrained and pre-trained teachers stay in the system beyond the theoretical cut-off time. Such teachers often are studying in TC while they remain in service.

The proportion of these four types of teachers varies from level to level, as well as from one type of school to the next (Appendices 2:12 to 2:22). In Secondary Highs, the number of trained graduates was substantially higher than that for any other school type. Table 4 provides a comparison of teacher qualifications in primary and secondary schools to show the disparity among school types. The variation in teacher qualification, combined with differences in student-to-teacher ratios, has resulted in variation in per student spending in these types of schools. The trained graduates were found to be associated with higher student achievement than trained teachers, according to ROSE Project's evaluation. Thus, the difference in teacher quality has

[11] Analyses of determinants of achievement in a number of countries have found a positive association between teacher quality and student achievement. Evidence from the United States also confirms that 43 percent of learning outcomes is attributable to teacher qualification and experience, 8 percent to class size, and 49 percent to home and family factors. This finding is made in an environment where the needs for textbooks, instructional materials and facilities have been met.

added to the inequity caused by tracking of students with different levels of achievement into different types of secondary schools.

Table 4: Teacher Qualifications by School Type, 1997/98

	Trained Graduate	Pre-Trained Graduate	Trained Teacher	Pre-Trained Teacher	Total
Primary	9%	2%	70%	20%	100%
All Age 1-6	5%	1%	67%	27%	100%
All Age 7-9	8%	3%	67%	21%	100%
Primary & Junior High 1-6	6%	3%	68%	23%	100%
Primary & Junior High 7-9	6%	6%	73%	15%	100%
Secondary High	24%	18%	54%	5%	100%
New Secondary	15%	6%	70%	9%	100%
Comprehensive	17%	4%	72%	8%	100%
Technical High	14%	15%	65%	6%	100%
Vocational/Agricultural	16%	17%	47%	20%	100%

Source: MOE&C.
Note: The percentages do not necessarily add up to 100 due to rounding.

Teacher pre-service education is one of the most important means of recruiting teachers. The vast majority of teachers in primary and secondary education are trained in one of the six TCs on the island.[12] TCs offer certificate and diploma courses with specialization in early childhood education, primary education, secondary education, special education, physical education, and arts. Not all TCs have the same offerings. There is a certain amount of specialization, depending on the facilities and the strengths of TC lecturers. There are full-time day courses for pre-service training and evening courses for in-service training of pre-trained teachers or post-certificate teachers. The certificate program is the basic requirement for teaching, and it entails two years of class work and one year of internship. The diploma program is a three-year, post-certificate, extra-mural course. The Joint Board of Teacher Education (JBTE), which is a regional organization in the Caribbean, determines the curriculum of teacher pre-service and in-service training, as well as examines and certifies TC graduates for teaching.

The entrance requirement to TCs is four CXC passes or the equivalent. The acceptance rate to TCs is about 60 percent. In fact, some applicants do not have the requisite passes (for example, with only two CXC passes) so that they have to do a preliminary year of preparation to repeat taking the CXC. Some TCs are using SSC, or even JSC for entrance. Some untrained teachers use these results to get into TCs. A graduate from the certificate program has a total of 13 years of formal schooling if he/she does not have to do the preliminary studies.

[12] UTech also trains teachers from Grade 11 upward in technical and vocational subjects, and upgrades trained teachers through degree programs.

TC education is affordable to low-income students in part because the fees charged are only about 10 percent of the unit cost, in contrast to UWI's tuition fees, which range from 15 to 17 percent. While it cost the Ministry over JA$110,000 per year to educate one TC student, the student is required to pay approximately JA$10,000 to JA$15,000 per year, which is inclusive of tuition fees, room and board (and a mid-day meal), and exam fees which go to the Joint Board. Fees only help with maintenance, books and utilities. When they begin practice teaching, the TC provides some supplies.

If students do not meet the required standard in two subjects during the course of their study, they will be "referred" in these subjects, which means that they will have to re-take the test. Nonetheless, they can continue with other subjects. If they are "referred" in three subjects, they have to leave the TC, but they can still get a job as an untrained teacher, repeat the year, and re-take the certification examination. Most "referrals" are in mathematics or English, according to the spokesperson of a TC. Each year, about 20 to 30 percent of students are "referred" in one of the subjects. TCs offer summer remedial programs and provide supplemental exams in August for students who have failed in the June exam.

Many applicants consider TC education as an entry point to tertiary education. Half of the graduates do not enter teaching. However, with a TC certificate, it is easier for graduates to enroll in university-based courses and eventually obtain a bachelor degree which will open up opportunities in other fields.

The TCs generally have difficulty recruiting applicants in mathematics, science, language arts, geography and computer science. These areas are not the strengths of the TC lecturers either. In general, only 34 percent of TC lecturers have masters' level degrees or above, in contrast to 81 percent in UWI, 37 percent in UTech, and 8 percent in community colleges.[13] Many TC lecturers have masters' degree in education but not in the subject areas. Only one TC, Mico, has expertise to offer specialized training in all five ROSE core curriculum (mathematics, English, science, social studies, and resource and technology). That explains why TC graduates are not strong in subject knowledge.

When it comes to expanding the teaching force for upper secondary education, it is important that teachers have the requisite knowledge to impart to their students. Unless the Ministry mandates that only university graduates can teach at the upper secondary levels, TCs have to continue to bear the responsibility of preparing teachers in all levels. The Ministry estimates that another 1,000 new teachers are needed to support the expansion of upper secondary education. Therefore, there is an urgency to upgrade the knowledge and skills of TC lecturers currently on staff and to attract academically highly qualified persons to teach in TCs in order to be able to offer an academically vigorous curriculum to educate future teachers. At the very least, there should be lecturers with a graduate degree in each of the core subject areas (math, science, social science, and language) who can handle the subject matter in secondary education. They would be able to give guidance not only to pre-service but also in-service trainees. Meanwhile, the entrance requirement should be enforced in order to screen out the academically unprepared secondary school graduates from entering TCs even if it means that enrollment will be below capacity in some TCs. In general, it is not an efficient use of public

[13] MOE&C, "1995-2000 Education Plan: Tertiary Education," (Version 3), mimeo.

resources to admit unprepared students. This could ultimately lead to rationalization and restructuring of TCs.

The TCs and the Ministry together have worked out a plan to strengthen the TCs. This includes rationalization and specialization of the TCs. Instead of spreading resources thinly, the proposal calls for concentrating resources on improving infrastructure and target upgrading of staff[14] for TCs that have a recognized strength in a particular area. For example, Moneague has proposed to teach reading as a subject specialty. Mico can specialize in Primary and Junior Secondary education, with a focus on teaching of science. The TCs hope to strengthen the link with universities as well. Degrees are now offered in conjunction with UWI in four areas—Mico in Special Education,[15] Shortwood in ECE, Edna College in Arts, and G.C. Foster in Sport. TCs have yet to offer a degree in an academic subject. Another innovation contemplated to provide cost-effective teacher training is the use of distance education for untrained teachers. Church has focused on groups to be upgraded to diplomas for certification. It plans to make a 3-year extra-mural course into a sandwich program with two years taught by distance learning modules and one year in the college.

Teacher in-service training. The large proportion of pre-trained teachers makes it all the more necessary to provide in-service training programs that address substantive knowledge of the subjects. Under the ROSE Project, the curricula of pre-service and in-service training with respect to junior secondary education teaching have been integrated. Since 1998, TCs have assumed in-service training after creating positions to absorb JBTE trainers into the establishment. However, the focus of in-service training is mainly on methodology, not on content. Given the weak academic preparation of trained and pre-trained teachers, it is highly questionable whether emphasis on pedagogy alone would help improve student learning outcomes. Distance learning materials have been commissioned by JBTE, but a full set of materials has yet to be developed. In this respect, in-service training for upper secondary education teachers might encounter similar issues. It is of great urgency that subject matter knowledge become an important part of in-service training.

Teacher retention. In spite of an increased number of teachers having been trained over the years, the share of trained teachers serving in the schools has actually declined. Between 1990/1991 and 1996/97, the total share of trained teachers decreased by 11 percent while pre-trained teachers increased by 22 percent. Even when trained teachers, trained graduates, and pre-trained graduates are combined, their total share still declined by 2 percent over this period. In 1990/92, pre-trained teachers accounted for only 17 percent of total teachers in primary and secondary education; by 1996/97, they constituted 25 percent of the teaching force. In secondary education, the increase of pre-trained teachers is steepest in All-Ages, P&JHs, and Comprehensives. (Appendices 2:12 to 2.22).

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[14] The University of Alberta has a program with the Joint Board of Teacher Education to upgrade staff in summer courses. This provides a relatively low cost mechanism for staff professional development.

[15] Mico hopes to grant degrees -- 3 years for a TC certificate course plus 2 more years of courses at a university to lead to a BA degree. In terms of the number of years of education, this will translate three years of TC education as equivalent to 2 years of sixth forms plus the first year of the BA; the additional years at UWI will be the equivalent to the second and third years of university study.

Trained teachers tend to have high attrition rates because they can find better opportunities outside the profession, and are less willing to teach in rural areas and inner cities. This might be related to the lack of incentives in the salary scale to attract and retain them.

Teacher salaries. The existing salary scale does not distinguish between primary and secondary school teachers, in spite of the fact that the secondary school curriculum, particularly at the senior secondary level, is academically much more demanding. The absence of salary differentials based on the academic content of the work provides little incentive for the academically well prepared graduates to enter teaching.

Salary differentials are based on academic qualifications. Table 5 shows that the initial salary of a trained teacher doubles that of a pre-trained teacher, and that of a trained graduate triples that of a pre-trained teacher. However, the difference between a trained teacher with a certificate and that with a diploma (one additional year of work after the certificate level) is almost negligible, and so is the difference between a trained teacher and a pre-trained graduate. A pre-trained graduate will get a reasonable payoff (50 percent greater salary) if he/she gets teacher training.

Within each qualification category, teachers can be promoted through various ranks. For example, a pre-trained teacher can move up to Specialist I. A trained teacher with certificate can become a Specialist II. A trained graduate can move up to Master Teacher. However, there is a compression of salaries a the top end. Table 5 shows that the pre-trained teachers have most to gain (97 percent higher salaries) by moving to the top end of the salary scale. But a trained teacher will only see an increase of 21 percent between the entry and the top levels, while a trained graduate at the top end would have a salary that is 38 percent higher than at the start of the career.

The last two columns of Table 5 take the salaries of pre-trained teachers as a base of 1.0 and shows the increase over that base for each qualification level, both at time of entry into the system and at the top end. Note that the differentials in salaries between trained graduates and pre-trained teachers are 3.05 to 1.0 at the entry level. However, at the top end, the differentials have been narrowed to 2.13 to 1.0.

Table 5: Salaries by Teacher Qualification, April 1, 1997

	Entry Level	Top End	Entry Level	Top End	Difference between Entry & Top	Differential Pay for Qualifications	
	JA$	JA$	US$	US$		@ entry	@ top end
(1) Pre-trained Teacher	104,084	205,490	2,974	5,871	97.4%	1.00	1.00
(2) Trained Teacher Certificate	209,010	253,727	5,972	7,249	21.4%	2.01	1.23
(3) Trained Teacher Diploma	214,494	255,553	6,128	7,302	19.1%	2.06	1.24
(4) Pre-trained Graduate	215,517	261,700	6,158	7,477	21.4%	2.07	1.27
(5) Trained Graduate	317,482	437,859	9,071	12,510	37.9%	3.05	2.13

Source: MOE&C.

Salary compression at the top has implications for the motivation and retention of trained teachers in the system, as well as for incentive for pre-trained teachers to upgrade their qualification. First, because pre-trained graduates are paid just little more than a trained teacher, the teaching profession does not offer much incentive for the academically strong university graduates to enter teaching. That is why teaching has been used as a safety valve for graduates when they cannot find a job, but as soon as other opportunities arise, they move on. Second, wage compression at the top end also does not reward those who have devoted their life to teaching. This could also encourage those who have a few years of teaching experience to move on to find something more financially rewarding.[16] This might well contribute to the declining share of trained teachers in the system over time. Third, the compression of wage differentials between trained teachers and pre-trained teachers provides little incentives for the latter to upgrade their qualification.

Given that Jamaica's per capita GDP is about US$1,680, the starting salary for a pre-trained teacher is almost twice the per capita GDP, and that of a trained teacher is about 3.5 times higher than the per capita GDP. This is considerably higher than the Latin American average of twice the per capita GDP, and much higher than Peru where the average teacher salary is about 1.5 times over the per capita GDP. Therefore, the starting salary in Jamaica cannot be regarded as too low; it is the relatively small reward for the academically strong and the experienced teacher that should be of concern to policymakers. To ensure that academically able persons enter and remain in the teaching profession and that pre-trained teachers upgrade their qualifications, it is important to restructure the salary level at the top end. Chapter 5 provides suggestions as to how this could be done.

Teachers' workload. In spite of their starting salaries being higher than teachers in the region, Jamaican teachers have a relatively lighter workload in comparison with their peers in other countries. The weekly teaching period in secondary schools is less than 30 of a 40-period week. There is also considerable variation among schools. A KPMG study funded by the British Department for International Development found that two schools with a similar number of pupils and teachers can have different average timetabled contact hours (67 to 73 percent contact ratio for a 40 period teaching week).[17]

Moreover, due to declining school-age population in the last decade, student-to-teacher ratios in both primary and secondary school have fallen substantially below the recommended levels (Table 2 and Appendices 2:23 and 2.24). This is further compounded by rigidity in teacher deployment due to the conditions under which teachers were hired. Teachers are hired by the school board, although their appointments and dismissals are authorized by the MOE&C.[18] Since

[16] Principals of primary and secondary schools are on a different scale, and they enjoy housing allowances as well. So do TC and university lecturers.

[17] KPMG, 1998, *Strategic Performance Review of the Ministry of Education and Culture*. It estimates that JA$250 million could be saved by increasing teacher timetabled contact by 6 percent per week.

[18] Appointment of principals and vice principals are made by the Teaching Services Commission. Permanent positions, known as establishment positions, are approved only when a school has a certain level of enrollment. All teachers who become permanent staff have to go through a probation period. Teachers who are hired outside the establishment posts cannot be made permanent staff.

school boards are technically the employer, MOE&C cannot re-deploy teachers to different schools even when the student roll change due to migration. This has resulted in a large variation in student-to-teacher ratio even within the same school type. This rigidity has resulted not only in understaffing in some schools and overstaffing in others, but also in an inefficient use of public resources.[19]

Conditions of service. Jamaican teachers also enjoy extremely generous leave entitlements.[20] The agreement between the Ministry and the Teachers' Union allows that 10 percent of teachers of any school to be on study leave; this does not include teachers who are on sick or maternity leave. This means that an additional 10 percent of teachers have to be hired to substitute for those on study leave at any given time. This could add about 8 percent of total the total recurrent expenditure, not to mention the disruption to teaching and learning.

The study leave issue has further ramifications. The existing system allows a teacher who has served for three years to go on study leave with full pay in the first year, and half pay in the second year, subject to the approval of the school board. This is designed to encourage professional development. A teacher who was trained in a TC could apply for admission to a bachelor program in the university. Its' TC training can replace the first year of university courses, thereby, making it possible to complete the bachelor program in two years, fully supported by the study leave with pay. Teachers who go on study leave are under no obligation to return to teach upon completion of study. It is not uncommon that teachers leave the sector after completion of their study leaves. These practices have undermined both public finance and the quality of education. Given the constraints of public resources, it is difficult to justify such generous entitlements.

Summary. While the first phase of ROSE has rightly tackled the problems of a multi-track system through curricular and examination reforms, it has yet to addressed the issues concerning teachers who are so critical to education. To improve quality and extend access to secondary education, it is of paramount importance to improve the academic preparation of teachers through raising admission standards to TCs, strengthening the quality of teacher educators, improving the academic or subject matter content of pre-service and in-service programs, and attracting the academically-able to enter and remain in the profession. The efficiency gains of JA$ 900 million (or roughly 5-6 percent of the projected budget for FY2000/01), estimated by KPMG, by adopting a more effective strategy towards teacher deployment, leave, and student-to-teacher ratio could be used to improve the quality of teacher education and to raise the qualification requirement for teachers of upper secondary schools.

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[19] According to the KPMG study, an amendment to the Pensions (Teachers) Act 1949 will enable the abolition of teachers' position or compulsory retirement "for the purpose of facilitating improvement in the teaching service, by which greater efficiency or economy can be effected." This amendment, if passed, would introduce needed flexibility to the deployment of teachers. (See *Strategic Performance Review of the Ministry of Education and Culture*, December 1998, p. 27.) KPMG estimates that re-deploying teachers from over-staffed schools to under-staffed school and raising the overall student-to-teacher ratios in primary education would save up to JA$150 million, and that increasing the student-to-teacher ratio in tertiary institutions to 18:1 would save another JA$50 million.

[20] See the KPMG study for details on leave entitlement. The savings from reducing leave entitlement are estimated to be JA$450 million.

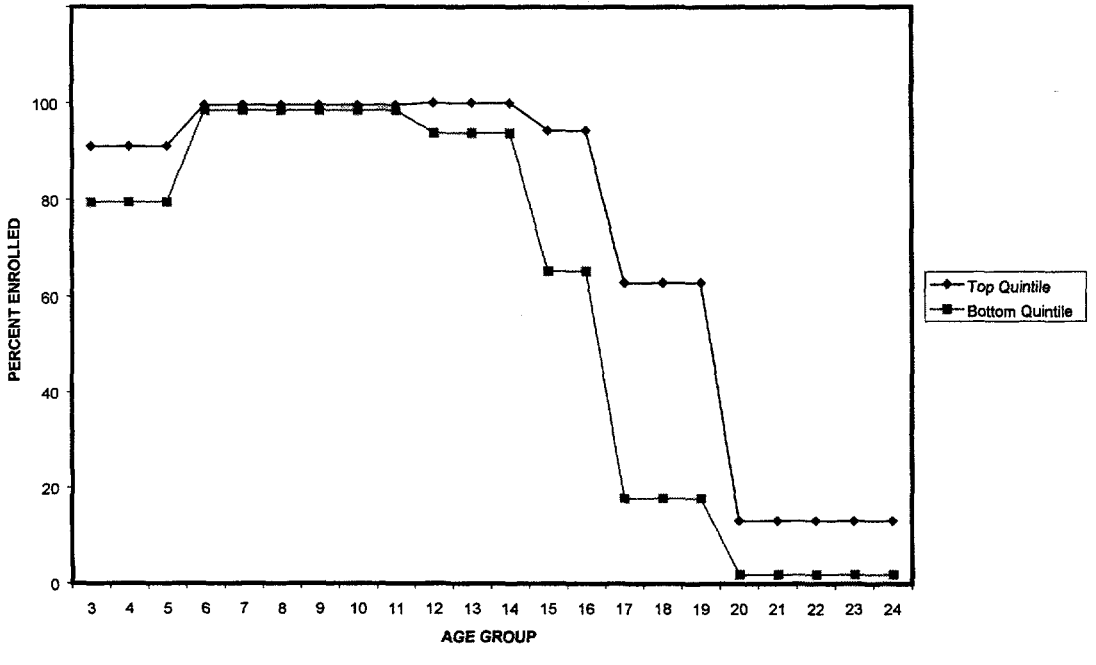
3. System Performance Indicators

This chapter reviews the indicators on coverage, attendance, dropout, quality and labor market outcomes. It focuses specially on how the poor fares on these indicators to assess whether the system has provided equal opportunity for all and what the implications are for the future prospects of those who start out in life being disadvantaged.

3.1. Enrollment and Attainment

It is well established that coverage for the 6-to-11 age group has been universalized since the 1980s and that enrollment rates among the 12-to-14 age group ranges from 94 percent of the lowest consumption quintile to 99 percent of the richest quintile (PIOJ, 1999). Of the 3-to-5 year-olds, the enrollment rates of the bottom quintile reaches 80 percent, considerably below 91 percent of the top quintile (Appendix 3.1). Enrollment among the poor, however, rapidly drop off after the age of 14. Only about 65 percent of children between the ages of 15 and 16 from the bottom quintile remain in school, in comparison with 94 percent of those from the top quintile. Among the 17 to 19 age cohort, only 18 percent of youths from the bottom quintile still enroll, in contrast to 63 percent from the top quintile. For those between 20 and 24 years of age, only 1.9 percent from the bottom quintile are still studying, as opposed to 13 percent of the top quintile. (Figure 7).

Figure 7: Enrollment by Age Group and by Quintile, 1998



Source: Constructed from data in PIOJ, *Survey of Living Conditions 1998.*

Out-of-school youths not only concentrate in the bottom quintile, but as many as 44 percent of them has only primary education (Appendix 3.3). This shows that educational attainment (in terms of years of schooling completed) of the poor is much lower than their enrollment.

As mentioned in the previous chapter, the examination system has been the mechanism to track children from different consumption quintiles into different school types (Table 6). All-Age schools cater mainly for students from the bottom three quintiles, while only 7 percent students are from the top quintile. By contrast, in Secondary Highs, about 30 percent of students are from the top quintile, while only 10 percent are from the lowest quintile. Comprehensive Highs have a larger share of students from the middle quintile than from either the bottom or the top quintiles. The distribution of enrollment by school type by quintile reflects the socioeconomic class structure of society. Nonetheless, the presence of children from the poorest quintile in prestigious Secondary Highs also attests to the possibility of upward mobility even for the very poor in a merit-based system. Tertiary education, however, clearly has a predominance of students from the top quintile (54 percent).

Table 6: Distribution of Enrollment by Education Level and by Consumption Quintile, 1998

	Q1 (poorest)	Q2	Q3	Q4	Q5	Total
Early Childhood (N=1677)	26%	23%	22%	18%	11%	100%
Primary (N=3789)	25%	24%	21%	19%	12%	100%
All-Age (7-9) (N=533)	25%	29%	23%	17%	7%	100%
P&JH (N=133)	18%	21%	26%	25%	11%	100%
New Secondary (N=201)	17%	31%	18%	21%	12%	100%
Comprehensive (N=684)	18%	21%	25%	21%	15%	100%
Secondary High (N=899)	10%	15%	20%	25%	30%	100%
Technical High (N=127)	14%	10%	25%	25%	25%	100%
Voc/Agricultural (N=81)	15%	21%	26%	15%	23%	100%
All Secondary (N=2814)	16%	21%	22%	22%	19%	100%
Tertiary (N=158)	3%	11%	8%	24%	54%	100%
Adult/Night (N=38)	16%	18%	29%	18%	18%	100%
Total	16%	20%	22%	22%	21%	100%

Source: Constructed from data in PIOJ, 1999. *Survey of Living Conditions 1998*, p. 171.

Non-attendance. Many children have long disengaged from school before they drop out through non-attendance. The Survey of Living Conditions of 1998 found that about 60 percent of students were absent 10 to 25 percent of the time during a reference period of 20 days; 19 percent were absent 25 to 50 percent of the time; while 7 percent of students were absent between 50 to 100 percent of the time (Appendix 3.4a). Absenteeism varied among Parishes. Nearly 40 percent of the students in Portland, Trelawny and St. James did not attend schools for greater than 5 days of the 20 day reference period.

The reasons for non-attendance varied among consumption quintiles (Appendix 3.4b). Money problems was cited as the main reason by 62 to 70 percent of students in the lowest two quintiles. For the top quintile, illness was cited as the main reason for missing school. A review of household expenditure on education confirms that poor households do bear a heavier burden on education of their children than richer households (Chapter 4). However, the survey

questionnaire did not pinpoint more precisely in what way money problem had affected students adversely, for example, whether it was the lack of money for lunch and snacks or for extra tutoring needed to pass exam? The survey also did not contain questions on whether non-attendance is due to students' falling too behind to be bothered with school, or being discouraged by the lack of employment prospects. To facilitate policy intervention, it would be helpful if future surveys include questions to help disentangle whether non-attendance is due to demand side (academic and social or physiological reasons such as pregnancy) or supply side (availability of places in Grades 10 to 11 for students to continue) problems.

These low attendance rates may seem to be inconsistent with the low repetition and dropout rates in Jamaica (Appendices 3.5a and 3.5b). For example, in 1995, repetition was only 7.6 percent in Grade 1 and remained under 10 percent in any given grade, in contrast to over 20 percent in some Latin American countries. It should be noted, however, the low repetition rates are the results of the policy of automatic promotion. Another reason for low repetition is the heavy tracking of low achievers into "slower" classes or groups, thereby reducing the perception of a need for repetition. The end result of high non-attendance rates, combined with automatic promotion, is that many students move through the system without acquiring the requisite basic skills. This will become a serious problem when they enter the labor market.

3.2. Learning Outcomes

The educational outcomes are less than satisfactory, judging by a number of indicators. Reading literacy is a key area of weakness that affects achievement throughout the system. According to a study by Myers of UWI (1997), 35 percent of children entering Grade 7 in a sample of six ROSE schools with a total of 1,015 students were functionally illiterate; that is, scoring below the 4th Grade equivalency of the Nelson Reading test. Test-takers in 2 participating All-Age Schools were 80 percent functionally illiterate. Children who are not proficient in reading are not likely to follow the academic content of other subjects.

Results from the JHSC Examination for 9th graders, which is arguably one of the highest quality tests in Jamaica, reflect large variation in achievement. (Table 7). While the lack of control on selectivity and prior learning precludes making inferences of differences in scores between the three school types, the test results call attention to the need to address the plight of a very large percentage of low achievers. Since the test is multiple choice and there are four options, the chance level is 25 percent. In 1998 and 1999, 19-29 percent in P&JH, 15-21 percent in Comprehensive Highs, and 2-6 percent in Secondary Highs scored below 30 percent in mathematics. A more detailed analysis found that a sizable group of students cannot read well enough to even begin to respond when asked to provide writing samples. In mathematics, the percentage of students scoring below 30 in those years were larger than those in language arts (Table 7).

The results over time are more encouraging when the scale scores, instead of the raw scores, are examined. In order to ensure comparability of the tests overtime, 1997 and 1999 scores were equated with the scale of 1998. Although there was a drop of 4 to 5 marks in the mean raw scores in Math and Language Arts in the 1999 examination (compared to the 1998 examination), the drop in mean scale score was much smaller. This suggests that most of the decline was due

to the increasing difficulty of the tests rather than poorer performance of the candidates. In fact, the standard deviation in 1999 was smaller than that in 1998. P&JH schools had actually improved slightly and were performing better than expected, controlling for the increase in participants. Traditional high schools had fallen the most.

Table 7: Scores of the Multiple Choice Components of Language Arts and Mathematics Tests of the JHSC Examination, 1996-1999

	Primary & Junior High Schools	Comprehensive High Schools	Traditional High Schools	TOTAL
1996				
Number of schools Participating in JHSC (#)	20	14	7	41
Number of Examinees (#)	978	3,530	1,471	5,979
Lang Arts: Raw Score Mean (SD)	36.6 (13.6)	45.8 (16.4)	68.5 (13.5)	
Lang Arts: % students < 30%	40%	22%	2%	
Math: Raw Score Mean (SD)	32.5 (12.5)	39.0 (15.4)	63.8 (15.0)	
Math: % students < 30%	50%	35%	3%	
1997				
Number of schools Participating in JHSC (#)	25	29	15	69
Number of Examinees (#)	1,377	7,549	3,639	12,565
Lang Arts: Raw Score Mean (SD)	38.8 (14.9)	47.3 (17.1)	68.2 (12.5)	
Lang Arts: % students < 30%	35.73%	20.98%	< 1%	
Lang Arts: Equated Mean (SD)	57.5 (6.8)	61.4 (7.9)	71.1 (6.2)	63.8 (8.8)
Math: Raw Score Mean (SD)	36.5 (13.6)	42.6 (15.8)	61.9 (13.3)	
Math: % students < 30%	37.0%	25.8%	1.3%	
Math: Equated Mean (SD)	49.4 (6.8)	52.2 (7.5)	61.3 (6.5)	54.5 (8.4)
1998				
Number schools Participating in JHSC (#)	39	41	27	107
Number Examinees (#)	2,069	9,269	6,392	17,730
Lang Arts: Raw Score Mean (SD)	28.2 (13.1)	35.7 (12.8)	47.4 (9.5)	
Lang Arts: % < 30%	19.1%	10.5%	1.5%	
Lang Arts: Equated Mean (SD)	55.3 (10.9)	61.6 (10.7)	72.2 (9.7)	
Math: Raw Score Mean (SD)	23.5 (9.6)	26.5 (10.0)	36.4 (9.5)	
Math: % < 30%	29.7%	20.8%	4.1%	
Math: Equated Mean (SD)	49.7 (8.1)	52.1 (8.2)	60.0 (7.9)	55.1 (9.3)
1999				
Number schools Participating in JHSC (#)	55	49	28	132
Number Examinees (#)	2,533	11,387	6,981	20,901
Number schools Participating in JHSC (#)	55	49	27	131
Number Examinees (#)	2,571	11,493	6,835	20,899
Lang Arts: Raw Score Mean (SD)	27.8 (10.8)	32.6 (11.3)	42.9 (8.7)	35.4 (11.8)
Lang Arts: % students < 30%	28.7%	21.0%	5.6%	
Lang Arts: Equated Mean (SD)	57.5 (9.0)	61.3 (9.6)	70.2 (9.9)	63.8 (10.2)
Math: Raw Score Mean (SD)	21.4 (7.6)	23.1 (7.5)	30.6 (7.8)	25.4(8.5)
Math: % students < 30%	40.7%	32.1%	8.6%	
Math: Equated Mean (SD)	50.7 (6.5)	52.0 (6.6)	58.0 (6.6)	53.9 (7.2)

Source: MOE&C.

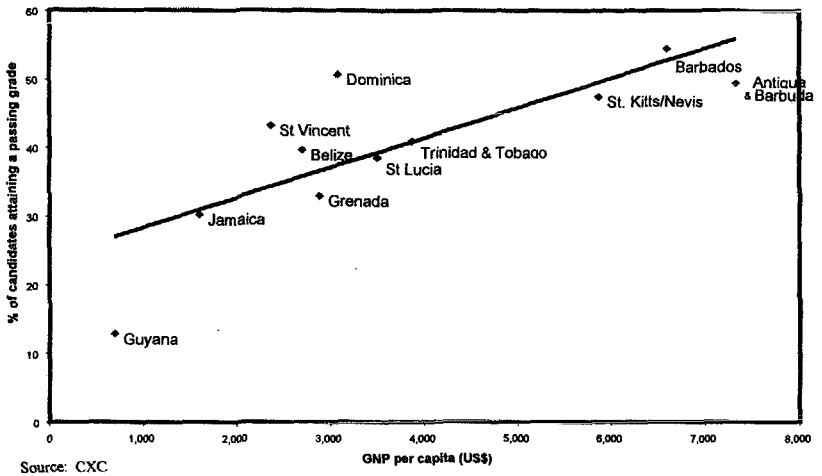
Low cognitive skills at the junior secondary level continue to affect achievement at the senior secondary level. Table 8 shows that students in Secondary Highs continued to have a higher level of passes in academic subjects while those in Comprehensive Highs and New Secondary Highs did poorly in academic subjects, although they performed better in vocational and commercial subjects. In comparison with other Caribbean countries, CXC pass rates among Jamaican schools in Basic and General English, Math, Biology, and Chemistry, were below prediction when GNP per capita is taken into account (Figures 7-11).

Table 8 Percentage of Passing Grades in English A and Mathematics in CXC Examination, 1996

	New Secondary		Comprehensive High		Technical High		Secondary High	
	Grades 1-2	Grades 1-3	Grades 1-2	Grades 1-3	Grades 1 -2	Grades 1-3	Grades 1 –2	Grades 1-3
English	8%	39%	15%	57%	17%	64%	45%	85%
Math	3%	17%	9%	25%	16%	40%	31%	55%

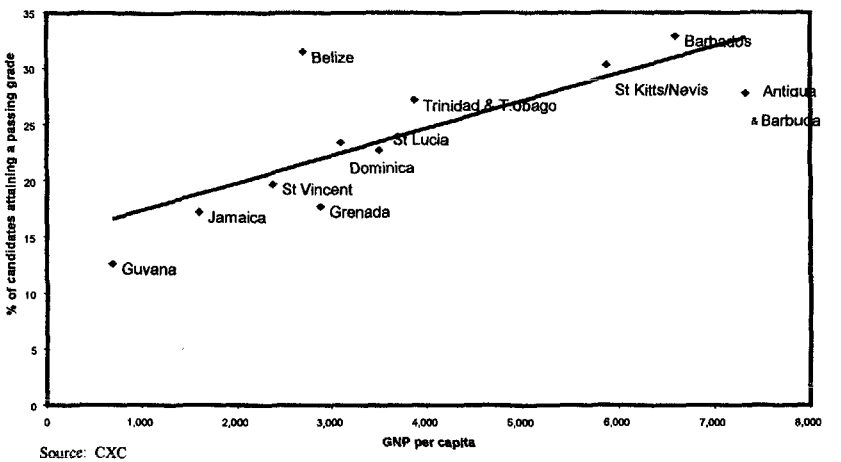
Source: MOE&C.

Figure 8: English A: Percentage of Candidates Attaining a Passing Grade, Controlling for GNP Per Capita, 1997



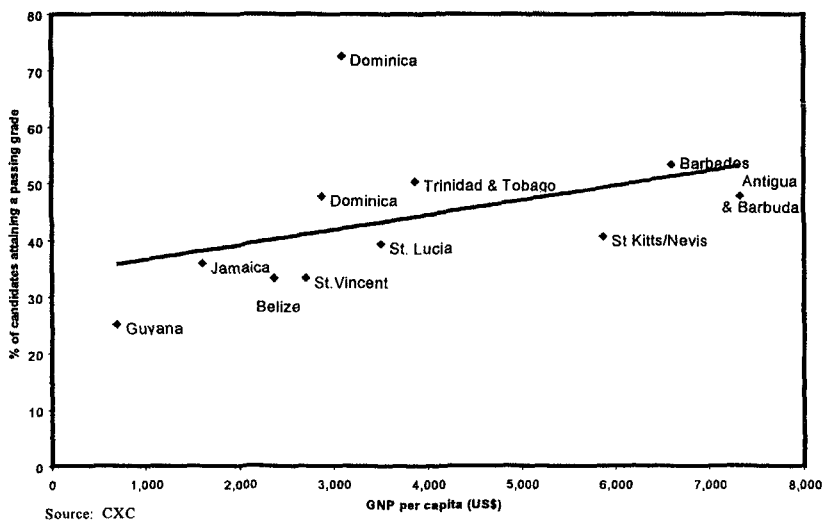
Source: CXC

Figure 9: Mathematics: Percentage of Candidates Attainig a Passing Grade, Controlling for GNP Per Capita



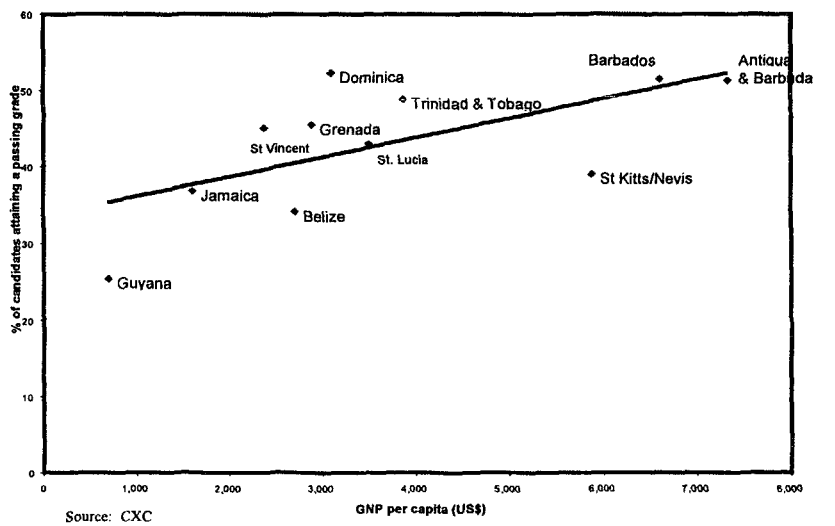
Source: CXC

Figure 10: Biology: Percentage of Candidates Attaining a Passing Grade, Controlling for GNP per capita



Source: CXC

Figure 11: Chemistry: Percentage of Candidates Attaining a Passing Grade Controlling for GNP per capita



Source: CXC

3.3. Labor Market Outcomes

Characteristics of the labor market. Labor force participation rates have been relatively high in Jamaica -- close to 70 percent -- although they have fallen slightly since the late 1980s (Table 9). Unlike other Latin American nations, participation rates for women are also quite high -- over 60 percent. A striking feature is the extremely high participation rates of women between the ages of 25 and 44.

Table 9: Labor Force Participation Rates by Age Group, 1989 and 1996

Age	1989			1996		
Group	M	F	T	M	F	T
14-19	39.1	27.1	33.1	28.9	23.0	29.0
20-24	93.3	82.5	87.5	91.3	76.2	85.5
25-34	97.1	87.3	91.9	94.1	83.4	87.0
35-44	98.1	88.8	93.3	94.3	82.9	86.7
45-54	96.4	80.4	88.1	92.0	73.5	81.6
55-64	89.0	59.0	73.4	82.5	54.6	66.8
65+	54.6	25.5	38.9	48.9	18.4	32.2
Total	78.08	62.82	70.20	74.39	60.92	67.46

Source: STATIN 1989, 1996 and PIOJ calculations.

A majority of employment is concentrated in the formal sector (Table 10) and the proportion of workers in this sector has risen from 55 percent in 1989 to about 60 percent by 1996 -- mainly spurred by a growth in private formal employment. However employment in the informal sector remains high, with over 35 percent employed as own-account workers (mainly in agriculture, petty trading services and light manufacture). Women are more likely to be employed in the formal sector -- especially in the public sector -- as compared to men. Similarly, males are much more likely to be employed as own account workers.

Table 10: Workers by Sector of Employment (Percentage), 1989 and 1996

	1989			1996		
	M	F	T	M	F	T
Government	8.54	13.08	10.46	6.90	12.42	9.25
Private Sector	43.92	46.09	44.84	47.97	50.65	49.11
Unpaid Worker	2.16	4.98	3.35	1.42	4.18	2.59
Employer	1.64	1.13	1.43	2.74	1.30	2.13
Own Account Worker	43.56	34.60	39.76	40.18	30.62	36.12
Total	100.00	100.00	100.00	100.00	100.00	100.00

Source: STATIN Labor Force Surveys 1989, 1996 and PIOJ calculations.

Unemployment remains a particularly vexing problem in Jamaica (Table 11). While overall unemployment rates have declined slightly since 1989, they continue to remain high (at 15.3 percent). Women and youth are the hardest hit groups. Unemployment rates among women are over twice as high as those among men and extremely high youth unemployment remains a daunting challenge for the Government. Over 46 percent of youth between 14 and 19 and 28 percent of youth between 20 and 24 are unemployed. It should be noted that while overall unemployment rates fell somewhat between 1989 and 1996, those for youth remained consistently high.

Table 11: Unemployment Rates by Age Group, 1989 and 1996

	1989			1996		
Age	**M**	**F**	**T**	**M**	**F**	**T**
14-19	32.2	64.2	44.8	29.4	66.0	45.7
20-24	17.4	38.1	27.7	19.9	36.9	27.9
25-A34	8.6	24.9	16.6	7.0	21.2	14.0
35-44	4.2	14.3	9.1	4.4	12.3	8.2
45-54	5.3	9.4	7.2	3.6	7.3	5.2
55-64	3.1	5.9	4.3	1.7	4.8	3.0
65+	0.8	1.4	1.0	2.5	3.2	2.7
Total	11.0	24.9	17.5	9.3	22.1	15.3

Source: STATIN Labor Force Surveys 1989, 1996 and PIOJ calculations.

According to Anderson (1997), the attainment of secondary education no longer provides young Jamaicans the assurance of finding work. As seen in Table 12, unemployment rates do not vary significantly with education levels -- those with higher levels of education are not less likely to be unemployed as compared to those with less education. This clearly points to the fact that the investment that the Government is making in education does not seem to be paying off and that the education system is not responding to labor market demands. It is also indicative of the poor performance of the economy. Faced with a low demand for their skills in the private sector, many youth who join the labor force end up in the ranks of the unemployed (or join the informal sector).

Table 12: Youth Unemployment Rates by Education Level, 1995

	Male		Female		Total	
Education Level	15-24	25-34	15-24	25-34	15-24	25-34
Primary or Below	28.2	18.4	63.8	41.8	38.3	26.6
1-3 yrs. of secondary	25.0	18.9	65.6	45.0	38.8	30.3
4+ yrs. Secondary	40.7	22.0	58.9	35.5	49.5	29.0
Total	33.8	20.8	60.8	37.7	44.9	28.8

Source: Anderson, 1997.

Anderson (1997) has also estimated unemployment rates for individuals who have also been through a training program (in addition to their formal education). Levels of training in the workforce are relatively low, with less than 20 percent of individuals undergoing some sort of training program. Results show that individuals with training in programs with strong industry linkage are less likely to be unemployed. However, as the data does not distinguish between pre-employment and in-service training, it is difficult to say whether individuals who were trained were more likely to be already employed (as they could have been employed and then been provided in-service training). However it is possible that training providers -- especially private training providers -- are more attuned to the needs of the labor market and provide individuals with skills that make them more employable.

Returns to education. The most tangible benefits of education are the higher earnings that accrue to individuals with greater education (these are called pecuniary benefits—they are tangible benefits like a higher wage rate). The private rate of return to any level of education can be computed by comparing the present value of the earnings differentials in the population between two levels of education with the economic (out-of-pocket and opportunity) costs incurred in obtaining the higher education. Private rates of return to education have been computed for Jamaica by estimating an earnings function, which controls for human capital characteristics (education and training) along with other individual, regional, and labor market characteristics. *These results, however, must be treated with caution because of poor quality of data on wages.*

Given this caveat, the analysis shows that private rates of return are relatively higher for primary and tertiary education than secondary education and technical training (Table 13). However somewhat surprisingly, they are lower for secondary education as well as technical training. How can these rates be interpreted? A rate of return of 5.0 percent on primary education implies that if the individual invests $1,000 on an additional year of primary education, that year of primary education will yield a benefit of $50 annually over the working life of the student, over and above what he or she would have earned without the investment. While an analysis to compare these rates of return over time would be informative, it could not be done due to the poor quality of wage data in the late 1980s.

Table 13: Private Rates of Return to Education and Training, 1996

	Education Levels			
Rates of Return	**Primary**	**Secondary**	**Technical Training**	**Tertiary**
Private Rates	5.0	3.3	1.1	8.4

Source: STATIN Labor Force Survey 1996 and PIOJ calculations

What might be the reasons for such low private returns to secondary education? One of the reasons is Jamaica's slow economic growth. International experience indicates that public provision and financing of post-primary education and training is only cost-effective when

employment is expanding rapidly, especially in the formal wage sector. For example, in Thailand, 33 percent of vocational trainees were unemployed a year after graduation in the mid-1980s during a period of slow growth, but there were more jobs than graduates after 1989 when Thailand started growing rapidly. Furthermore, the effectiveness of vocational education and training in providing relevant skills for the informal sector is unproven. General skills, combined with a favorable environment for the informal sector are believed to be more effective in ensuring that relevant skills are available for informal activities.

The other reason might be the poor preparation of secondary graduates. Studies on work-preparedness of secondary graduates have consistently found that employers are dissatisfied with their deficiency in English, mathematics, and science, and the lack of work ethics (MOEYC, 1997; Brown, 1994; Blank, 1994). Graduates from New Secondary Schools and from vocational schools are rated by employers to be the least prepared (Table 14).

Table 14: Work-Preparedness of Secondary School Graduates Rated by Employers

School Type	Poorly to Moderately Rated	Highly Rated
Technical High	38	62
Secondary High	39	61
Comprehensive High	51	49
New Secondary	62	38
Vocational/Agricultural	54	46

Source: Brown, 1994, Table 82.

As may be recalled in the previous sections, students in Secondary Highs have the best performance in academic subjects in all grades; while those in other types of schools do not, although they might still perform well in vocational and technical subjects (Appendix 3.9). These findings point to the need to strengthen the academic performance of students in All-Age, P&JH, and Comprehensive Schools. If the quality of secondary education is not improved substantially, rapid expansion of access to upper secondary education would only adversely impact on the employment prospects and private and social rates of returns to secondary education.

Much less direct evidence, however, points to the potential benefits of more and better education. According to Surveys of Living Conditions conducted from 1989 through 1998, the percentage of the population living below the poverty line has declined from some 28 percent to 16 percent over time (PIOJ, 1999). While the decline in poverty seems to be inconsistent with the general economic stagnation and high unemployment rates, it is possible that the underground economy of foreign remittance by overseas Jamaicans, which is not captured by official statistics, has helped to keep families from falling into poverty. Since Jamaicans have a long history of migration and overseas employment,[21] the private rates of return to education

[21] According to unofficial estimates, as many people of Jamaican descent are living abroad as Jamaican living inside the country. The economic growth in the United States, Canada, and the United Kingdom in recent years could conceivably improve the employment prospects and earnings of overseas Jamaicans. This is likely to benefit relatives back home.

could be very high once a migrant secures employment abroad. The 21st century may see a rise of unions of trading countries within which people are free to move across borders. Therefore, education policy should take a much broader view in its mission of preparing children to acquire the requisite skills so that they can take advantage of new opportunities, be these inside or outside the country.

Summary of Labor Market Outcomes. Unemployment remains a pernicious problem among women and youth, particularly since youth unemployment rates do not decline with post-primary education. While the low private rates of return to secondary education might seem to argue against expansion of upper secondary education on the surface, the potential role of migration and foreign remittance in alleviation of poverty at home points to the need for policy to prepare youths for a global labor market both at home and overseas. The development of human capital is perhaps the best a government could offer its people.

Furthermore, liberalization and expansion of the economy would be served by a policy environment favorable to the establishment of private training institutes and on the job training for these tend to be responsive to the needs of the market. As individuals derive high private returns to higher education, they should also bear part of the costs of their education. That is why the government's cost sharing scheme at the tertiary level is based on sound economic principle.

Conclusion. Indicators on educational attainment and quality clearly shows that the educational opportunity is not equal for the rich and the poor. As education imparts productivity-enhancing skills and has a positive relationship with future lifetime earnings, the lower level of educational attainment and achievement among the poor would put them in a seriously disadvantaged position for life. The question is how can public policy level the playing field by intervening on both demand and supply sides. This will be discussed in the concluding chapter after a review of public and household finance on education.

4. Education Finance

This chapter reviews public and household finance to assess (a) how the education system has been funded; (b) whether resources have been used efficiently and equitably; (b) what the impact is on educational attainment and outcomes; and (c) whether there is any scope for efficiency gains, reallocation and cost sharing to finance qualitative improvement and quantitative expansion of the system.

In Jamaica, government allocations constitute the most important source of funding for education, accounting for 7.6 percent of the Gross Domestic Product (GDP) in 1997/98, while household expenditure on primary, secondary, and tertiary education is estimated to be about 6 percent of the GDP. Insufficient data do not permit estimation of community and corporate donations for education. Vocational and technical training in Jamaica is organized by the HEART Trust/NTA, which is funded by a 3.5 percent payroll contribution from employers whose monthly payroll exceeds a certain level. Its expenditure of about JA$ 900 million amounted to 0.5 percent of GDP. When public and household expenditure and employers' contribution are taken into account together, the total expenditure on education and training in the country amounted to about 14 percent of GDP. This is high in comparison with that in other countries.

4.1. Public Expenditure on Education

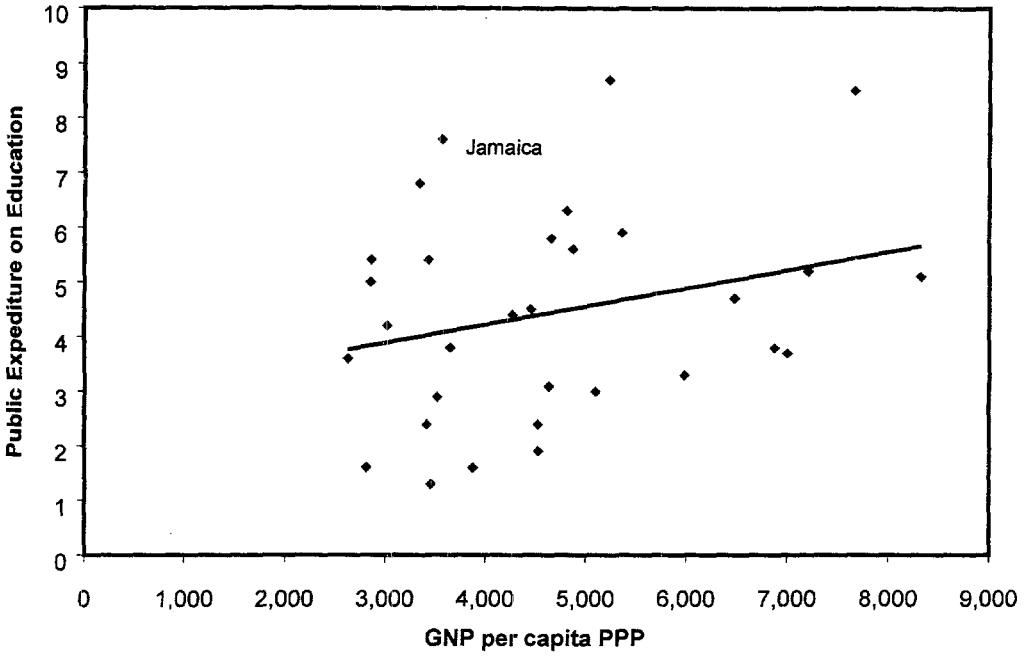
Level of spending. Over the ten-year period from 1987/88 to 1997/98, public expenditure on education fluctuated between 3.3 percent of the GDP at the lowest point in 1992/93 and 7.6 percent at the peak in 1997/98. Although the recent level of spending is higher than the average of 4.6 percent in the Latin American and the Caribbean Region, and higher than countries of similar income level, it is mainly due to negative growth of the economy while government spending and deficit have continued to increase. (Figure 12). Total government spending (including amortization of public debt) grew from 38 percent of GDP in 1987/99 to over 50 percent by 1997/98. It is estimated to exceed 60 percent in 1999/2000 (Appendix 4.1).

The share of education expenditure (without including Arts and Culture, Information and Broadcasting, and Youth Development Services)[22] as a percentage of total government expenditure depends on whether debt servicing is included as the denominator. The GOJ's expenditure includes only interest payments but not

[22] These categories are excluded because the MOE&C have responsibilities for these services in some years but not in others. For example, Youth Services was not originally under the MOE&C; then it was put under MOE&C, and finally in December 1997, it was put under the jurisdiction of the Ministry of Youth and Community Services. To be consistent over time, this review only considers the expenditures directly related to education, which are mostly allocated to the MOE&C but also to the MOF (in the case of Capital Expenditure on Student Loan Project and the Social Policy Analysis component of the ROSE Project).

amortization of public debt which is repayment of the principal of loans. When the GOJ's expenditure is used as denominator, education expenditure typically accounted for between 13.5 to 18 percent of total government expenditure over the last ten-year period. When amortization is added to the GOJ's expenditure and used as the denominator, education expenditure accounted for only 9 to 15 percent of the total Government expenditure. However, when only non-debt expenditure (excluding both interest payment and amortization) is used as the denominator, education spending accounted for about 25 to 27 percent of total expenditure. (Appendices 4.1 and 4.2.)

Figure 12: Public Spending on Education and GNP per capita (Purchase Price Parity) in Lower Middle Income countries



Source: World Bank database.

Education has commanded among the highest shares of government spending among all sectors. (Appendix 4.3). This reflects the GOJ's commitment to education. In real terms, GOJ expenditures on education rose from 1987/88 to a new height in 1989/90, then declined to a new low in 1992/93, rising sharply to the previous high level in 1993/94, adjusting downward again in 1994/95, and afterwards rising rapidly to new heights in 1997/98. The highs in spending level have coincided with election years. (Figure 13). These fluctuations make it difficult to plan resources for the sector, although there is a certain predictability in that the rise and decline of public spending on education in real terms coincides with election cycles.

External finance. Recurrent expenditure ranges from 80 to 94 percent of total education expenditure over the years, while capital expenditure constitutes the rest (Table 15). Capital expenditure is, in turn, divided into Capital (A), which is funded by GOJ, and

Capital (B), which is funded from external sources (mostly from multilateral or bilateral agencies). External finance ranged from 5 to 16 percent of total government spending on education over the last decade, with the more recent years stabilizing under 10 percent. When public resources are severely constrained by debt burden, external finance becomes a major source of funding new programs, whether it was for improving quality, or reform of a particular sublevel.

Table 15: Public Expenditure on Education, 1987/88 to 1997/98 (Million JA$ in Current Prices)

Years	Recurrent	Capital (A)	Capital (B)	Total Capital	Total Expenditure	Capital (B) as % of Total Capital Exp.	Capital as % of Total Expenditure	Recurrent as % of Total Exp.
1987/88	687.0	7.3	39.2	46.5	733.5	84.3%	5.3%	93.7%
1988/89	825.9	36.3	169.2	205.5	1,031.4	82.3%	16.4%	80.1%
1989/90	1,045.8	36.8	172.5	209.3	1,255.1	82.4%	13.7%	83.3%
1990/91	1,275.5	46.2	154.9	201.1	1,476.6	77.0%	10.5%	86.4%
1991/92	1,837.0	102.8	101.8	204.6	2,041.6	49.8%	5.0%	90.0%
1992/93	2,383.4	73.6	190.6	264.2	2,647.6	72.1%	7.2%	90.0%
1993/94	5,081.3	83.2	364.0	447.2	5,528.5	81.4%	6.6%	91.9%
1994/95	5,550.8	150.4	524.5	674.9	6,225.7	77.7%	8.4%	89.2%
1995/96	8,334.8	90.0	739.0	829.0	9,163.8	89.1%	8.1%	91.0%
1996/97	11,368.8	121.2	1,044.1	1,165.3	12,531.4	89.8%	8.3%	90.7%
1997/98*	16,008.6	248.0	830.0	1,806.9	17,075.6	78.0%	6.3%	93.7%

Source: MOF, various years. *Estimates of Expenditure.*

NOTE: Recurrent Expenditure includes only those disbursements directly related to education, and excludes spending on arts and culture, information and broadcasting, and youth development services, which fell under other ministries as ministries have been periodically reorganized. To ensure consistency over time, only education spending is used.

* Data for 1997/98 are provisional , not actual, expenditure.

Grant funds for developing policy frameworks, studies, pilot of an education innovation (such as computers in education), and project preparation are not included in Capital (B). In other word, externally financed assistance is higher than is reflected in the public expenditure. These high levels of external financing perpetuate a cycle of dependency both on external finance and on deficit financing. (See Appendix 8 for externally funded education projects.) While a large portion of Capital A and B are spent on infrastructure, equipment, and capital goods, a substantial portion of these sources actually go to recurrent spending, such as wages and salaries, student financial assistance, in-service training, and consultant services. In the case of Capital B, once the externally financed project is closed, all of the recurrent costs are to be picked up by the GOJ, thereby raising the issue of financial and institutional sustainability.

Intra-sectoral allocation of resources. The official recurrent primary education expenditure covers all Primary, All-Age, and P&JH schools. However, because All-Age and P&JH schools include not only students in Grades 1 to 6 but also students from Grades 7 to 9, the official recurrent primary education expenditure actually covers a substantial part of junior secondary education. Therefore, to understand how resources were allocated across sectors, it is necessary to disaggregate "recurrent primary education

expenditure" between what was spent on Grades 1 to 6, and what was spent on Grades 7 to 9.

According to the official *Estimates of Expenditure,* in 1997/98, the country spent 3.2 percent of its total education expenditure on early childhood education, 36 percent on primary education, 32 percent on secondary education, 22 percent on tertiary education, 1.3 percent on special education, and 4.3 percent on central administration and common services. (Appendices 4.4 to 4.6). However, because GOJ subsumes allocations to Grades 7 to 9 in All-Age and P&JH Schools under primary education, the recurrent expenditure has to be reclassified to reflect appropriately intrasectoral allocation.[23] After reclassification, secondary education accounted for the largest share of total education spending, amounting to 37 percent in 1997/98, and primary education was reduced to 31 percent, while spending on other levels remained unchanged. (Appendices 4.7 to 4.8). The reclassified expenditure is a more accurate reflection of the actual spending in primary and secondary education. (Figure 15). As a percentage of GDP, total public spending on primary education amounted to 1.8 percent, that on secondary education to 2.2 percent, and that on tertiary education to 1.4 percent.

Per student recurrent spending. The falling enrollment and continuous increase in public spending on education in most of the 1990s has translated into an increase in per student expenditure at all levels and by all school types *in real terms*. (Figure 16). Between 1992/93 and 1997/98, per student spending increased by 174 percent in primary education, and by 154 percent in secondary education. The rates of increase, however, differed by school type: over this period, per student allocation increased by 206 percent in Grades 7 to 9 in All-Age and P&JH schools, by 110 percent to Secondary Highs, by 151 percent in Comprehensive Highs, and by 105 percent to Technical and Vocational Highs. (Appendix 4.9). Per student spending over the same period grew by 28 percent in UWI, 251 percent in UTech, 49 percent in TCs, and 442 percent in Community Colleges. (Appendix 4.9). Over a longer period, between 1987/88 and 1997/98, however, the rising per student expenditure from 1992/93 on is a recovery from the low level of spending of from that year. (Appendix 4.10 and Figure 16).

Caution, however, should be exercised in interpreting the per student recurrent spending for 1997/98 because public expenditure data are only provisional, not acutal, in nature and enrollment data for early childhood education and certain tertiary institutions are unavailable. That is why data for the previous year, 1996/97, would provide a more reliable basis to see the differences in per student recurrent spending by school type. (Appendix. 4.9).

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[23] This study adopted the following formula (advised by the MOE&C) for reclassification: (a) The component known as "Other Grants" (which was targeted to Grades 7 to 9 in All-Age and P&JH schools) was subtracted from the expenditure for All-Age and P&JH schools, and the amount obtained was divided by the total enrollment in Grades 1-9 (or 11 in a few rare cases) in All-Age and P&JH schools to obtain per student expenditure. (b) This unit cost was then multiplied by enrollment in Grades 1-6 in All-Age and P&JHs in order to obtain the public recurrent expenditure for primary education. (c) As for the public recurrent expenditure for Grades 7-9 in All-Age and P&JH schools, the unit cost was multiplied by enrollment in Grades 7-9 in All-Age and P&JH schools and then "Other Grants" were added to this amount.

Figure 13: Total Public Expenditure on Education (1987/88- 1997/98)

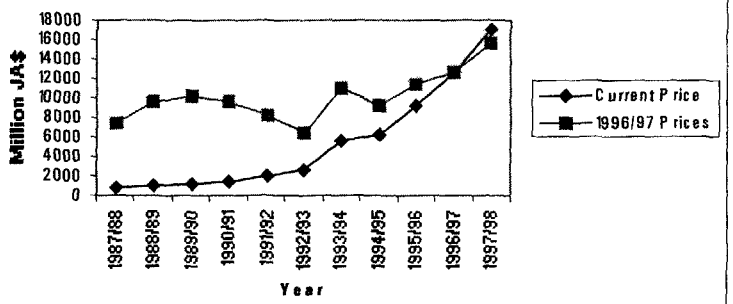


Figure 14: Total Public Expenditure on Education as Percentage of Government Expenditure and of GDP (1987/88-1996-97)

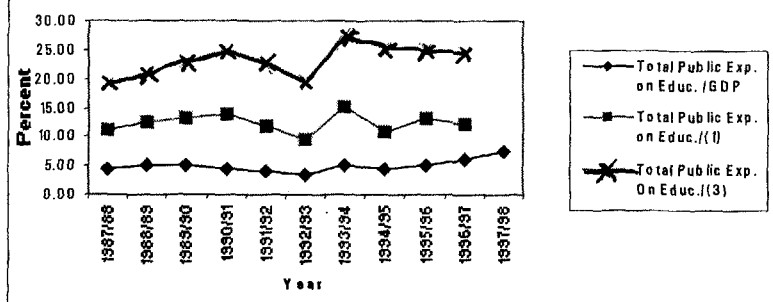


Figure 15: Reclassified Total Public Expenditure on Education Level (1996/97 Prices) (1987/88-1996/97)

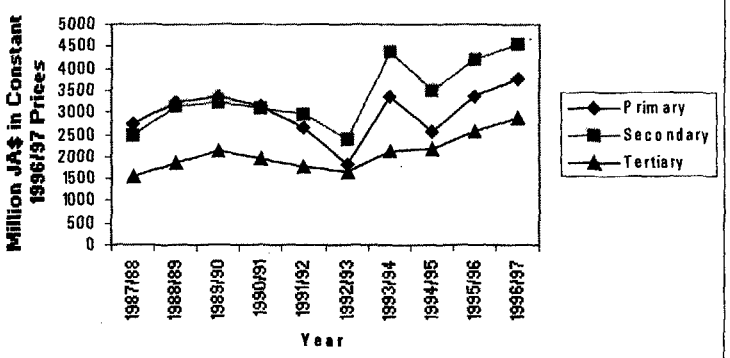
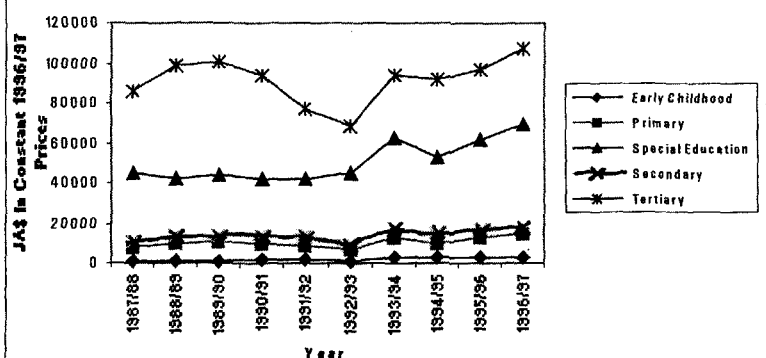


Figure 16: Per Student Reclassified Total Public Expenditure on Education by Level (1996/97 Prices), 1987/88-1996/97



Another caution should be exercised in interpreting the per student spending of tertiary education. Given that all tertiary institutions have a substantial percentage of part-time students, their respective per student spending is not based on full-time equivalency (because of the lack of information of cost structure of various programs), but is derived from the total number of full-time and part-time students. This means that the per student spending on full-time studies in tertiary education institutions is much higher.

Translated into US dollars, per student recurrent spending in 1996/97 (which are based on actual, not provisional, expenditure) was $78 for early childhood education, $324 for Primary Schools, $312 for Grades 1-6 in All-Ages and P&JHs, $300 for Grades 7-9 in All-Ages and P&JHs, $480 for Comprehensive Highs, $650 for Secondary Highs, and $883 for Technical and Vocational/Agricultural Highs. Per student spending on tertiary education varied much by institution. UWI had the highest per student expenditure ($5,392), TCs came second ($2,788), and UTech came third ($1,182).

Table 16 presents comparative per student recurrent expenditure by using that in All-Age and P&JH in Grades 1-6 as 1 and comparing all other unit costs against it. In 1996/97, the per student recurrent spending of Secondary Highs was twice as much as that of All-Age and P&JH schools, and that of Comprehensive Highs was only 1.5 times more. In 1997/98, the differentials between these levels have been reduced due to the relatively more rapid expansion of enrollment in many school types in comparison to enrollment in Grades 1 to 6 in All-Age and P&JH Schools.

Table 16: Index of Per Student Recurrent Spending (All-Age and P&JH = 1)

	1992/93 (actual exp.)	1993/94 (actual exp.)	1994/95 (actual exp.)	1995/96 (actual exp.)	1996/97 (actual. exp.)	1997/98 (prov. exp.)
Early Childhood	0.20	0.22	0.28	0.22	0.25	0.23
Primary	0.98	0.97	1.03	1.02	1.02	0.95
Primary Schools	0.96	0.95	1.05	1.04	1.04	0.90
All-Ages and P&JHs (1-6)	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**
Special Education	8.25	6.32	7.47	6.05	6.39	5.95
Secondary	1.76	1.93	2.04	1.76	1.80	1.57
All-Ages and P&JHs (7-9/11)	0.93	0.97	0.94	0.95	0.96	1.00
Secondary Highs	2.14	2.34	2.15	1.92	2.08	1.59
Comprehensive	1.65	1.54	1.65	1.46	1.53	1.47
Tech.Voc/ Agri	3.06	3.12	3.07	2.73	2.82	2.22
Tertiary	12.04	9.19	12.71	8.74	8.48	7.50
U.W.I.	31.25	21.24	30.00	19.15	17.25	14.18
UTECH.	3.73	3.48	3.58	3.00	3.78	4.62
TCs	12.46	9.54	10.75	9.80	8.92	6.54
Community Coll.	1.59	2.06	2.60	2.49	3.49	3.05
Other Tertiary	17.08	18.78	12.76	9.88	7.17	6.89

Source: MOE&C.

Note: This table is compiled from data in Appendix 4.9. Because New Secondary Highs were being phased out as a category, the declining enrollment over the 1990s in these schools distorted the computation of per student spending. Therefore, this table excludes New Secondary as a school type.

Allocation per TC student was much higher than that to UTech, mostly due to low student-to-teacher ratios in TCs. The KPMG study found much variation in per student allocation among TCs, ranging from JA$59,000 to JA$145,000,[24] as well as among community colleges, ranging from JA$29,000 to JA$53,000. Investigation into the causes of the variation in per student spending in these institutions (including whether staffing is above establishment level) might result in efficiency gains.

UWI came up top in terms of per student allocation. Given that higher education is more knowledge and capital intensive and has to pay internationally competitive salaries in order to attract and retain high caliber faculty members, its unit cost can be expected to be much higher than basic education's. With the existing infrastructure and capacity in UWI, the marginal cost of admitting more students is likely to be below the average cost. Therefore, expansion of university enrollment, which is also a policy objective, can bring down the unit cost further. Considerable reduction of per student expenditure of UWI has been made by lowering it from 31 to 17 times that of All-Age and P&JH schools between 1992/93 and 1996/97. If the current target of expanding by 500 students per year can be met, it would serve the dual purposes of training more highly skilled manpower and making more efficient use of public resources.

Equity of distribution of public expenditure. A standard method to measure the incidence of public expenditure is to construct a Lorenz curve to show the proportion of education expenditure which accrues to each consumption quintile. Data are drawn from MOF's *Estimates of Expenditure* and PIOJ's Survey of Living Conditions. The closer the curve to the "line of perfect equality" (which assigns an equal proportion of expenditure to each quintile), the more equitable the distribution is. Since capital expenditure is likely to vary from year to year, only recurrent expenditure was used for this analysis.

Figure 17 shows that overall, the distribution of public expenditure on education has benefited the highest quintile more than others --the top quintile received about 26 percent of the total recurrent public expenditure on education, as compared with only 15 percent by the bottom quintile in 1998. Figure 18 disaggregates the Lorenz curves by education level. Recurrent public expenditure on early childhood and primary education was skewed towards the lowest consumption quintile (26 and 26 percent, respectively), but that on higher education was skewed towards the rich because 54 percent of tertiary students are from the top quintile in contrast to only 3 percent from the bottom quintile. As for secondary education, as students from low income families tend to be tracked to All-Age and P&JH schools, which have low expenditure per student, overall, only 14 percent of public recurrent spending on secondary education has benefited the poorest quintile, lower than their 16 percent share of enrollment (Appendix 4.11 and Table 6).

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[24] KPMG, 1998, Strategic Performance Review of the Ministry of Education and Culture, Appendix 3.

Figure 17: Lorenz Curve of Overall Distribution of Public Recurrent Expenditure on Education and by Consumption Quintile (Percentage)

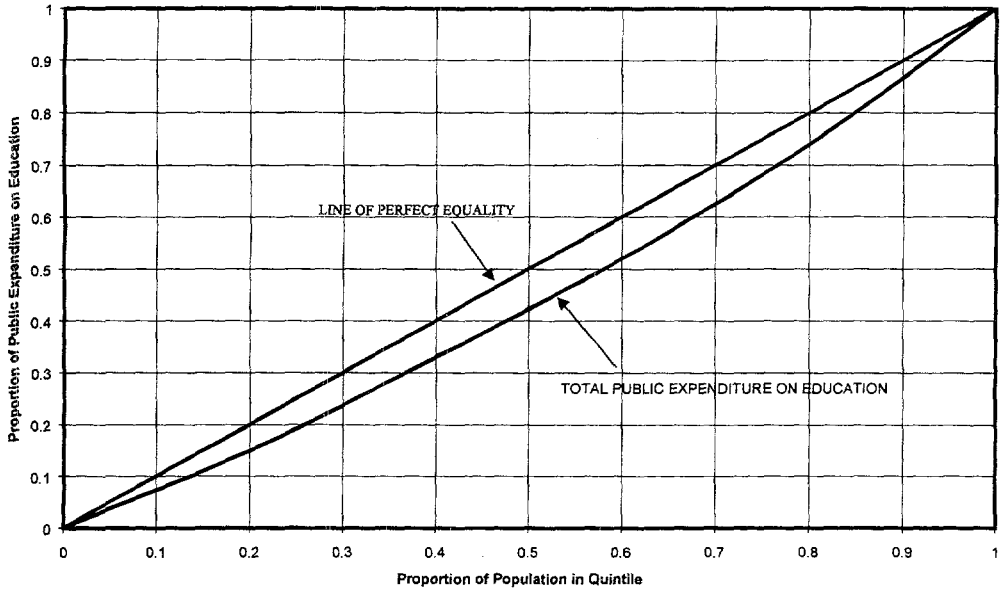
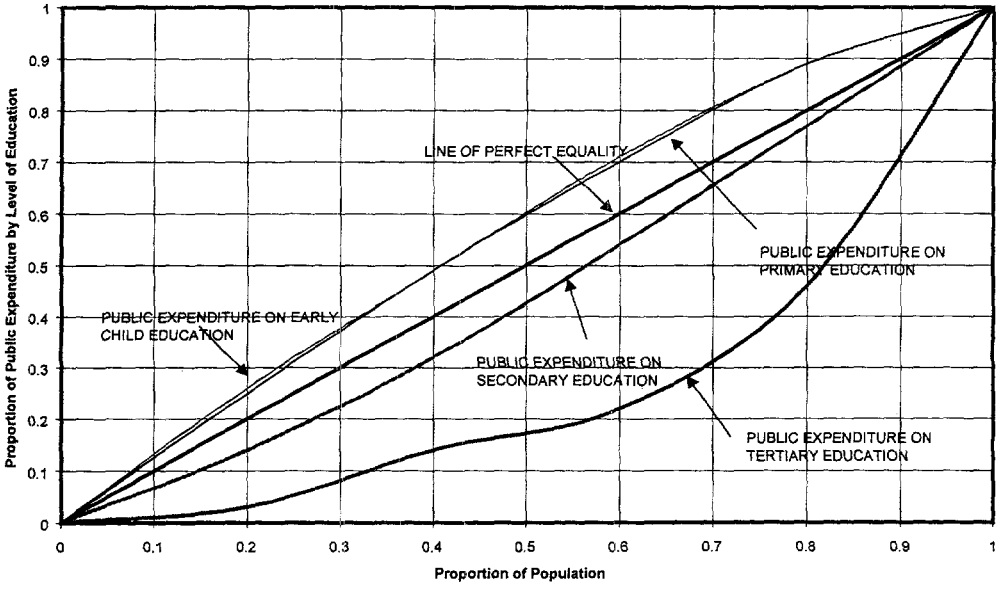


Figure 18: Lorenz Curve of Distribution of Public Recurrent Expenditure by Level of Education and by Consumption Quintile, 1998



Composition of Spending. The *Estimates of Expenditure* classification of spending by function subsumes wages and salaries under grants and contributions, which

account for about 95 percent of total expenditure.[25] The same document contains disaggregated estimates of spending by level and by function. Appendix 4.12 shows that in the last three years, the trend is quite consistent that salaries of teachers accounted for some 72 to 90 percent of the total estimated spending at each level, and the salaries of administrative and ancillary staff for only 1 to 3 percent of the total in primary level schools, but for 18 to 15 percent of the total in secondary level schools. Together, salaries of teachers and administrative and ancillary staff accounted for over 90 percent of the total, leaving 1 to 2 percent for public utilities, 1 to 2 percent for supplies and materials, less than 1 percent for maintenance, and 1 to 2 percent for student assistance and other forms of student subsidies. Essentially, there is inadequate budget for quality enhancing inputs such as books, libraries, and educational consumables such as materials for laboratories.

In spite of the increase in spending, much of this is absorbed in increasing teachers' salaries. Rigidity in the deployment of teachers, generous leave entitlement, and relatively light workload have contributed to the growth in salaries. In addition, teachers' salaries increase by 12 percent between 1996 and 1997. The biggest salary increase was in the universities. In 1997, the staff of UWI negotiated an agreement with the university for raising salaries by 15 percent in 1997/98, 12 percent in 1998/99, and 9 percent in 1999/2000. The level of increase in housing allowance matched the percentage increase in salaries for each of the three years. In addition, travel and instrument allowances also increased in 1997/98. UTech also used the UWI salary and allowance scales as a benchmark for an adjustment commensurate with its new university status, with back pay dated to 1996 when the conversion from a college took place. As a result, spending on higher education escalated.

Although the UWI instituted a policy of cost sharing with the target of recovering 20 percent of its economic cost, it has so far been able to recover only 17.5 percent of increased costs from new students and 15 percent from continuing students. As costs have gone up to pay the increased wage bill, tuition has increased as well, without raising the percentage of cost recovery. This was true at all levels of the system. A comparison of the approved recurrent budget with actual expenditure from 1993/94 to 1996/97 found that actual spending overran budget by between 10 to 30 percent (Appendix 4.13). This is an indication of the inability to hold the budget line, most probably due to pressure for salary increases and for generous conditions of services.

Summary. Public finance is severely constrained as debt servicing accounts for over half of total public expenditure. External finance accounted for over 10 percent of total public expenditure on education in recent years. In Jamaica, as elsewhere, public spending on education is mainly absorbed in salaries with little left for quality enhancing

[25] In Jamaica, all teachers in public schools are paid by from the GOJ budget. In Primary, All-Age, and P&JH schools, salaries and allowance for administrators are sent to the schools, but teachers' salaries are paid directly by MOE&C. Teachers in most Comprehensive Highs are paid by MOE&C, but Secondary Highs pay their own teachers and staff directly. MOE&C does not have information on school-by-school wage bill. The official accounts are not computerized. Secondary Highs have a tradition of auditing by private firms, but not all schools are audited every year.

inputs. Efficiency gains are estimated to be as high as 10 percent if more flexible and effective policy towards teachers' deployment, conditions of services, and student-to-teacher ratio can be adopted.

4.2. Cost Sharing in Secondary Education

Historically, education was provided free of charge. It is still free in Primary, All-Age, and P&JH schools. However, fees have always been charged for community-operated pre-schools. At the tertiary level, constrained public finance in the 1980s led to charging UWI students the equivalent of a fee (known as CESS, payable to the Government) for their free education. This is cost-sharing in disguise. Over time, charging tuition fees for university education became accepted in society. At the secondary level, the practice of charging fees has been going on since the 1970s, because secondary schools which received Government subventions based on their enrollment have found these insufficient to cover their operating costs. However, there was no official policy to recognize and regulate this practice. As the shortfall in public expenditure became more and more severe, by 1992/93, the difference between what it actually cost the schools to operate and what the MOE&C allocated was estimated to be $519 million. This led the MOE&C to institutionalize a cost-sharing scheme at the secondary level beginning in the 1994/95 school year.

The scheme established the principle that beneficiaries of the public education system should contribute to its development and operation through payment of fees, and that fees are the property of the GOJ that must be collected and legally accounted for in accordance with the Financial Administration and Audit Act. While the Government continues to pay school-level salaries, schools are to charge fees to defray the cost of class materials, books, supplies, utilities, maintenance of classrooms, equipment, laboratories, sports, and other facilities, as well as the use of medical services, libraries, and other services and materials, food, and lodging. Fees may only be charged for capital development with the Ministry's prior approval for the plans and method of financing. Schools are required to submit a financial management report that outlines their estimated expenditures for the following school year and proposes the fee to be charged. Based on this information, the MOE&C assesses how reasonable the proposed fee is and may approve as proposed or adjust it downward. The MOE&C also puts a financial assistance program (FAP) to support those unable to pay either a portion or the entire fee. In 1998, FAP covered about 62 percent of the fees/books of students in the bottom quintile (Appendix 5.2).

Given that adolescents of 15-to-16 years of age and over in the lower consumption quintiles do not participate in education as much as their peers in the upper quintiles, cost sharing is not inequitable per se if financial assistance is made available to the needy to enable them to continue their schooling (see Appendix 5.5). However, the implementation of the scheme is fraught with problems, one of which is compliance—that is, many students neither pay fees nor seek financial support. Furthermore, not all schools report their revenue from fees to the MOE&C, although it is their legal obligation to do so. In fact, of the 144 schools that were surveyed at the end of the first term

(December) of 1995 and 1996 by MOE&C,[26] only 137 schools in the first year and 120 schools in the second year responded.

According to the MOE&C's data, 18 percent of students in 1995 and 17 percent in 1996 neither paid nor sought financial support. Only 61 percent of students paid fees in full in 1995 and 54 percent in 1996. The respective percentage for those paid in part were 16 percent in 1995 and 14 percent in 1996. About 8 percent sought full or partial support in 1995 and 17 percent in 1996. Over the two year period, the share of students who paid in full declined, while those who sought partial support increased, while the noncompliance rate (i.e. neither paid nor sought support) remained the same for the two years.

Appendices 5.6 and 5.7 show that both the compliance rates and the fee levels varied by school type. Secondary Highs and Technical Highs charged the highest fees, New Secondaries charged the lowest, and Comprehensive Schools charged just a little more than New Secondaries. However, except Vocational/Agricultural schools, Secondary Highs have the highest compliance rate (86 to 87 percent in the two years), in spite of the fact that they also had the highest fee levels. Technical Highs had the second highest level of fees and came second in compliance (84 to 87 percent). Comprehensive Highs had the third highest level of fees, and came third in compliance (80 percent), while New Secondary Schools came last in both fee level and compliance (73 to 75 percent). This is indicative of the fact that students who attended the selective Secondary Highs and Technical Highs tend to come from higher socioeconomic backgrounds and could afford to pay fees.

A comparison of the fee levels between 1995/96 and 1996/97 found that, after adjustment for inflation, the percentage increase in real terms was steepest at the minimum level in New Secondaries (90 percent) and Comprehensives (86 percent), and much less so in Secondary Highs (35 percent) and Technical Highs (59 percent) (Appendix 5.7). At the maximum level, the increase was relatively modest for New Secondaries (30 percent) and Comprehensives (14 percent), and negative for Secondary Highs (-19 percent) and Technical Highs (-3 percent). This means that schools that enroll the largest proportion of poor students imposed the largest percentage of fee increases.

About JA$321 million were collected by the middle of the 1995/96 school year, which was roughly equal to an additional 3.9 percent of total recurrent public expenditure on education, but represented an additional 11.6 percent of the recurrent spending on these schools. In 1996/97, JA$331 million were collected, for an additional 2.9 percent of the recurrent expenditure and an additional 8.7 percent of recurrent expenditure of these schools (Appendix 5.5). Fees were retained by the schools that collected them, thereby creating a situation where Secondary High Schools and Technical High Schools have more resources for improvement, thus accentuating the existing inequity. Since fees collected are basically used on purchase of class and instructional materials, equipment, minor repairs, public utilities, and others items (such as sports; security; travel/transportation; student welfare, including medical care; staff development;

[26]The data were collected in December of both years, which is in the middle of the school year. Therefore, the final tally might be different.

insurance; ceremonies; and advertisement), the differential amount of fees collected would impact on the quality of education differently.

Appendix 5.9 presents the per student public and private expenditure by school type to construct the total per student expenditure. When total public and private resources are taken into account, Technical Highs have three times more resources per student than All Age Schools, Secondary Highs have 2.4 times more, and Comprehensives have twice as much. In short, not only are public resources inequitably distributed across different school types, but household contributions through payment of fees add to this inequity.

Appendix 5.8 shows that New Secondaries and Comprehensives spent 36 percent of their per capita expenditure on class and instructional materials in 1996/96; New Secondaries continued to spend the same level in the following year although Comprehensives reduced this to 22 percent. Public utilities was another big item for New Secondaries as was minor repairs for Comprehensives. For Secondary Highs, minor repairs and equipment absorbed more than half of their spending, while class materials only came third. This is because many Secondary Highs are traditional schools which have been in service for a long time and their facilities are in need of repair and maintenance. In Technical Highs, materials and equipment claimed the largest share, class materials the second largest amount, and public utilities third.

In absolute terms, per capita expenditure of Secondary Highs was triple that of New Secondaries and double that of Comprehensives in 1995/6. This level was reduced to little more than double in 1996/97 because New Secondaries and Comprehensives increased their fees to a much greater extent than the Secondary Highs.

It should be noted that per capita expenditure does not represent how all revenue from school fees are spent. In fact, many schools invested a large percentage of the fees they collected in fixed deposits, according to an MOE&C survey. In 1995/96, about 23 percent of total fees collected was put in fixed deposit accounts, and in 1996/97, 36 percent were so invested. In December 1995, 76 out of 139 schools that answered this question indicated that they had fixed deposits and more than half of them were Secondary Highs. Eight schools had over JA$4 million (US$110,000) in fixed deposits and nine had less than JA$1 million (US$28,000). Most schools that had fixed deposits were located in the urban areas, because of easier access to the banks. Those schools which have their own savings or reserve from fees thus have a stronger resource base to cushion hard times in the future.

The MOE&C's own study has noted the inequity of the system and one of its recommendations is to standardize the fee level. This World Bank report, however, considered that it is important to allow fees to remain variable across schools and to be a function of quality and school management practices. Policy should refrain from discouraging schools from depositing part of the fees collected because it would discourage efficient school-based financial management. To equalize resources across schools, other approaches should be taken.

Summary. Although cost sharing was instituted as a response to constraints in public resources, it is actually effective in mobilizing private resources and in soliciting greater household and community involvement. To improve equity and efficiency, schools should be allowed to charge fees at a level that their students can afford to pay and that they be obligated legally to use the fees to provide financial assistance to the needy within their own schools. If better-off students in these more privileged schools know that a portion of their high fees are used to help their peers in need, they would probably find it more acceptable than if a portion of their fees are given back to the Government for reallocation. From the MOE&C's point of view, funds saved from having better endowed schools covering their own students' financial assistance could be used to increase allocations to Comprehensives for increased spending on class and instructional materials. This would raise the per capita spending on quality enhancing inputs or to provide remedial education in poorer schools without discouraging efficient financial management of better endowed schools. Meanwhile, the MOE&C should continue to provide financial assistance to students in low fee schools.

4.3. Household Expenditure on Education

In addition to tuition fees, other direct costs of education include spending on books, extra lessons, transport, lunch and snacks, and uniforms and other supplies. Based on data from survey of living conditions, student enrollment, and information on tuition fees at the university level, it is estimated that total household expenditure on education in Jamaica accounted for about 6 percent of GDP in 1998.

This level of household spending is very high in comparison with other countries'. Household spending on education in OECD countries averages about 1.3 percent of GDP. Other middle-income countries' household spending as a percentage of GDP are as follows: Trinidad and Tobago (2 percent), Colombia (3.6 percent), Chile (2.6 percent), and Peru (2 percent).[27] There are several reasons for Jamaica's high level of household spending. In the case of OECD, spending on books, lunch, and transport are covered by the state, but they are mostly covered by households in developing countries. Second, the questionnaire of the Jamaican Survey of Living Conditions asks about more aspects of private spending than most other household survey questionnaires, such as private tutoring, uniform and boarding. As a result, these add up to a much bigger amount. Jamaica have an unusually high enrollment rates in early childhood education, and junior secondary education than many countries of similar income level. This also requires larger number of households contributing to their children's education. Finally, in spite of the economic stagnation, foreign remittance from overseas relatives has permitted a much higher level of household expenditure than the GDP would have afford.

Household contribution to education, without taking into account tuition fees, ranged from JA$17,585 (US$484) per annum for the poorest quintile to JA$42,863

[27] OECD, 1997. *Education at a Glance*; Colombia – Department of National Planning, 1996; Chile – Ministry of Finance and Central Bank; World Bank, 1996. *Trinidad and Tobago: The Financing of Education*; World Bank, 1999. *Peru: Education at a Crossroads: Challenges and Opportunities for the 21st Century.*

(US$1,204) for the top quintile in 1998 (Appendix 5.1). This accounted for only 6 percent of the total household expenditure for the top quintile, but 17 percent for the bottom quintile (PIOJ, 1998, p. 144). There is no doubt that the private cost of education falls disproportionately on the poor.

Lunch and snacks accounted for the largest share – 31 to 33 percent across quintiles. Transportation expenditure claimed the second largest share, with the bottom quintile spending a higher proportion of their education expenditure on this item (26 percent) than rich households (17 percent). Books accounted for 6 to 7 percent of the household expenditure on education. It is worthy of note that household spending 13 to 19 percent of their education budget on extra lessons, and this share as a percentage of household spending did not vary greatly across quintile. Not only does this reflect the value Jamaicans attached to education, but it also indicates that households may be willing to pay for improving the quality of public education if they could save on paying for extra lessons. In absolute terms, the top quintile spent 3.5 times more on tuition fees, 3 times more on books, and 2.3 times more on extra lessons, 1.6 times on transport, 2.4 times on lunch, and 2.2 times on other supplies than the first quintile (Appendix 5.1).

Tuition fees were over and above the above-mentioned expenditure because primary school do not charge fees and the level of fees differ by type of secondary schools. Households from the top quintile spent on average JA$7,989, or 2.7 times as much on tuition fees as the poor. (Appendix 5.2) Even if poorer households reduce their spending on tuition fees by sending their children to All-Age Schools, the costs of books, transport, lunch and snacks, and uniforms and other supplies still fall heavily on them.

The inability of the poor to bear the direct cost of schooling has been cited as a major reason for the higher non-attendance and dropout rates, as well as lower educational attainment among the poor. Given the high unemployment rates among youth, the opportunity cost of schooling may not be very high. Therefore, the *direct cost* of schooling, in addition to the relatively scarce places in upper secondary education, are two likely reasons for lower enrollment ratios after junior secondary education.

Public assistance to students. The Government has several programs to help the poor to defray part of the cost of education; namely, (a) student financial assistance through fee exemption at the secondary level and loans and grants at the tertiary level; (b) textbook rentals and class sets of books; and (c) school-based feeding. Grants for student welfare assistance totaled 0.42 percent of the recurrent expenditure in 1997/98. Other sources include Members of Parliament's assistance through the Social and Economic Support Program, civic organizations, and private sector organizations..

Student assistance program is available at both the secondary and tertiary levels. At the secondary level, students can apply for exemptions from school fees as long as they demonstrate the need. Financial Assistance Program (FAP) to secondary schools ranges from covering 62 percent of school fees and books of the first quintile to 22 percent of the top quintile (Appendix 5.2). However, about 17 to 18 percent of students neither paid nor applied for financial aid.

Textbooks are currently made available to schools through either the National Textbook Rental Scheme[28] (TRS) or class sets of books supplied to schools. All-Age Schools and P&JH are the primary beneficiaries of this program. Foundation books in core subjects of English, Math, Science, and Social Studies, which were developed for junior secondary students who read below grade levels, are available through rental in All-Age and P&JH schools. Normative and enrichment books which are for those reading at grade levels are also available for rental. Financial assistance is available to help those who cannot afford to rent books.

In spite of the system in place, the take-up rate of textbook rental remains low. The rental rate is only 60 percent on average, with some regions lower than this. The rental rate for four books for JA$200 per year cannot be considered too high, and with the availability of the textbook subsidies for parents who cannot afford them, it should help ensure that every single child has access to textbooks. However, not all parents in need make use of the subsidies. For example, the Parliament allocated JA$16.4 million to provide subsidies for textbook rental for three years; but only about JA$1 million has been disbursed to help children rent books. Parental reluctance to go through the bureaucratic process of application has been cited as a major reason for the low application rates.

School-based feeding, which is one of the Social Safety Net measures being implemented by the Government as part of the National Poverty Eradication Program, is another form of student support. The program provides a daily balanced meal to students of the public system in early childhood, primary, and secondary schools. It has two components—the Nutribun and the traditional cooked lunch programs. Schools can have one or both. The former benefits about 155,000 children who could have the Nutribun by paying JA$2.00.

These beneficiaries, however, constitute only about 62 percent of the targeted 250,000 students. The shortfall was due to inadequacy of funds, shortage of raw materials, and malfunctioning equipment. The latter provides a feeding grant of $250 per capita to schools for them to provide lunch daily for about 139,000 students. The cost of lunch ranged between JA$20 to 50. Surveys of Living Conditions, however, found that nearly half of students in all school types, except Technical Highs, participated in the program. The beneficiaries, however, include not just the poor. Appendix 3.6 shows that 65 percent of children from the bottom quintile participated, but 52 percent of children from the top quintile also benefited from it in 1998. Given that nearly half of children from poor families did not participate, the program could have been better targeted[29].

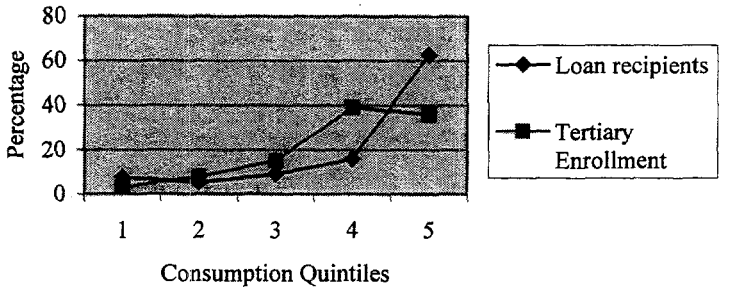
At the tertiary level, loans are available to about 27 percent of students at UWI and UTech, respectively, to help offset their higher levels of tuition fees. Loans also benefit a

[28] To ensure the sustainability of the Textbook Rental Scheme, a bank account has been opened to maximize interest earned from book rentals, and schools have been directed to place funds collected in the national TRS account.

[29] It is not clear whether students from the bottom quintile do not participate because they can not afford to buy the school lunch or if there are other reasons for the low participation among the bottom quintile.

smaller percentage of students in the TCs, community colleges, and even private colleges. But due to much lower fees in TCs and community colleges, the applicants from these institutions are fewer. Grant-in-aid is available to those who are in extreme needs to cover living expenses while pursuing tertiary education. Eligibility for both student loans and grants are means-tested and based on a formula of per capita available resources.[30] However, leakage is high. Figure 19 shows the findings of the first impact evaluation study of the Student Loan Program conducted in 1996. The percentage of loan recipients in the top quintile (62) was disproportionately higher than their enrollment share (36). Given that top quintiles have already disporportionately benefited from public expenditure on higher education, the student loan scheme will only add to the inequity in public allocation to the better-off members of society.

Figure 19: Distribution of Loan Recipients and Tertiary Enrollment by Quintile, 1996



Source: Student Loan Bureau's First Impact Evaluation Study.

Conclusion. Because of the past legacy of an elitist education system, public resources have not been reallocated equitably as they could be. These are results of the generally higher level of public spending on elite schools attended by the upper quintiles, the relatively limited supply of places in Grades 10 to 11 which restricts access of the poor to upper secondary education, and the high level of public spending on tertiary education (relative to its low enrollment level and low participation by the poor in tertiary education). The impact of the inequity in funding has been obvious – the poor has generally lower attainment and achievement. Given the constraints in public resources, efficiency gains should be made from having a more effective strategy towards teacher deployment, workload, compensation and conditions of services. Moreover, the mechanism of financing might have to be reversed to target the poor for assistance. The GOJ has made commendable efforts to provide assistance to the poor by means of financial assistance, book rental scheme, and school feedings, in combination with introduction of cost-sharing at the secondary and tertiary levels. However, leakage in a number of these programs have been high. Unless efforts are made to reduce leakage, otherwise, the poor will not be able to benefit from the program targeted to them.

[30] The formula took earned and unearned income of the household minus some of the household education costs.

5. Policy Options

Jamaica is embarking on a very challenging task of transforming its education system from one that was designed to support a stable social and economic order of the past to one that will assist students to survive in a rapidly changing world. Past resource constraints have resulted in a strategy of providing high quality education for the promising students and basic education for the rest. In spite of the high enrollment ratios achieved so far, quantitative expansion has been achieved at the expense of quality. The consequence is that many students have not acquired the requisite skills necessary to secure employment in the labor market. The new system has to level the playing field for all and provide good quality education for all, while expanding access to upper secondary education.

This report endorses the government's policy of making secondary education available to all graduates of Grade 9. Yet, expansion without addressing issues of quality and efficiency may continue to leave graduates poorly prepared while expenditures escalate. This report's main recommendations cluster into three categories, each of which is designed to improve quality and efficiency in the course of expansion. The concomitant agenda for the second phase of ROSE entails focusing on learning outcomes, strengthening the teaching profession, and reforming education finance. (See Table 17 for a summary of the strategies for reform).

5.1. Focusing on Learning Outcomes

Because low-income students tend to have much less opportunity to have a high quality education, improving quality of education will also improve equity. A major reason for low achievement is that neither the teachers nor the students have been held to any standard at any grade, and that learning difficulties have not been diagnosed and corrected early on. Children are promoted automatically to the next grade irrespective of whether they have mastered the requisite skills. This problem is accentuated by the uneven distribution of public resources in various types of secondary schools and the inability of families to contribute financially to compensate for the inadequacy of public finance through paying school fees. As students move on, their reading deficiency has hindered their ability to learn other subjects. As a result, by the time students enter the labor market, they do not have the requisite skills and knowledge to secure employment.

Therefore, it is first and foremost important to set standards for every student to meet at each grade, particularly to ensure that students in disadvantaged schools are brought to the same level as students in good schools. To raise standards for low achievers entails (a) major investment in early childhood education and compensatory education, (b) provision of instructional materials and education technology, (c) demand side measures to improve attendance in all grades and to encourage enrollment of out-of-school youth, and (d) conducting research to inform policy.

(a) Early childhood and compensatory education

Research has shown a positive relationship between attending pre-school and academic achievement later. In Jamaica, about 20 percent of children between the ages of 3 and 5 in the lowest consumption quintile and 14 percent in the second quintile do not have access to ECE, compared to only 9 percent in the top quintile. Universalizing ECE and providing program to stimulate reading acquisition early on would be promising approaches to improve subsequent school achievement. In the long run, this may result in cost-savings in compensatory education in schools. The estimated incremental total cost of providing additional places to 16 percent of the 3 to 5 age cohort from 2000/01 to 2006/07 is US$2.8 million over six years. However, to provide high quality initial education would require time for curriculum and instructional material development, training of pre-school teachers, and infrastructure upgrading. Therefore, measures to improve primary and secondary schools could proceed in parallel with the expansion of early childhood education.

To set and monitor standards, students should be assessed at the beginning and the end of the school year starting from Grade 1. The establishment of NAP has made this task possible because of the availability of capacity and procedures to do so. More importantly, problems can be detected and remedial education can be provided immediately. *The goal should be to narrow the variability in student performance and to raise average performance over time.* Information on each school's learning gains (not average scores, but gains between pre-test and post-test within a year and improvement in achievement from year to year) should be made available to all schools so that principals and teachers can monitor how well their schools are doing. Eventually, there should be individual student record to help teachers, parents, and students track their own performance improvement. This information should feed into the corrective process and provide incentive for further improvement. (See Appendix 11 for a literature review on standard setting in education improvement in the United States.)

Schools not on shift can provide compensatory education after school. Those schools that are on shifts can use Saturday for remediation. This would merely compensate for the average low attendance and the relatively few instructional hours in the school year. Students who did not meet the standard by the end of the school year should be required to attend summer school to catch up. They can retake the tests at the end of summer to decide whether they should be promoted. If they fail again, they should repeat the subject. In the United States, Chicago's reform has abolished automatic promotion and made summer school compulsory for those students who have failed the end of the school year exam. At the end of the summer, they are tested again. This program has positive results as many that attend the summer school do catch up. Minnesota has also been able to raises the percentage of students passing state-mandated tests from some 60 to 90 percent in four years through intensive teaching and support. *In Jamaica, given the shortness in the school year and the school day, compensatory education may be considered a means to increase the opportunity to learn.*

Diagnostic tests in junior secondary education and the pilot of the reform of upper secondary education have found that reading deficiency is the common problem.

Therefore, the standard should first focus on language. Since the mother tongue of the vast majority of students is patois, it cannot be assumed that their transition to standard English comes easily. Special emphasis needs to be paid to listening and reading comprehension in primary schools in order to ensure that the students can all read at grade level. Efforts should also be made to provide supplementary reading, at home or weekends for slower learners. Chile and the United States have these reading recovery programs, which are found to be quite effective.

Given that one-third of students read below grade level by the time they enter Grade 7, it may be assumed that one-third of the students throughout the primary cycle need help. It is estimated that weekend remediation and summer program from Grades 1 to 11 cost from 2000/01 through 2006/07 would cost about US$ 50 million, assuming there is no marked increase in repetition rates due to the success of the remedial program (See Appendix 8 for three scenarios in the cost projection).

School would benefit enormously if NAP could develop valid tests for them to measure performance on key academic subjects in all grades. This entails shifting from norm reference tests to criterion reference tests. The existence of many types of exam creates a distraction from the focused goal, and diverts administrative energy and resources. Rationalization of examinations could go further in ROSE II. The savings from the elimination of low volume, low efficiency exams should be used to improve the technical quality (such as validity, comparability of tests over time, and reliability) and analysis of test data to inform policy.

(b) Provision of instructional materials and education technology

To raise standard for disadvantaged children, complementary instructional inputs and education technology should be in place. The primary education project financed by the Inter-American Development Bank and the ROSE Project financed by the World Bank are already supporting the development of curriculum and teachers' guides and foundation textbooks on core subjects for students reading below grade level. Given that the textbook rental scheme is self-sustainable, the incremental recurrent cost of providing textbooks materials to Grades 7 to 9 could be within the Ministry's budget.

Over and above what is already available, however, it is important to strengthen the class library for children from preschools through senior secondary schools to stimulate an interest in reading. Foundation books on four core subjects for students reading below grade level should also be done for Grades 10 and 11. Given that those Grade 9 leavers who do not continue studying in Grades 10 and 11 tend to be weaker students, there is a need to provide foundation books suitable for their level in upper secondary education. Otherwise, they are being set up for failure. The cost of textbook provision and rental is estimated to be about US$5 million for six years. Other education technology such as audio books could be used to facilitate development of interest in books and also to get students acquainted with the sentence structure and pronunciation of standard English. Interactive radio in language arts, math, and other subjects, which have been proven to be cost-effective in raising achievement in other countries, should be considered to complement and supplement classroom teaching.

Another area of attention should be the utilization of available textbooks. MOE&C research shows that the classroom utilization of all text types is far from satisfactory. Training for effective utilization of texts by teachers and students will have to be ongoing in order to ensure the optimal utilization of available resources. The integration with the Regional Education Office of textbook officers, and textbook trainers from the Secondary School Textbook Project is the right step to ensure better utilization of the textbook. Publicity campaigns should also be launched to education parents about the importance of renting books for their children. Quality-enhancing inputs also include infrastructure such as libraries and laboratories. Consideration of alternative delivery options, including distance education and computer assisted learning, is also necessary.

(c) Demand side measures

The low attendance rates signal a serious problem with students' demand for education. Measures that make students look forward to coming to school might stimulate demand. For example, a school environment that is clean and safe, with friendly classmates and caring teachers could provide a powerful alternative to homes that may be dysfunctional. Therefore making the school's physical environment attractive, improving lighting, ventilation and sanitation, encouraging friends to support each other to come to school, and organizing extra-curricular activities could make a difference. Infrastructure upgrading is estimated to cost about US$25 million from 2000/01 to 2006/07. This is based more on the track record of the ROSE Project in terms of construction capacity within the country than on the physical conditions of schools.

Since lunch accounts for a substantial amount of household spending on education, ensuring that all students in schools in impoverished areas automatically have subsidized school meals might raise attendance. Relaxing of school uniform policy during rainy seasons and/or provision of uniform material to low income students will also help to ensure that lack of a uniform does not deter students from coming to school. Some of these measures do not cost much. Others such as school lunch mainly requires better targeting and closing the leakage of the rich benefiting from subsidized meals. Parental education programs to increase awareness of the various welfare programs and the need for regular attendance and for children to stay in school may also stimulate demand.

(d) Policy Research

At present, it is unclear why the academic performance of boys is so much lower than that of girls. It is also important to understand why students do not attend school regularly, and why students do not participate in existing welfare programs, including the textbook rental scheme. Research to address these information gaps is required so that programs can be better designed and better targeted.

5.2. Strengthening the Teaching Profession

A pre-requisite of improving quality of education is to strengthen the teaching profession. This constitutes a 2-part agenda. First are steps to improve teacher skills by (a) enhancing the subject matter content of the curriculum of pre-service and in-service training, (b) upgrading the academic qualification of teacher educators, (c) rationalization and specialization of teachers' colleges. The second part of the agenda is to improve efficiency in use of the services of teachers through (a) more effective policies toward teacher deployment and conditions of services; and (b) restructuring teachers' salary scale to provide incentives for experienced and highly qualified teachers.

Part I. Improving teacher' skills

(a) Enhancing the subject matter content of teacher training

One of the major constraints to qualitative improvement and quantitative expansion is the lack of emphasis on subject matter knowledge in teacher pre-service and in-service training. The first phase of ROSE has found that in-service training which only addresses the ROSE philosophy and new teaching methodologies without specifically focusing on subject matter knowledge is not effective in raising achievement. Given that senior secondary curriculum is far more demanding than the lower levels and requires a much higher degree of specialization in the subject matter, the pre-service and in-service training of teachers should also give a much stronger emphasis on subject matter knowledge than ever before. Review of the curriculum of the TCs to ensure that it reflects the needs of the secondary curriculum is recommended.

(b) Upgrading of the academic qualification of TC lecturers

Curricular change of teaching training programs must be accompanied by upgrading the academic qualifications of TC lecturers; otherwise they are not in a position to help their students. TCs should recruit people with postgraduate university degrees in each of the four core subjects such as English, mathematics, social science and natural science. They should follow the practice of UWI, which recruits its academic staff regionally and internationally so that it can draw from a larger pool. Salary scales should be restructured to provide differential pay to holders of Ph.D., Masters, and Bachelors degrees. Scholarships and conference grants should be made available to TC lecturers for professional development. Only in this way can TCs transform themselves into high caliber tertiary institutions capable of training teachers for senior secondary education.

(c) Rationalization and specialization of TCs

The plan for strengthening the TCs through rationalization of course offerings and TC specialization should be followed up. TCs should enforce standard in admission. If that means enrollment is below capacity, perhaps the total number of TCs might be reduced. To improve teacher education also requires improvement of infrastructures

(libraries and laboratories) and targeting promising staff for professional development. Efforts to offer joint degrees with UWI should be expanded to include English, math, social science and natural science to train upper secondary school teachers to teach in these subjects. The use of distance education (developed by JBTE under the ROSE Project) for pre-trained teachers should be piloted and its effectiveness should be monitored closely. The cost of improving TCs (including recruitment of subject specialist, professional development, and infrastructure upgrading) is expected to come out of half of the efficiency gains of JA$900 million per annum or US$170 million for 6 years by implementing policy towards increasing student-to-teacher ratios, increasing timetabled contact by 6 percent, redeploying teachers from overstaffed schools to understaffed schools, and reducing leave entitlement.

Part II. Improving efficiency in the use of teachers' services

(a) Changing deployment and conditions of services

Much efficiency gains can be made through removing rigidity towards deployment of teachers, abolition of unnecessary positions, reduction in leave entitlement, and marginal increase in teachers' workload and student-to-teacher ratios. According to the KMPG study, this could result in savings of as much as $900 million per year or roughly 5 percent of the Ministry's total expenditure. Savings could be used to finance reform to improve teachers' skills and other measures.

(b) Restructuring teachers' salary scale

That the share of trained teachers has decreased and the share of pre-trained teachers has increased over the last decade is extremely alarming. In spite of the investment in teacher education and the number of graduates produced, trained teachers are not staying in the system. This requires restructuring the incentives in the salary scale. Given the wage compression at the top end of the salary scale for trained teachers and trained graduates, reallocation from entry level to the top end in teachers' salary scale and across the qualification scale might make the profession more attractive for the academically qualified people to enter and stay.

Given that teachers' salaries and conditions of service are negotiated with the teachers' union, it is politically difficult for the Ministry to set these unilaterally. However, whether the top end of the scale should have a higher percentage increase than the lower end may be negotiable. The current practice of applying a uniform percentage increase throughout the scale perpetuates the wage compression at the top end. If salary increases are awarded according to qualifications and experience, it might be more acceptable. In exchange, the entry salary might be held constant in real terms to free up resources for the top end. The overall wage bill is not expected to change because of allocation within the salary scale, but differential increase by qualification and experience could make the profession more attractive to the academically more qualified teachers.

5.3. Reforming Education Finance

To provide incentives for efficiency and to mobilize needed resources will require complementary reforms in education finance. These include (a) equalizing public allocation to various school types through capitation grants, (b) expanding cost sharing with financial aid for the poor, (c) reducing leakage of financial assistance programs in both secondary and tertiary levels, and (d) improving coherence of utilization of external finance through a sector-wide approach and a common development framework.

(a) Equalizing public allocation to various school types

Capitation grants. Currently, subvention to schools is based on the number of teaching positions approved, which, in turn, is based on recommended student-to-teacher ratios for each school type. Since the ratios vary across school types, the basis for resource allocation is inherently unequal. To level the playing fields for all secondary schools (including All-Age and P&JH Schools which have Grades 7 to 9), allocation of public resources should be based on enrollment (verifiable as average daily attendance) for all school types. This is akin to providing *capitation grants*, which is a much more transparent and equalizing mechanism. The capitation grants should be the same amount per student for all types of schools, and should be substantially higher than what Grades 7 to 9 in All-Age and Primary and Junior Highs currently receive, but lower than what Secondary Highs get. This would raise the floor for the resource poor schools but would reduce public subsidies for the privileged schools. Since the average daily attendance has to be verified by periodic, unannounced inspection, this will also provide incentives for schools to encourage their students to attend and to keep good records. (See Appendix 10 for international experience on education finance).

Capitation grants have another advantage.[31] Currently, there is little incentive for the school board not to hire the maximum number of teachers that the establishment permits. By directly basing allocation on enrollment, capitation grants are delinked from student-to-teacher ratios. Therefore, it allows greater flexibility in the system. If the school board and the teachers have decided to use some funds to purchase goods and materials to improve teaching and learning, they could hire fewer teachers. Giving the locus of decision-making to the schools would increase the efficiency of resource use.

[31] In the last few years, a number of private schools, including those reputable ones, are facing insolvency. risks because their revenue does not cover expenditure. Some of these schools have asked the MOE&C to take them over and the Ministry has granted their requests. Since private education is not as vibrant because of their high operating cost, the possibility of giving capitation grants as a mechanism to finance expansion of upper secondary education remains limited. Meanwhile, MOE&C has been rescuing these schools at the risk of increasing its own liabilities, including significant increases in the number of teachers funded by the Ministry. It is advisable that the Ministry refrain form taking over failing private schools. If it is under social pressure to take over insolvent private schools, it is better to finance them through capitation grants, than to convert them into public schools and put the teachers on the public payroll.

Categorical grants. Equalizing resource allocation across school type alone, is insufficient to provide a level playing field for the disadvantaged students. Categorical grants should be available to support schools that display special needs, for example, having a large percentage of students reading below grade level. Compensatory education could be financed through this mechanism.

Equalization of public resources goes hand in hand with the need to strengthen school based management. Enhanced monitoring and supervision of schools, clear standards of accountability for schools, training of school board members and management training for principals will all help to strengthen education financing.

(b) Expanding cost sharing with financial aid to the poor

Section 4.2 has found that the percentage increase of school fees in real terms is steepest in New Secondary Highs and Comprehensive Highs, which tend to have more low income students than Secondary Highs. This is inequitable. It is important that the Ministry monitor the percentage increase in fees charged by Comprehensives, to make sure that the poor do not bear an excessive burden of the fee increase. It is recommended that MOE&C does not put a cap on school fees, particularly those charged by Secondary Highs, and let fees be a function of quality and school management practices. Schools should be mandated to use certain percentage of the fees collected to cover the waiver of the fees for the poor students.

At the tertiary level, the existing system of fee charging not only should continue, but should increase to the targeted 20 percent recovery of costs. Cost sharing should be increased for TCs as well, given that one third of the graduates do not enter teaching and use it as a vehicle to access tertiary education. Fee Waiver could be considered for those who are genuinely poor and student loans should be made available to assist students attending TCs.

Other types of cost sharing include charging fees for key national placement and certification I tests, such as the Grade Sixth National Assessment, Junior Secondary School Exam, and the Secondary School Certificate Exam. In some of these exams, students apply to take them but did not show up to sit for the exam. Many examination papers, which were printed and transported to the exam center, are wasted. Fee paying not only would recover the cost of printing transport and grading, but also discourage these irresponsible practices. Financial assistance should be made available to those who cannot afford the fee.

(c) Reducing leakage of financial assistance

The serious leakage of student welfare assistance and student loans at the tertiary level has added to inequitable distribution of public expenditure. Tightening eligibility criteria and lowering the cut-off point for eligibility would help reduce the leakage. Impact evaluation of various programs could determine the extent of the leakage and should be conducted on an annual basis to inform policy decisions. Reducing leakage

would facilitate wider coverage for the poor, particularly in school feeding programs, or reduce public spending on the undeserved.

(d) Improving the coherence in overall educational finance

Close monitoring of education expenditure in the sector as a whole is necessary in order to assure that the resources are spent efficiently and equitably. Because universities are autonomous, oversight of overall public spending on education has not been easy. MOE&C certainly has little influence over salary negotiation or the allocation to the universities. At present, the forum for high-level comprehensive policymaking appears to be fragmented. Although the Tertiary Unit within MOE&C has a coordinating function with community colleges and teachers' colleges, it is not sufficiently high level to influence long-range strategic planning of universities. The National Council for Education, which is the highest policy advisory body, deals mainly with education policy below tertiary level. The University Council of Jamaica is mainly an accreditation body that evaluates and accredits study programs. The Association of Caribbean Tertiary Institutions (ACTI) addresses regional issues. Although its Jamaican equivalent looks at national issues, it doe not have a strong link with the MOE&C. It is advisable that a subcommittee under the National Council of Education be set up with high-level representation from higher education institutions, MOE&C, and MOF to monitor and follow up on a regular basis *overall education finance issues* that have been covered in this report within a comprehensive development framework for education.

This high level discussion would be useful in managing the utilization of external finance (Appendix 9). Given that about 6 to 10 percent of total public spending on education is funded by external sources, not including grants, this represents a sizable amount that needs to be used judiciously. Therefore, improving the coherence in overall finance will go along well with coordination of external support for education.

To finance the measures mentioned above, if there have not been any efficiency gains from a more effective teacher policy, the total resource required is estimated to be US$272 million for a six year period from 2000/01 to 2006/07. This represents an increment of 4 to nearly 8 percent of the projected total expenditure on education annually. With efficiency gains, the net incremental cost of the reform is estimated to be US$101.7 million for six years. At the first two years, there may even be a net gain of 0.7 percent of total public expenditure, although the cost will gradually rise to about 4 percent of the projected total education budget at the end of the sixth year. (Table 18).

The above-estimated total resource requirement for the six-year period covers various levels of education, from early childhood education through primary and teacher education. The costs accrued to secondary education alone include the resources needed to place all graduates from Grade 9 in Grades 10 and 11 from 2002 onward (US$112 million), the cost of providing textbooks to new students in upper secondary education (US$5 million), in-service training of teachers of upper secondary education (US$610,000), and infrastructure upgrading (US$25 million). The total cost of expanding upper secondary education is estimated to be US$132 million without

efficiency grains. Making more efficient use of resources is, thus, key to finance the reform.

Given constraints in public resources, it is expected that portions of financing of this reform would come from external agencies. This will make the coordination of overall spending and with external agency all the more important.

5.4. Conclusion

If past experience is any guide, implementation process is usually long drawn and full of trial and error. The original notion of a 15-year reform program is entirely realistic and sound. The first phase of the ROSE has built the capacity to manage a comprehensive change of the secondary school system, starting with curricular change, teacher training, textbook development, examination rationalization, evaluation, and selective infrastructure upgrading. It takes a minimum of five years to institutionalize all these innovations and for the education and wider communities to embrace the ideas. Support for the reform must be sustained in order for all the previous investment to pay off.

The second phase should aim at improving quality at all grades, strengthening the teaching profession, and changing the way public expenditure is spent in the areas pointed out above. Only by addressing these more difficult issues could the results of the reform be sustained.

Figure 20: Projected School Age Population by Selected Age Range, 1995-2014 (in Thousands) with NRR=1 by 2000

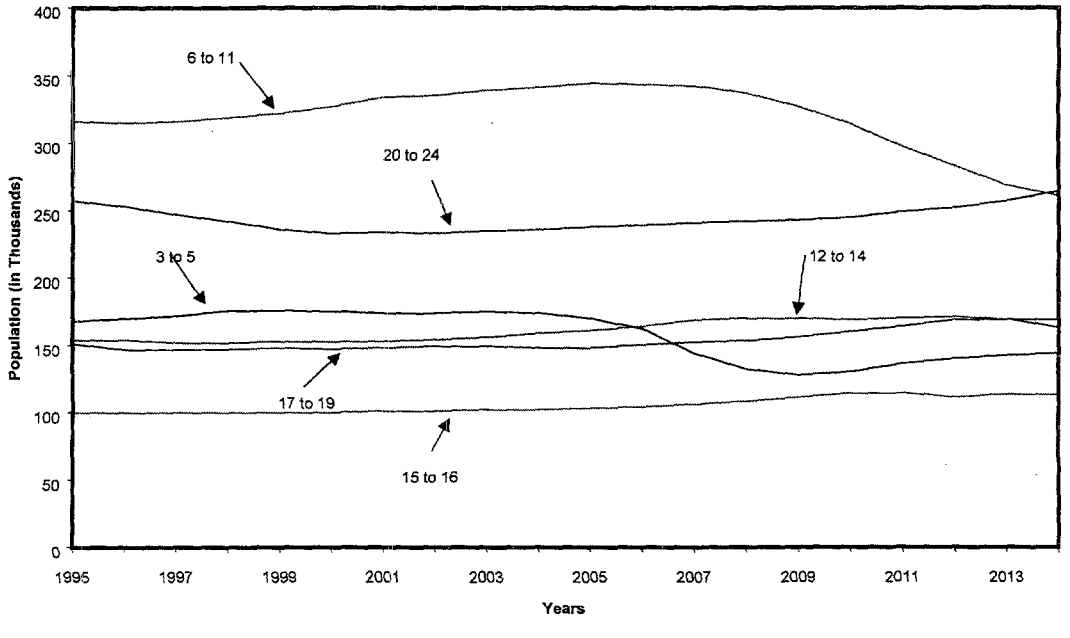


Table 17: Strategies to Transform Secondary Education in Jamaica

	The Current System	The New System
External Environment	Relatively stable global, social and economic orders with gradual changes.	Dynamic global, social and economic orders with rapid technological changes and high labor mobility between fields and between countries.
Characteristics and focus	Basic education for the masses to ensure a literate citizenry; better quality and higher levels of education for the promising students. A highly stratified system with multiple tracks and school types. Accomplishments measured by coverage.	Mass secondary and tertiary education and life long learning and retraining. Accomplishments measured by outcomes of learning and performance in the labor market. This entails: (i) universalize early childhood education and compensatory education; (ii) provide instructional materials and cost effective education technology; (iii) stimulate demand to raise attendance and reduce dropout.
Rationale	Public resource constraints limit the supply of places and teachers.	Public resource constraints remain but the country cannot afford to leave the poor behind.
Use of resources	Allocate scarce resources to the "promising" students in the form of differential student-to-teacher-ratio and differential teacher qualification in different school types.	Need to: (i) equalize allocation across schools by using capitation grants based on enrollment and provide categorical grants to assist specially disadvantaged schools; (ii) expand cost-sharing to mobilize private resources with targeted assistance to the poor; (iii) reduce leakage of financial assistance; (iv) improve the coherence in overall educational finance.
Examination and assessment	Use examinations to certify, select and place students -- to maintaining the stratified multi-track system. The main purpose is not to improve student learning.	Rationalize examinations to reduce redundancy and improve quality. Still use examinations to certify and place students, but complement by formative and summative assessment to inform practices and policies to improve learning, monitor progress, and strengthen accountability.
Teacher training	TC -- lower academic standards than universities; in-service does not emphasize academic preparation.	Raise standards of admission; raise qualifications required for teachers of upper secondary education; enforce rule of six years to retrench untrained teachers.
Teacher compensation and conditions of services	High at entry, wage compression at the top; allow for study leave with pay after 3 years of service drain public expenditure and the sector of trained teachers	Restructure salaries, change policy towards study leave; allow school to make flexible use of resources through capitation grants (can hire fewer but more highly qualified teachers)

Table 18: Estimated Total Incremental Costs of Implementing the Suggested Measures

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	Total Cost in 6 years	US$
Cost of Universalizing ECE	19,483,987	19,372,650	19,372,650	19,483,987	19,372,650	18,927,301	18,036,605	134,049,828	3,351,246
Cost of Compensatory Education	195,000,000	217,100,000	242,300,000	300,500,000	333,700,000	369,700,000	369,700,000	2,028,000,000	50,700,000
Cost of placing all 9th Graders in Gr. 10-11 (2002 on)		-	350,585,400	781,304,606	875,962,664	975,679,168	1,094,569,875	4,078,101,712	101,952,543
Inservice training of 1,000 teachers for 5 years	4,000,000	4,400,000	4,840,000	5,324,000	5,856,400			24,420,400	610,510
Textbook provision & rental for new Gr 9-10 students		1,210,000	17,529,270	39,065,230	43,798,133	48,783,958	54,728,494	203,905,086	5,097,627
Infrastructure upgrading	106,666,667	117,333,333	129,066,667	141,973,333	156,170,667	171,787,733	183,812,875	1,006,811,275	25,170,282
TC upgrading	450,000,000	495,000,000	495,000,000	495,000,000	495,000,000	495,000,000	481,500,000	3,406,500,000	85,162,500
Gross incremental cost	771,770,960	851,055,602	1,237,004,866	1,736,933,266	1,879,189,897	2,024,105,300	2,140,562,014	10,640,621,904	272,044,708
Reform cost as % of total education expenditure	4.1%	4.5%	6.0%	7.6%	7.5%	7.4%	7.1%	0	
Less efficiency gains from new teacher policy*	900,000,000	990,000,000	990,000,000	990,000,000	990,000,000	990,000,000	963,000,000	6,813,000,000	170,325,000
Net incremental cost	(128,229,040)	(138,944,398)	247,004,866	746,933,266	889,189,897	1,034,105,300	1,177,562,014	3,827,621,904	101,719,708
US$ (JA$40=US$1)	(3,205,726)	(3,473,610)	6,175,122	18,673,332	22,229,747	2,998,461,129	3,088,654,040	101,719,708	
Reform cost as % of total education expenditure	-0.7%	-0.7%	1.2%	3.3%	3.6%	3.8%	3.9%		
Assumptions									
Population of 3-5-year-olds	175,000	174,000	174,000	175,000	174,000	170,000	162000		
Additional places for 16% of population per annum	4,667	4,640	4,640	4,667	4,640	4,533	4,320		
Growth rates of unit cost at 10% per annum	3,451	3,451	3,451	3,451	3,451	3,451	3,451		
9th Graders to be placed from 2002			14,487	29,350	29,915	30,291	30,893		
Growth rates of 12-14-year-olds		-	0.01	0.01	0.02	0.01	0.02		
Growth rates of second. Educ. unit cost at 10%	20,000	22,000	24,200	26,620	29,282	32,210	35,431		
Increase of unit cost for training @ 10% per annum	4000	4400	4840	5324	5856	6442			
Increase of unit cost for textbooks @10% p.a.	1000	1100	1210	1,331	1,464	1,611	1,772		
Increase of construction cost @ 10% per annum		0.1	0.1	0.1	0.1	0.1	0.07		
No change in wage bill by restructuring salary scale									
Estimated total education expenditure	18,363,554,000	18,782,500,000	20,660,750,000	22,726,825,000	24,999,507,500	27,499,458,250	30,249,404,075		

* The efficiency gains estimates are based on improvement in student-to-teacher ratio, 6% higher workload, and redeployment of teachers. The source is the KPMG Study.

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