Education Indicators in Kenya

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The authors are grateful to Alemayehu Geda for his constructive comments.

List of Abbreviations

CPI	Consumer Price Index
GDP	Gross Domestic Product
GER	Gross Enrolment Rate
GNP	Gross National Product
KCPE	Kenya Certificate of Primary Education
LDCs	Least Developed Countries
LFS	Labour Force Survey
OECD	Organization for Economic Co-operation and Development
RPED	Regional Programme on Enterprise Development
UNESCO	United Nations Educatioal, Scientific and Cultural Organisation
WEI	World Education Indicators
WMS	Welfare Monitory Survey

Abstract

This paper looks at the education indicators and their trends, paying special attention to variations across gender and regions. Although Kenya has made an impressive achievement in the development of education since independence in 1963 in terms of adult literacy, school enrolments, and educational facilities, the gains appear to have been eroded since 1989. The adult literacy rate in Kenya more than tripled between 1963 and 1989 – from 20 percent to 74 percent respectively. This achievement reflects Kenya's impressive effort in expanding access to education since independence, largely by establishing a comprehensive network of schools throughout the country.

The gross primary enrolment rate has fallen as low as 86.9 percent in 1999 after attaining a peak of 105.4 percent in 1989. The secondary enrolment rate also declined from 29.4 percent in 1990 to 21.5 percent in 1999. There are also large regional disparities in primary school enrolment and, by 1999, all North-eastern districts had gross enrolment rates less than 30 percent while Machakos, Embu, and Nyandarua districts enjoyed universal primary enrolment of more than 100 percent. Transition rate from primary to secondary school has been declining – an indication of increase in wastage and inefficiency in the education system. The transition rate declined from 44.60 in 1990 to 39.90 percent in 1998.

Recurrent education expenditure continues to command the largest share of the total education budget allocation. The current allocation of resources within the education sector seem to be inappropriate and ineffective as teachers' salaries account for 95 – 97 percent of total public recurrent expenditure in the primary and secondary school levels of education, thus leaving little resources for other necessary school inputs such as learning materials and textbooks.

The number of people leaving the education system into the labour market has been increasing rapidly due to the expansion of the education system. But the economy has not been performing well to create more jobs in the last decade and, therefore, the number of educated unemployed has been increasing. Unemployment rate rose from 6.5 percent in 1989 to 18 percent in 1997 and varies across regions, sex, and level of education and age groups. Studies on returns to education in Kenya have found that the rate of return increases with the level of education but the rates have been declining over the last two decades due to rapid increase of educated individuals in the labour force.

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1. Introduction

Generally, education indicators can be defined as statistical measures that provide information on what are widely agreed to be important features of the functioning, development, and impact of the education system. Most indicators are designed to monitor the broad context within which a policy operates; provide benchmark measurements against the specified goals; forecast the emergence or existence of new problems; and permit development of systems explanations for existing problems (OECD, 2000b). Policy makers, practitioners, and the general public can use the indicators to evaluate the performance of the education system and to inform decisions about educational priorities and directions. Internationally, education indicators can be used to measure and compare the education systems of various countries. In this paper, we construct education indicators mainly for the primary school system in Kenya. These indicators will enable international comparisons and the evaluation and monitoring of domestic educational Programmes.

Using indicators to evaluate the education system is not unique to Kenya. In Africa and the rest of the world, many countries have developed education indicators, or are in the process of developing them. The education indicators presented here are organised around a framework that encompasses primary educational attainment of the population, and the outcomes of the whole education system such as labour force participation and employment rates. More than one indicator is needed to capture the diverse aspects of the education systems and to evaluate their performance. Although indicators can show trends and uncover interesting questions, they cannot by themselves provide explanations that permit conclusions to be drawn. Additional research will always be required to diagnose the causes of problems within the education system, and to suggest solutions. Indeed, the goal of the education indicators is to provide consistent and high quality information on education to support informed decision-making, policy formulation, and project development within the sector.

The information provided in this report should be useful for education policy development among other purposes. Although the indicators cover mainly the primary school sub-system, they are extendable to the entire national education system regardless of the ownership or sponsorship of the institutions concerned, and regardless of the education delivery mechanism.

The schooling system currently in force is 8-4-4. This means that an individual is expected to undertake eight years of primary education, and four years of secondary and university education respectively. The entrance age to primary education is 6 years (age limit 6-14 years) whereas that for pre-primary is 3 years.

Nevertheless, both private and government participate in the provision of schools. By 1998, private primary schools constituted less than 3 percent. While this is true, private school enrolment has dramatically changed in the last few years. However, we at present lack accurate data on private school enrolment and hence the role of private sector in Kenya remains an important policy issue that KIPPRA intends to investigate in the near future.

This paper basically addresses the public education issues, with scanty literature on private education. Even then, the role of education indicators remains.

1.1 Why education indicators?

Education indicators can be used to:

- prioritise education goals;
- analyse participation in education over time and across regions;
- analyse investment in education over time and space at various school levels;
- analyse the distribution of educational facilities across regions;
- monitor progress in achieving priority educational goals such as universal primary schooling and gender equity in school enrolments;

- explore approaches to effective learning in the context of national, cultural, social and economic changes;
- establish a baseline for future analysis of the education system; and
- analyse cost effectiveness of educational investment.

1.2 Organisation of the paper

The indicators are grouped into six sections. Section Two sets the context of assessing the state of education in Kenya by providing information on the educational attainment of the population. Section Three profiles the characteristics and features of the education system, which includes educational expenditure, a proxy for the inputs into the system. Section Four focuses on educational outcomes, equity and efficiency issues at primary level. Section Five gives information on the learning environment and organisation of schools where issues on primary school teachers are analysed. Section Six analyses the individual, social, and labour market outcomes of the education system, and also looks at students' transition from education to work.

2. Educational Attainment

2.1 Educational attainment of various subgroups

Educational attainment – measured here by the level of education an individual reports having completed – has economic and social significance for the individual and nation. In this section, we examine the educational attainment of the population, which provides a perspective on the educational attainment of the majority of the workforce.

Educational distribution of the working-age population

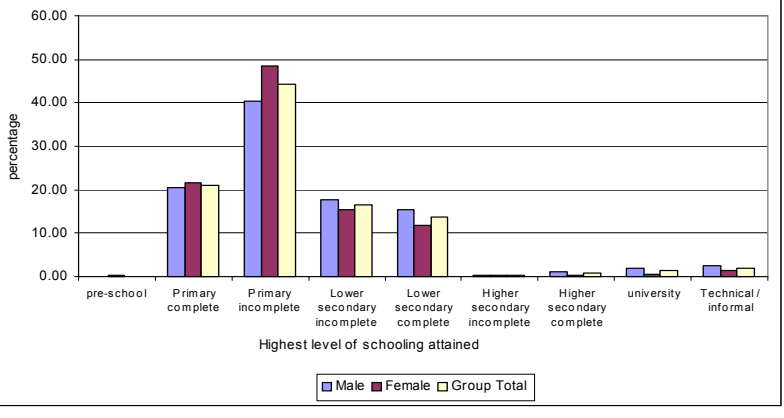
The working-age population can be defined as a combination of the economically active population and the economically inactive

population in the 15 to 64 age groups. The distribution of the working-age population by age is shown in annex 19. The mean years of schooling for the working age population are 6.1 (Welfare Monitory Survey (WMS) III, 1997). This population was concentrated within the age group 15 – 64. A high percentage (23.68) reported 6 years of schooling. Out of the population aged 15– 64, 23.48 percent are in the age-group 15 – 34, relative to 14.12 percent in the age-group 50 – 64.

Further, analysis by age-group shows that those in the age-group 15 – 34 and 35 – 49 constitute 23.48 percent and 24.83 percent of the population with 7 years of schooling, and 15.99 percent and 16.28 percent of the population with 14 years of schooling. The age-group 50 – 64 constitutes 23.8 percent of the population with only 4 years of schooling relative to 13.16 percent who had 6 years of schooling.

The differences in years of schooling and educational attainment between the age- groups can be attributed to the development of the education system. In all cases, the attainment levels of 15 – 34 year olds and 50 – 64 year olds have achieved some degree of success and hence growth of participation in the education system.

Figure 2.1 : Educational distribution of the working-age population,1997



Further analysis of data from the WMS III shows that educational attainment among working-age population in 1997 is dominantly primary and secondary education. The population who had not completed their primary education constituted 44.32 percent as compared to 20.97 percent with complete primary education.

Secondary school attainment levels have been lower than primary. About 16.51 percent did not complete lower secondary education. Those who completed lower secondary education were about 13.7 percent. Higher secondary education constituted the lowest attainment levels. About 0.29 percent had not completed whereas 0.76 percent had completed higher secondary. University constituted 1.3 percent.

Annex 44 summarises a number of issues associated with participation in the education system. They include: high cost of education as well as lack of rewards in terms of earnings and employment prospects among others. This is an indication that substantial further progress is needed to provide the necessary qualifications needed in the modern economies and societies to all.

According to UNESCO (1999), there are great disparities of education attainment for the population aged 25 years and above across countries. Table 2.1 below shows that more than 30 percent of the population aged 25 years and over for the selected countries had no schooling in 1991. In Uganda, 46.1 percent had no schooling relative to 1 percent in Canada. Only 0.5 percent of the population aged 25 years and over in Uganda had attained post-secondary education, compared to 21.4 percent in Canada.

Table 2.1: Distribution of population aged 25 and above by education level for selected countries (1991).

Country	No Schooling	Primary Incomplete	Primary Completed	Secondary Lower	Secondary Upper	Post Secondary
Kenya*	15.1	12.4	29.9	21.9	1.8	1.2**
Uganda	46.1	41.4	<==	8.9	1.3	0.5
Namibia	...	49.1	<==	43.8	<==	4.0
Botswana	30.1	52.1	<==	16.0	<==	2.0
Canada	1.0	4.0	11.7	34.3	27.7	21.4
Argentina	5.7	22.3	34.6	25.3	<==	12.0
Austria	0.0	0.0	<==	94.0	<==	6.1

Source: UNESCO Statistical Yearbook, 1999

*Figures were estimated using WMS 1992. **Refers to those who have completed university education only. **<==** The figure to the immediate left includes data for column(s) in which this symbol appears ... Data not available. 0.0 Magnitude less than half of the unit employed

Educational distribution by age group and gender

The distribution of human capital between the genders is of considerable policy interest. A significant gap between the educational levels of men and women is an indication of under-investment in human capital affecting a sizeable proportion of the population. Evidence shows that there has indeed been under-investment in women in the past, but that is not generally the case today, at least in terms of the quantity of initial education available to young people (OECD, 2000a).

The data used in this analysis was obtained from the Welfare Monitory Survey III. Annex 18 gives a table for educational distribution by gender and age groups in 1997. The data shows that the percentages of females who have attained primary level of education are slightly higher than those of the males in the age

group 6 – 39. This trend reverses in the age group 40 – 44 and 50 –90 (those with standard 5-8 level of education). The primary standard 5 – 8 is the highest level of education attained by the population in all the age groups except for the age group 6-14. Annex 22 and 23 indicate that the bulk of primary level attainment is incomplete. A high 70.43 percent of the population did not complete their education. Those with primary and secondary incomplete constitute 59.93 percent and 10.5 percent respectively. Nevertheless, secondary school and higher levels of educational attainment have remained very low for the case of females as compared to their male counter parts in the age group 20 – 99. The worst hit is university education, with attainment levels reversing with age in the same age group.

These trends are indicative of steps taken to improve educational opportunities available to women over the past few decades. And it is a clear indication of the reversal of historical trends, reflecting policies aimed at improving women's educational outcomes and hence gender parity, which have achieved some degree of success. However, these results suggest either low transition rates or low net enrolment ratios in both primary and secondary schools, and a high likelihood of massive dropouts. This means that there is need for policy measures focused at increasing the internal efficiency of the education system.

Despite the growth in education as shown by World Education Indicators (WEI), less than half of the population aged 25 – 34 years in most countries have completed upper secondary education. In the oldest age group (55 – 64 years) – whose members were of school age between 40 and 60 years ago – fewer women than men have upper secondary education in all countries represented in WEI (OECD, 2000a). In some countries such as India, Indonesia, and Jordan, the differences are great: the upper secondary attainment rate of 55 – 64 year old women is 36 percent that of men in Indonesia, 25 percent in Jordan, and 15 percent in India. In other countries, especially those in Latin America, the differences are smaller.

However, in all countries with the exception of Zimbabwe, differences are diminishing across successive younger generations and are even being reversed in some cases (OECD, 2000a). Across OECD countries, an average of 63 percent of the adult population have completed at least upper secondary (OECD, 2000b).

2.2 Literacy rates

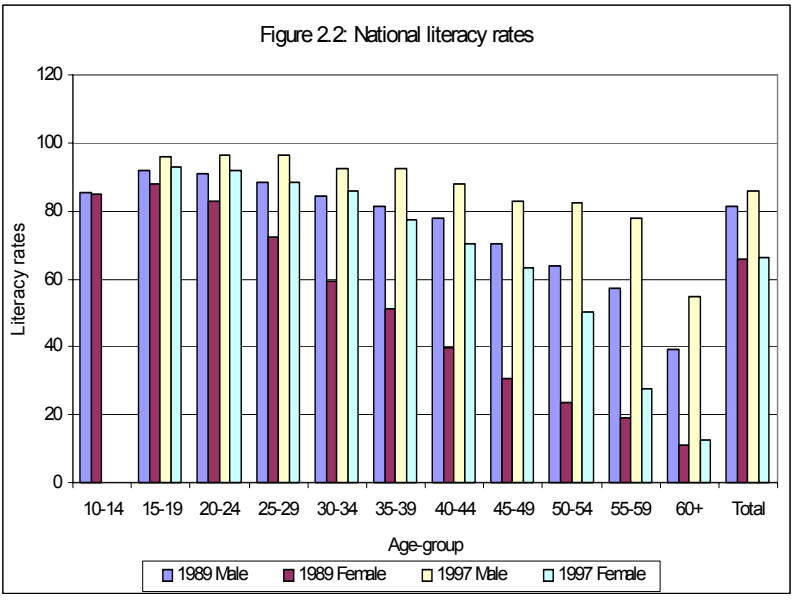
Data used in the analysis of the literacy rates in Kenya was extracted from the 1989 census and the 1997 Welfare Monitoring Survey. Table 2.2 shows literacy rates for the population in the age group 15 years and above.

Table 2.2: Literacy rates, 1997

Region	Sex/age group	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60+	Total(%)
National	male	95.87	96.62	96.63	92.22	92.59	87.86	82.92	82.40	77.74	54.57	85.94
	female	92.81	92.13	88.15	86.07	77.54	70.44	63.30	50.16	27.58	12.54	66.07
Rural	male	94.06	94.73	93.56	91.46	88.46	82.68	74.21	69.38	59.67	43.43	79.16
	female	92.49	90.82	86.58	79.64	66.16	52.50	41.97	32.22	22.85	9.29	57.45
Urban	male	97.68	98.51	99.70	92.97	96.71	93.03	91.62	95.42	95.80	65.70	92.71
	female	93.13	93.45	89.72	92.50	88.93	88.39	84.63	68.10	32.31	15.78	74.69

Source: Welfare Monitory Survey, 1997.

The data shows that the younger population had higher literacy rates than the older population. In 1997, the national average literacy rate was 76.00 percent, with males having a higher rate of 85.94 percent compared to 66.07 percent for females (see Figure 2.2). The urban population had on average higher literacy rates when compared with their rural counter parts (Table 2.2 above). This could be partly explained by the rural-urban migration of the young and educated in search of job opportunities. The literacy gap between males and females increases with age.



Similarly, the gap in literacy rates between rural and urban populations also increases with age. Table 2.2 also shows that urban females had a higher literacy rate than their rural counterparts. The rural females were disadvantaged as compared to their counter parts in the urban areas (see Table 2.2).

A comparison of illiteracy rates in some selected African countries (see annex 24) shows that Kenya's illiteracy rate of 22.7 percent in 1995 was below the sub-Saharan Africa and Africa averages of 45.2 and 45.6 percent respectively, but higher than the South African rate of 16.7. Among the selected countries, Ethiopia had the highest illiteracy rate (71.7%) in 1990, which declined to 66.8% in 1995, and further to 61.3 % in 2000. In comparison, to Burundi's illiteracy rate declined from 62.2% in 1990 to 51.9 % in 2000. Egypt followed Burundi with an illiteracy rate of 52.9 %, 48.9 % and 44.7 % in 1990, 1995, and 2000 respectively. The illiteracy rates of these three countries were above the African average.

3. Education Expenditure

Education expenditure refers to the financial disbursements to educational institutions for the purchase of various resources or inputs of the schooling process such as administrators, teachers, materials, equipment, and facilities (OECD, 2000b). We look at general measures of education spending, expenditure per student, educational expenditure as a percentage of Gross Domestic Product (GDP), and educational expenditure as a percentage of total public expenditure in the Kenyan schooling system. Although each of the ratios serves as an indicator of a country's financial commitment to education, each takes into account different aspects or determinants of educational spending, such as number of students and the national wealth.

Education is an activity in investment in human skills that requires considerations of the attendant costs and returns. Education investment can help to foster economic growth, enhance productivity, contribute to national and social development, and reduce social inequality (Council of African Ministers of Education, 2000). In Kenya, as in other regions, there is growing awareness of the valuable contribution that international comparisons of education can make to the development of national education policies. Prominent among the international education indicators are education expenditure and other aspects of education finance as these indicators show the cost of schooling at different education levels. Financial indicators in education typically attract disproportionate attention from policy makers, educationalists, public officials, and the media.

3.1 Public education expenditure

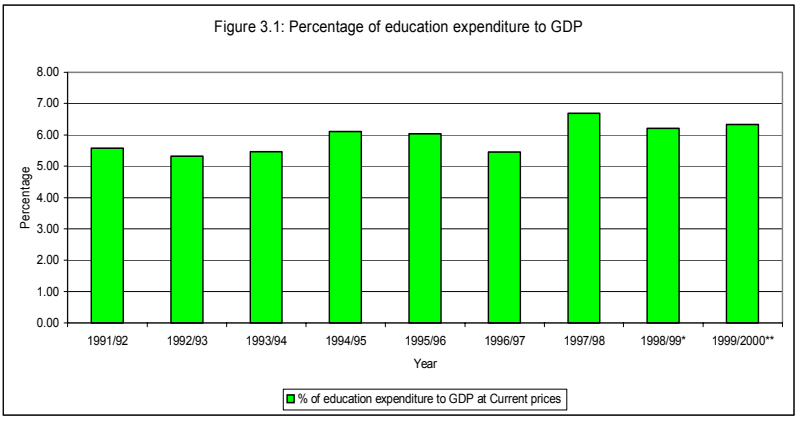
Education expenditure as a percentage of Gross Domestic Product

This can be viewed as a measure of the relative share of a nation's income that is invested in the education sector of a country.

It also gives a comparative review of how educational expenditure has changed over time.

Ideally, this indicator would cover both public costs as well as private costs. But many of these private costs are difficult to measure and compare. The main focus of this indicator, therefore, is on public expenditure on education.

Figure 3.1 shows that between 1991/92 and 1999/00 fiscal years, Kenya's public expenditure on education averaged between 5 and 7 percent of GDP. A typical African country at Kenya's level of per capita GDP would be spending about 17– 18 percent of its government expenditure and about 5 percent of its GDP on education, as opposed to over 20 percent and over 6 percent, which Kenya spends. At its level of expenditure on education, the country should be enjoying a gross enrolment rate of 110 percent and gross secondary enrolment of 45 percent (Government of Kenya, 1998). But despite Kenya's high education expenditure, the gross primary and secondary school enrolment rates have been declining and were 86.9% and 21.5% respectively in 1999.



* Provisional **Estimate

According to Deolalikar (1998), Kenya appears to be spending significantly more on education than would be expected at its level of per capita GDP, given the observed relationship between public expenditure on education and per capita income across selected African countries. According to UNESCO (1999), for the period between 1990 and 1995, Botswana had a higher percentage of education expenditure to GDP than Kenya, but during the same period, Botswana had a primary school gross enrolment rate of more than 100 percent compared to Kenya's gross enrolment rates of less than 90 percent. Table 3.1 shows that Kenya had higher education expenditure as a percentage of GDP than most of the selected African countries.

Table 3.1: Education expenditure as a percentage of GNP in selected African countries

Country	1990	1991	1992	1993	1994	1995
Botswana	6.9	7.3	7.1	7.8	8.2	8.6
Burundi	3.4	3.5	3.8	...	4.6	5.1
Egypt	3.8	4.7	4.4	4.7	4.7	4.7
Ethiopia	3.4	3.1	3.4	4.2	4.6	4.0
Ghana	3.3	...	4.5	4.3	4.3	4.8
Kenya	7.1	6.7	6.7	6.5	7.1	6.7
Uganda	1.5	1.9	...	...	...	2.6
Zimbabwe	8.0	6.7	7.4	7.1	...	...

Source: UNESCO. 1999
...Data not available

Index of change in education expenditure

The index of change in expenditure for educational services between fiscal year1986/87 to 1999/2000 is computed by expressing all expenditures in constant prices adjusted to the price level of 1986/87 using the consumer price index (CPI). However, in making the conversions, the expenditure figures in fiscal year have been maintained since the central concern is with expenditure. Therefore, the calendar year of the CPI was converted into fiscal year. The change is, however, not significant.

Table 3.2: Total real education expenditure index

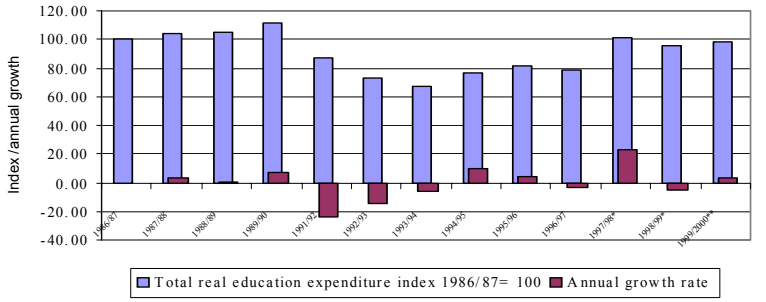
Year	Total real education expenditure index 1986/87=100	Annual growth rate
1986/87	100.00	...
1987/88	103.60	3.60
1988/89	104.53	0.93
1989/90	111.86	7.32
1991/92	87.44	-24.42
1992/93	72.89	-14.55
1993/94	66.98	-5.91
1994/95	77.03	10.06
1995/96	81.66	4.63
1996/97	78.41	-3.25
1997/98*	101.07	22.66
1998/99*	95.44	-5.63
1999/2000**	98.41	2.96

Source: Own computations

* Provisional **Estimates

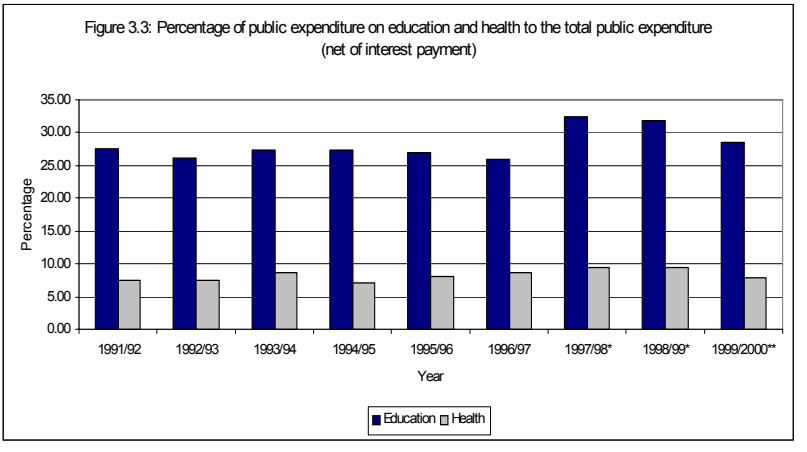
During the period 1986/87 to 1999/2000, the total real expenditure on education was maintained between 66.98 (Fiscal year 1993/94) and 104.53 (fiscal year 1988/89). In the same period, the highest growth rates were recorded in fiscal year 1997/98 and the lowest in 1991/92 fiscal years (see table 3.2). The low growth rate could be partly attributed to cost sharing measures imposed in 1988 and the inflationary effects during the elections in 1992, and hence time lags in the recovery of the economy among others, whereas the high growth rates are as a result of huge salary increments awarded to teachers in 1997 and also expansion of public universities.

Figure 3.2: Total real education expenditure index



Public expenditure on education relative to other social services

This indicator is a measure of the share of education expenditure to total expenditure relative to other public investments such as health, welfare, economic services, and other social services. Public spending on education has increased tremendously in Kenya over the last three decades since independence. According to the public expenditure review by the Ministry of Education and Human Resource Development (1998), between 1962/63 and 1996/97, total education expenditure increased at an annual rate of 17.3 percent in nominal terms, and 9.3 percent in real terms. The share of recurrent expenditure increased from 15 percent in the 1960s to over 25 percent in the 1990s (net of interest payments).



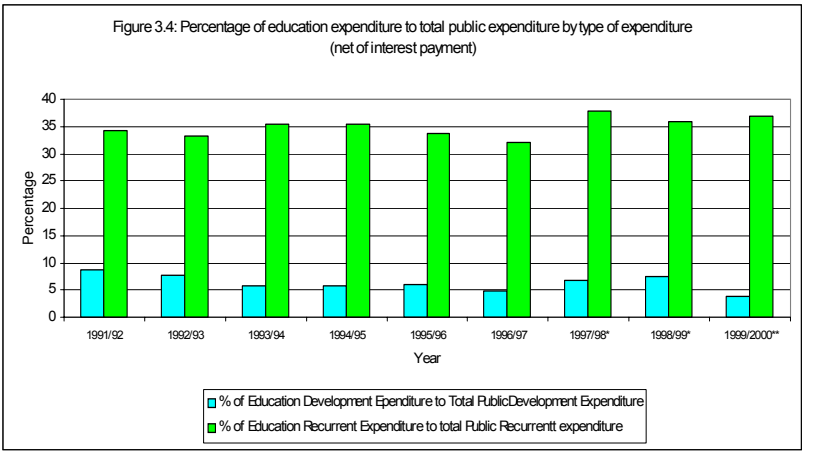
*Provisional **Estimates

A comparison of education and health public expenditure as a percentage of total public expenditure in Figure 3.3 above shows education taking a large share of the total public expenditure. On average, the share of health to the total public expenditure for the period between 1991 and 2000 was 8.2 percent compared to 28.2 percent for education. This is proof of the country's commitment to improving education at all levels.

Education expenditure by type

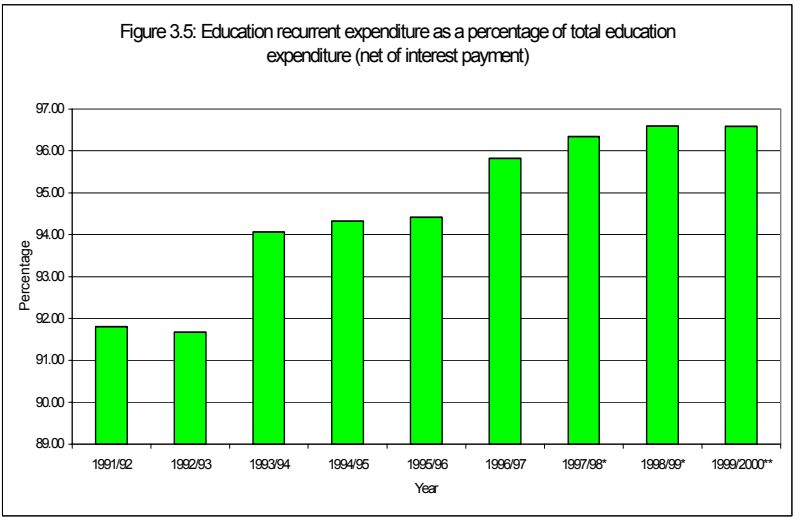
Generally, educational expenditure is divided into recurrent and development expenditures. Recurrent expenditure comprises financial outlays on school resources used each year for the operation of schools. On the other hand, development expenditure consists of outlays on assets that last longer than a year, and includes spending on the construction, renovation, and major repair of buildings.

The share of recurrent education expenditure to total public recurrent budget is one of the highest in Kenya. It lies between 30 and 40 percent while the development share lies below 10 percent of the total development budget. This implies that there is little money allocated for development in the education sector.



*Provisional **Estimate

The current allocations of resources within the education sector seem to be inappropriate and ineffective. More than 75% of the education budget goes to teachers salaries. Within the primary and secondary budgets, teachers' salaries account for 95 – 97 percent of recurrent expenditure. As a result, there are hardly any public resources left for other school requirements such as learning materials and textbooks.



A comparison of percentage of education expenditure to total government expenditure in selected African countries in Table 3.3 shows great variations across the countries. On average, Ethiopia has the lowest percentage while Ghana spends the highest percentage on education in the selected countries. On average, OECD countries devote 14.4% of total government expenditure to support education with values for individual countries ranging between 10% in Germany and 22% in Poland.

Table 3.3: The education expenditure to total government expenditure in selected African countries

Country	1990	1991	1992	1993	1994	1995	1996
Kenya	17.0	15.7	13.4	11.3	16.4	16.9	16.7
Botswana	17.0	18.7	17.5	17.6	19.3	20.5	20.6
Burundi	16.7	17.7	12.2	...	...	...	18.3
Egypt	...	9.7	11.0	13.9	13.8	14.9	...
Ethiopia	9.4	13.1	11.9	13.1	13.0	13.9	13.7
Ghana	24.3	...	25.0	21.7	19.2	21.4	19.9
Uganda	11.5	15.0	...	...	...	21.4	...

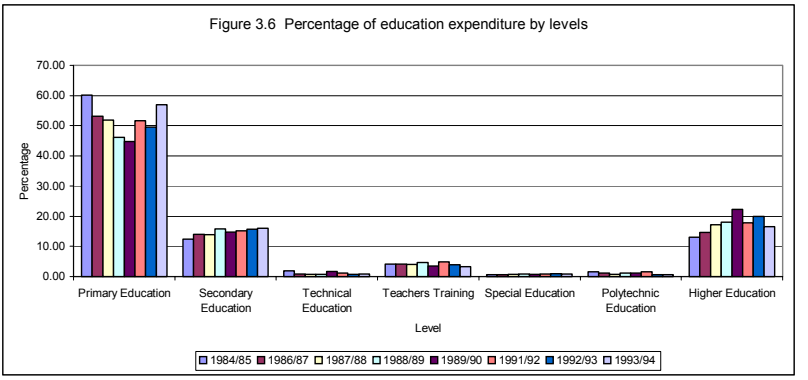
Source: UNESCO, 1999 ... Data not available

3.2 Expenditure by levels

The quality of teaching can be affected by the method in which spending is apportioned between different categories. Teacher's salaries, condition and availability of teaching materials and other educational facilities, the ability of the education system to adjust to changing demographic and enrolment trends, are some of the factors which affect the quality of teaching. International comparisons of how different countries apportion educational expenditure between the various education levels can provide some insight into the variations in the organisation and operation of educational institutions.

Kenya has continued to show much commitment to the education sector. Every year, more and more of its national resources are allocated to education. The general trend has been a gradual increase in the investment in the education sector where the bulk of the expenditure on education is spent on primary education, with secondary education and universities accounting for the smaller share.

In the early 1990's, pre-primary and primary recurrent expenditures combined dominated all the levels of education. The higher education recurrent expenditure continued rising, followed by higher education development expenditure. It should be noted that the higher education development budget declined drastically by 87.0 per cent from K£43.36 million in 1998/99 to K£ 5.6 million in 1999/2000 financial year. The reason for the drastic decline in expenditure on higher education was the reduction of budget allocation to the Commission for Higher Education from K£38.6 million in 1998/99 to K£1.2 million in 1999/2000. Suspension of construction of non-residential buildings in most of the universities is another contributing factor (Government of Kenya, 2000).



Between 1984 and 1992, the proportion of primary schools expenditure relative to total budget for education averaged between 44 and 61 percent. Higher education took the next position, followed by secondary education, then teachers' education.

Table 3.4 shows that most of the selected countries spent a large portion of their education budget on primary education. Congo, Malawi, and Ethiopia spent over 50 percent of their education budget on primary education, while Guinea and Swaziland spent less than 40 percent.

Table 3.4: Current public expenditure on education: Percentage distribution by level of education in some selected African countries (1995)*

Country	Pre-primary/ Primary	Secondary	Tertiary
Congo	50.4	11.6	28.0
Burundi	41.5	39.9	15.6
Malawi	58.8	8.9	20.5
Ethiopia	50.8	26.1	14.9
Guinea	35.1	29.6	26.1
Swaziland	36.6	26.4	27.5
Zambia	41.5	18.4	23.2

Source: UNESCO, 1999.

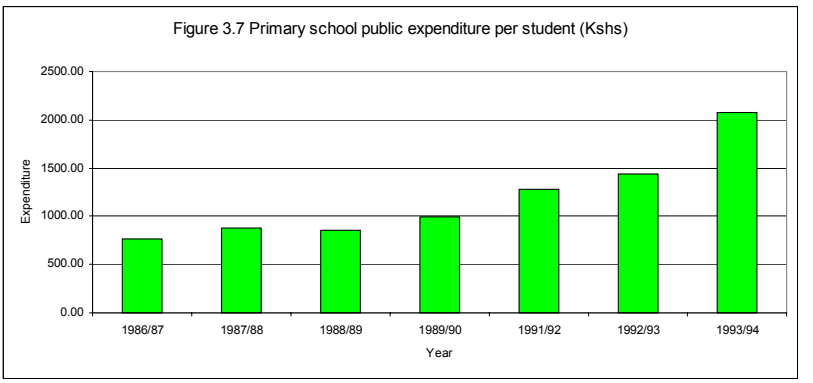
* – Figures do not add to 100 percent, as some expenditures are not included

3.3 Expenditure per student

The allocation of total spending on education and training across levels does not give an accurate picture of how government educational spending benefits students at each schooling level, because the three levels – primary, secondary and university – have vastly different numbers of students. Therefore, it is more instructive to examine per-pupil government expenditure by schooling level.

Although the optimal volume of resources required to prepare each student for work and life in the modern economy is difficult to access, international comparisons of spending per student can provide a starting point for evaluating the effectiveness of different approaches to educational provision. Expenditures per student are largely related to instructional costs and include all expenditures dealing with activities involved in teaching process, such as salaries, fringe benefits, and instructional supplies. Expenditure per student in a particular level of education is calculated by dividing the total expenditure at that level by the corresponding student enrolment.

$$\text{Expenditure per student} = \frac{\text{Total expenditure at the given level of education}}{\text{Enrolment at the given level of education}}$$



The indicator of expenditures per student exhibits a common pattern over time; expenditures per student have been increasing between 1986/87 to 1993/94. Expenditure per student increased from Kshs.

770 in 1986/87 to Kshs. 2078 in 1993/94 financial year. These figures exclude the parent's contribution to their children's education.

Data from the WMS III report showed that households spend about Ksh. 712.00(US$11.36) and Ksh 1150.00 (US$18.35) at public primary and private primary, and about Ksh. 9643.30 (US$153.85) and Ksh. 10208 (US$162.86) per year at the public and private secondary schools respectively. Thus, the parental contribution to education of a pupil in a public primary school constitutes about 26 percent of the total per pupil expenditure at the primary level. Government of Kenya (1998) also has similar results.

OECD countries as a whole spend US$ 3769 per student at the primary level, US$5507 per student at secondary level, and US$10893 per student at the tertiary level. Out of 23 OECD countries, five spend less than US$ 2500 per primary student. According to Deolalikar (1999), the average recurrent net public expenditure on education per primary school pupil was Kshs. 3,023 in 1996/97, which was lower than the OECD averages.

4. Access to Education and School Performance

4.1 Various indicators of access to education

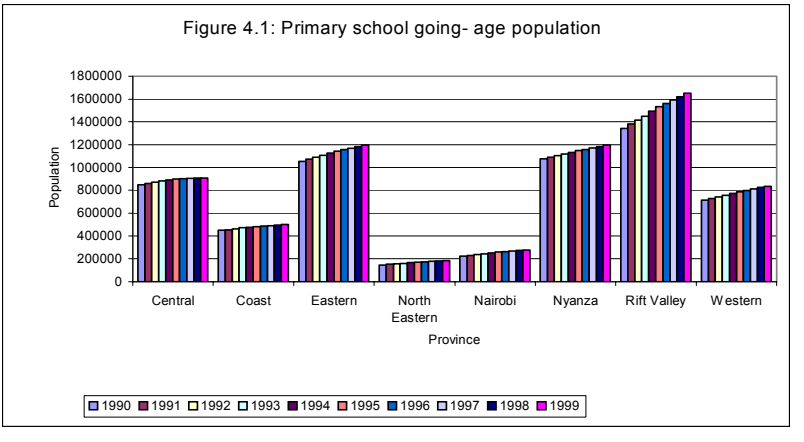
Primary school going- age population

It is important to know about the existing supply of human knowledge, competence, and skills of a country's population. As far as demand for education is concerned, demographic patterns determine the potential "client-base" since they reflect the numbers of people in the age groups that participate in education, while the changing requirements of the labour market influence the demand for education by individuals and society.

The size of the youth population in a given country shapes the potential demand for primary education and training. The higher the number of young people, the greater the potential demand

for educational services. The school going-age population is an important demographic statistic in planning for educational provision because it can be used to derive trends in sizes of youth cohorts expected to participate in various education levels. Student demography is a factor with a significant influence on the financial resources required for education. Other things being equal, countries with larger proportions of young people in the population must allocate a larger proportion of their national income to basic education and training than those with smaller youth populations, but smaller participation rate.

Generally, at the national level, primary school going-age population has been rising over the years. The population increased from 5.85 million in 1990 to 6.75 million in 1999, an increase of 15.34 percent. Figure 2.5 shows the primary school going-age population by province. Rift Valley Province, largely due to its vast population size, has the highest primary school going population followed by Nyanza Province. North Eastern Province, the least populated province in Kenya, has the least primary school going population.



Primary school enrolment

While there are several ways to measure a country's success at providing education at the primary level, the most common are primary school enrolment and attendance ratios. Educational

supply and demand is perhaps best reflected in current patterns of enrolment. One challenge which countries face is how to manage the growth of educational participation and attainment, while maintaining and raising the quality of education provision and outcomes. Changes in participation and attainment reflect how a country has responded to and encouraged participation in the educational system, and this can also point to the future trends in enrolments.

Developing countries have been quite successful at expanding enrolment in education, especially at the lower level. But for any given level of efficiency, increased enrolment requires increased resources in order to maintain quality. If these resources are not forthcoming, the increase in quantity may come at the expense of quality.

The principal thrust in government policy on primary education is to accelerate the attainment of education for all. To increase access and participation in primary education, the government strategy is to:

- raise the rate of enrolment in standard 1, increase the primary school completion rate, and reduce grade repetition;
- raise education participation for the handicapped children to bring it at par with that for the normal children;
- give support to institutions offering education outside the formal system; and
- improve the nutrition and health status of pupils, with attention being given to the special needs of the handicapped (Government of Kenya, 1998).

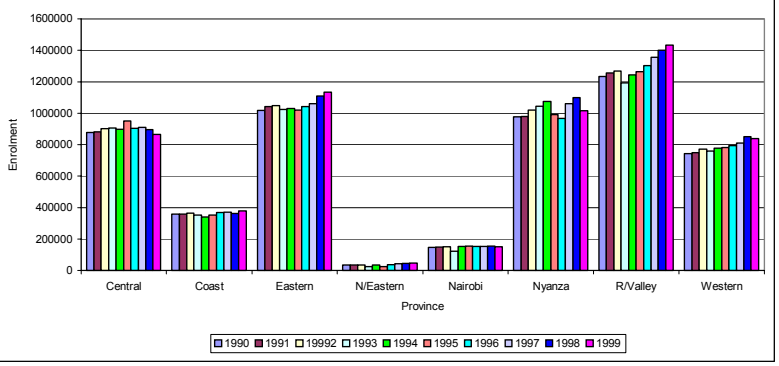
An important aspect of managing the growth of an education system is ensuring that it benefits all sections of the population and that disparities between groups are reduced. Disparities have often been based on gender, income levels, regions, and area of residence (rural or urban). As overall participation and attainment levels rise, it cannot always be assumed that all groups are benefiting equally. Thus, it is important to look beyond overall patterns of growth in order to examine conditions within the country that may result in

disparities in participation and attainment. Participation in primary education in Kenya is characterised by regional and gender disparities, a rising number of urban slum children not attending formal schools, and the enrolment rate is not keeping pace with the increase of the relevant age group.

The Kenyan education sector has had a tremendous growth both in qualitative and quantitative terms since independence. The number of schools and school enrolment has increased over the years. Between 1991 and 1999, total primary enrolment had an average annual growth rate of 1 percent to stand at 5,867,608 in 1999. There was a decline in enrolment in 1993, 1995, and 1999 of 2.42, 0.37, and 0.88 percent respectively. During the 1990-1999 period, 1997 had the highest increase in enrolment of 2.99 percent.

Rift valley Province has the highest gross enrolment in the country followed by Eastern Province. North Eastern Province has the lowest gross enrolment.

Figure 4.2: Primary school gross enrolment by province



Primary schools gross enrolment rates

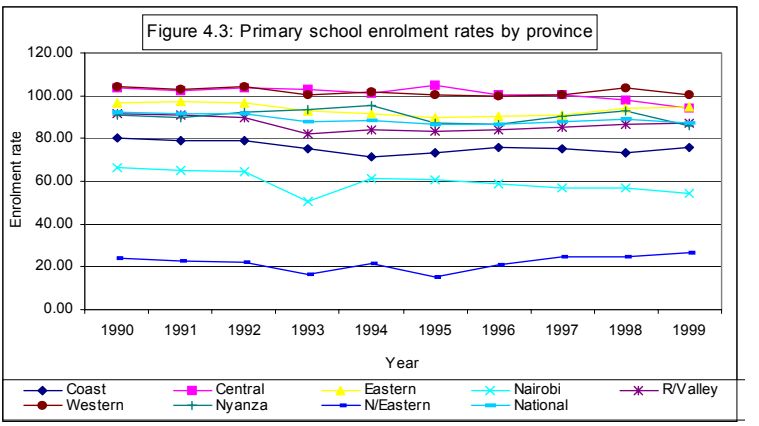
Gross enrolment rate (GER) is a measure of participation. It is the proportion of total pupils in a particular level of education irrespective of age, to the total population of the corresponding school age. The gross primary school enrolment ratio is the number of pupils in primary school divided by total population of the primary school going-age (6-13 years).

$$\text{Gross Enrolment Rate} = \frac{\text{Pupils in primary school}}{\text{School age population for primary}}$$

Gross enrolment rate indicates the capacity of the education system and the rate of its utilisation. The GER can be used to compare educational performance and outcomes across districts, provinces, urban and rural areas, and between the sexes. It can be more than 100 percent, which is usually reflective of the presence of repeaters and late starters.

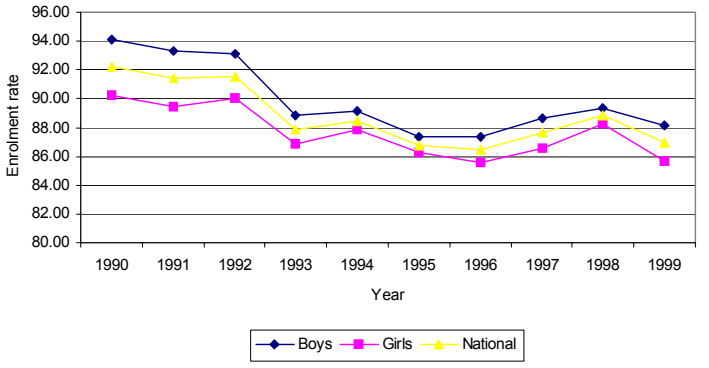
Kenya's policy on enrolment has been geared towards universal education as stipulated in Sessional Paper No. 1 of 1965 on *African Socialism and its Application to Planning in Kenya*. Over the 1990s, the primary school gross enrolment rate has been declining over time and across the regions. It declined from 92.19% in 1990 to 87.84% in 1993. In 1999, the primary school gross enrolment rate declined from 88.80 to 86.91 percent, which means that the population of the total primary school enrolment to the primary school going - age was 86.91 percent (Figure 4.2).

Across the regions, Figure 4.3 shows that North Eastern Province has the lowest gross enrolment rate in the country. For instance in 1990, gross enrolment rate in North Eastern Province was 23.84 percent, the lowest in the country. This increased by about 3 percentage points to 26.30 percent in 1999. Central and Western provinces have been leading in primary school gross enrolment rates.



On gender, male pupils have higher gross enrolment rates than their female counterparts at the national level (see Figure 4.4), but there are regional variations and in some provinces females have higher gross enrolment rates than males. For example, in 1990, female gross enrolment in Central Province was 104.5 percent compared to 102.7 percent for males. Between 1990 and 1998, girls' gross enrolment rate in Central province was consistently higher than boys' enrolment rate. Female gross enrolment rate was 97.9 percent in Eastern Province during the same year, while the male gross enrolment rate was 95.8 percent (see Annex 45).

Figure 4.4: Primary school gross enrolment rates by gender



In Africa, Botswana, Lesotho, Malawi, Zimbabwe, South Africa, Egypt and Swaziland had higher gross enrolment rates than Kenya in 1995 (UNESCO, 1999). South Africa and Malawi had a gross enrolment rate of 133 and 134 percent respectively. However, Kenya had a higher gross enrolment rate than the sub-Saharan Africa and Africa averages of 76.6 and 80.4 percent respectively. In 1995, Botswana and Lesotho had higher girls' than boys' gross enrolment rates of 109 and 117 percent respectively. In the same year, Ethiopia had a lower girls gross enrolment rate of 27 percent. Across the continents, Latin America and the Caribbean had the highest gross enrolment rate of 110.6 percent in 1995, relative to the lowest rate of 80.4 percent for Africa. The world gross enrolment rate increased from 99.2 percent in 1990 to 100.3 percent in 1995 (see Table 4.1).

Table 4.1: Primary school gross enrolment rates in selected countries and regions

Country	1990			1995		
	Total	Male	Female	Total	Male	Female
Botswana	113	109	117	108	107	109
Burundi	73	79	66	51	55	46
Djibouti	38	45	32	38	44	33
Ethiopia	33	39	26	37	48	27
Lesotho	112	100	123	111	104	117
Malawi	68	74	62	134	140	127
Tanzania	70	70	69	67	68	66
Zimbabwe	116	117	115	114	116	113
Uganda	74	83	66	74	81	68
Zambia	99	...	...	89	91	86
South Africa	122	123	121	133	135	131
Egypt	94	101	86	100	106	93
Rwanda	70	70	69	...	...	...
Mozambique	67	77	57	60	70	50
Swaziland	111	114	109	121	124	118
Democratic Rep of Congo	70	81	60	...	...	...
Sudan	53	60	45	50	54	46
Nigeria	91	104	79	...	...	...
Sub-Saharan Africa	74.8	81.9	67.6	76.6	83.8	69.4
Africa	77.7	85.1	70.2	80.4	87.6	73.1
Latin America inc. Caribbean	105	106.2	103.7	110.6	113.2	107.9
Europe	101.1	101.1	101.1	103.4	103.8	102.9
North America	104.3	105.5	103.2	108.3	110.4	106.1
Asia	03.8	111.1	96	104	110	97.7
World	99.2	105	93	100.3	105.5	94.7

Source: UNESCO, 1999 ... Data not available

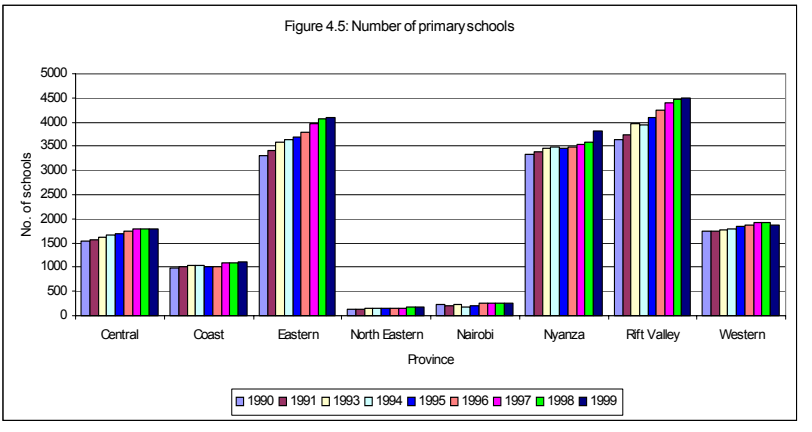
Number of primary schools

The number of schools is an indicator of the supply of education in a given area. It determines the capacity of the education system in a given area to provide for educational needs. Class size, defined as the total enrolment divided by total number of classes, is a good indicator of utilisation of school facilities (over-utilisation or under-utilisation of school facilities).

Between 1990 and 1999, the number of primary schools in the country both public and private increased by an annual average

of 1.85 percent from 14,864 to 17,611 schools. Rift Valley, the largest province, has the highest number of primary schools followed by Eastern Province. North Eastern Province has the least number of primary schools in the country.

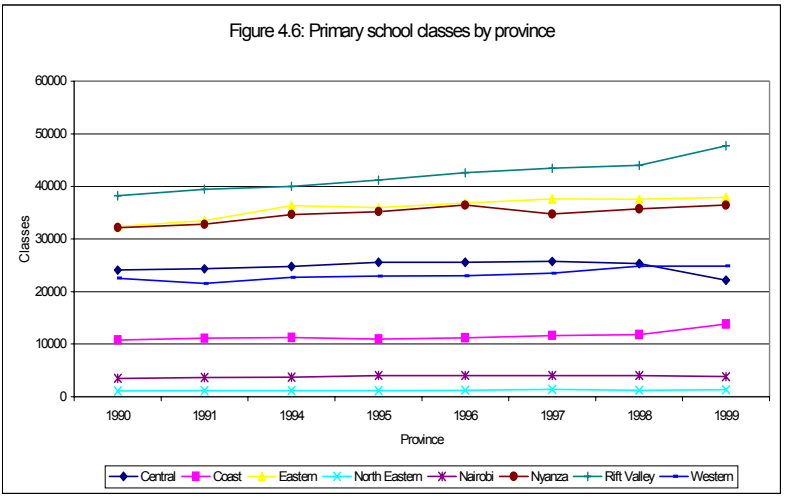
Private primary schools constitute less than 3 percent of the total number of primary schools in the country. In 1996, out of the 16,552 primary schools in the country, only 282 schools were private which was 1.7 percent of the total. The proportion of private primary schools increased to 2.22 percent in 1998. While it is true that private schools have in the past been relatively insignificant in terms of number of pupils enrolled, this has changed dramatically in the last few years. Unfortunately, we at present do not have accurate data on private school enrolment. The role of private schools in Kenya is an important policy issue that KIPPRA intends to investigate in the near future.



Primary school classes

According to OECD (2000a), both hours of instruction and class size are often thought to have an impact on education outcomes (pupil achievement). The number of primary school classes increased throughout the 1990s with the annual increase ranging between 1 and 2 percent. The annual increase in classes was 2 percent in 1991, 1996 and 1999. As stated earlier, a comparison

between the provinces shows that Rift Valley Province has the highest number of primary school classes followed by Eastern province, while North Eastern Province has the least number of classes. These disparities in number of classes across the provinces may be attributed to differences in population sizes.



Primary schools class sizes (pupils per class)

There have been concerns in Kenya and also in other countries on the optimal class size. Governments have an option to increase class sizes in a school, and to use the savings generated by *not* building additional classrooms, to provide instructional materials and to improve teacher's remuneration. A study in Kenya, Betts (1999), using two groups with one getting financial assistance to buy text books and uniforms, found that expenditures for textbooks and uniforms reduced dropout rates relative to the other control group of students that did not participate. The study found that class sizes increased considerably as parents decided to enrol their children at the schools that received the additional funds. The study concluded that, schools could reduce dropout rates without lowering academic standards or increasing spending by increasing class sizes and using the savings to pay for textbooks and to reduce the fixed costs of sending children to school. In a

similar study of education in Brazil, Betts (1999) concluded that allowing class size to "float upwards" and using the savings for additional classroom resources might improve students' rate of learning.

The national class size in Kenya was 31.19 pupils per class (1999). This has been changing depending on change in school enrolment and number of classes. The highest pupil per class ratio was 32.71 in 1990, while the lowest ratio of 30.79 was 1996. Comparison between provinces in Figure 4.7(a) shows that, in the 1990s, Nairobi Province had the highest average class size followed by the Central Province.

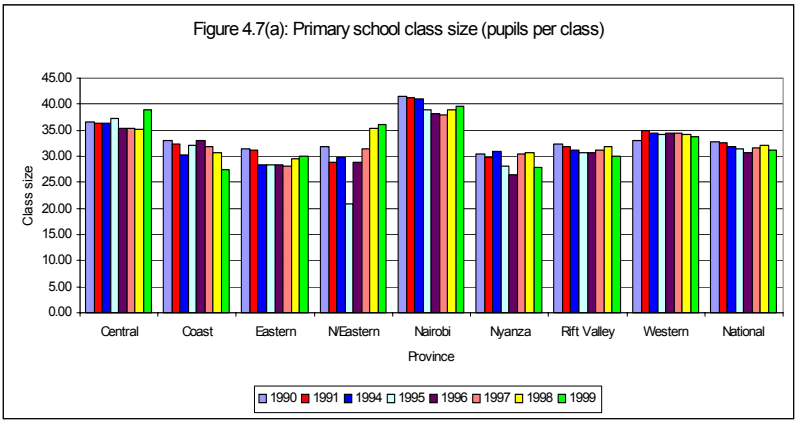
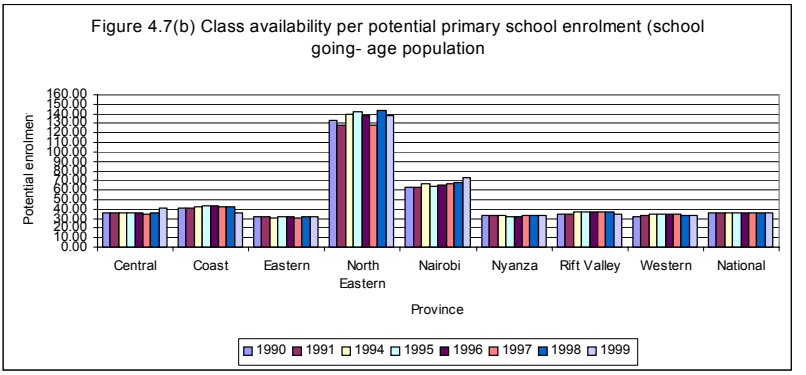


Figure 4.7(b) shows that the available primary school capacity at the national level – classes/streams – is adequate for the primary school going-age population. If the whole primary school going - age population were enrolled in school, the national class size would be 35.51, 35.97 and 35.89 in 1990, 1996 and 1999 respectively – far below the maximum recommended class size of 50 pupils (Deolalikar, 1998). There are variations across the regions with North Eastern Province having the highest average potential class size of 137 pupils, followed by Nairobi with 67 pupils per class for the 1990 – 1999 period. If the whole primary school going-age population was to be enrolled in school in the two provinces, more investment in primary school expansion would be required. Over the same period, Eastern, Western, and Nyanza provinces had average class size of 32, 34, and 33 pupils respectively.



According to the OECD Education Indicators Report (2000b), comparatively small class sizes are found in Egypt and Uruguay at the primary level (13.5 and 12.8 pupils respectively) which are lower than Kenya's average, while Philippines shows a relatively large class size of 36 pupils.

4.2 Educational efficiency

Although quality of education is difficult to measure, student outcomes have often been used as the most objective criteria of evaluating it. In most cases these outcomes are a reflection of the educational inputs and experiences which produce them.

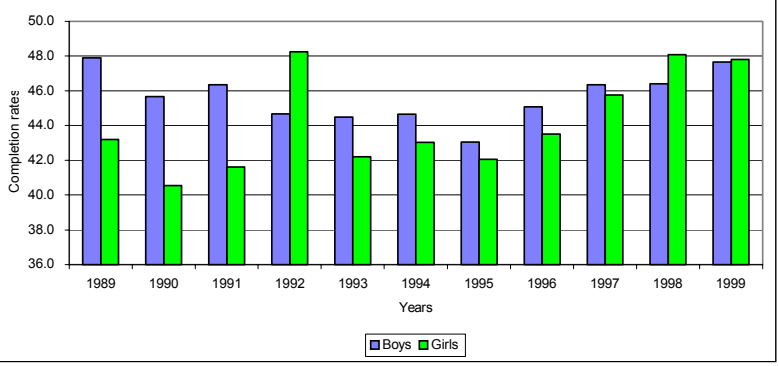
Primary schools completion rates

As countries seek to increase educational participation, higher enrolment is not their only concern. They also seek to ensure that students progress through the education system smoothly, and that they achieve higher levels of education rather than repeating classes or dropping out of school. Progression from grade to grade at the set standard years of schooling at each grade reflects the internal efficiency of the system, and graduating from that level often signifies that students have met a certain set of standards, whether stated formally or held as a general belief in the minds of the people. Therefore, increasing access to education must be paralleled by improvements in the internal efficiency of education systems.

Definition of completion of certain levels of education varies from country to country. In some countries, completion occurs as a result of passing an examination or a series of examinations, while in other countries completion occurs after a requisite number of course hours have been accumulated (although completion of some or all of the course hours may also involve examinations). Success is also defined differently by different countries. In some countries, success is associated with the obtaining of a degree, certificate or diploma after a final examination, while in other countries it is defined by the completion of Programmes without a final examination. Completion rate (retention rate), which gives the percentage of enrolled children who reach a certain grade level is an important indicator of a school system's ability to attract and retain students.

National primary school completion rates have remained below 50 percent for the period between 1989 and 1999. This means that, for the pupils who enrol in Standard 1 less than 50 percent complete Standard 8. Compared to girls, boys had higher completion rates between 1989 and 1991 and between 1993 and 1997, while girls had higher rates than boys did in 1992, 1998, and 1999 (see Figure 4.8).

Figure 4.8: Primary school completion rates by gender



There was an increasing trend of national primary schools completion rate between 1995 and 1999. The rate increased from 42.6 percent in 1995 to 47.7 percent in 1999. On gender variation,

females had a higher completion rate than males between 1998 and 1999. The increasing trend in completion rate – despite declining gross enrolment rates and increased education cost burden to parents and communities – is a research issue for further investigation.

Table 4.2 on selected indicators in some African countries shows that, the percentage of pupils reaching final grade in 1995 ranges between 47 and 99 percent, with Mauritius having the highest and Ethiopia the lowest. The percentage of girls reaching final grade was higher than boys in Botswana, Algeria, Mauritius, Namibia, Niger, and Tunisia. Mauritius had the highest percentage of 99 percent for girls reaching final grade, while Chad had the lowest percentage of 41. All the selected countries in Table 4.2 below had higher completion rates than Kenya.

Table 4.2: Primary education: Selected indicators in some African countries (1995)

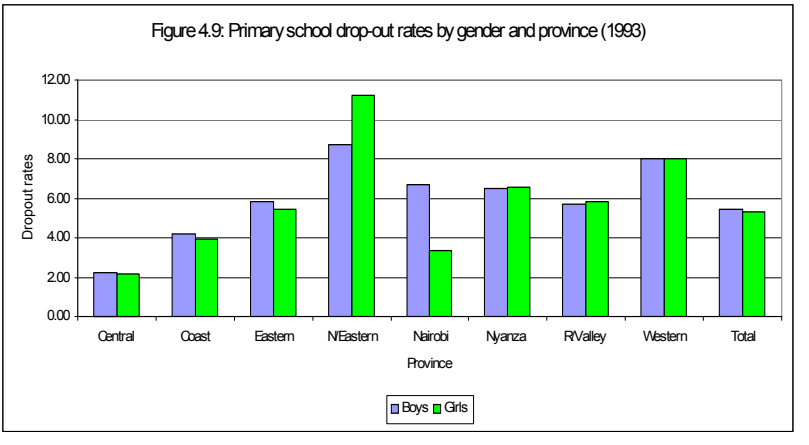
Country	% of repeaters			% of cohort reaching final grade		
	Total	Male	Female	Total	Male	Female
Botswana	3	4	3	86	81	91
Djibouti	15	...	...	77	...	...
Ethiopia	10	9	12	47	47	46
Zimbabwe	...	...	...	76	76	76
Mozambique	26	25	27	...	...	...
Swaziland	16	18	13	...	...	...
Algeria	9	11	6	90	89	92
Chad	33	33	33	50	53	41
Cote d'Ivoire	24	23	24	74	77	67
Eritrea	19	15	17	58	56	62
Mauritania	16	15	23	70	73	67
Mauritius	6	6	5	99	98	99
Morocco	12	13	10	68	69	68
Namibia	18	...	...	67	63	70
Niger	16	19	12	67	66	68
Senegal	14	14	14	81	87	74
Tunisia	17	19	16	85	84	87

Source: UNESCO, 1999 ... Data not available

Primary school drop-out rates

Drop-out and survival rates can be useful indicators of the internal efficiency of the education systems. Although dropping out is not necessarily an indication of failure by individual students, high drop-out rates may well indicate that the education is not meeting the needs of the clients. Dropping out of school represents a waste of human and financial resources, unless students acquire basic skills during their time of study.

According to a study carried out by the Ministry of Education in 1993, North Eastern Province had the highest drop-out rate for both boys and girls in the country, which may be partly explained by the nomadic way of life that the school going-age population leads. The province had a dropout rate of 9.38 percent, with girls having the highest rate of 11.18 percent and boys 8.71 percent. The national drop-out rate was 5.40 percent, with boys dropping out at 5.46 percent while girl's rate was lower at 5.34 percent. Central Province had the lowest drop-out rate of 2.25 and 2.19 percent for boys and girls respectively.

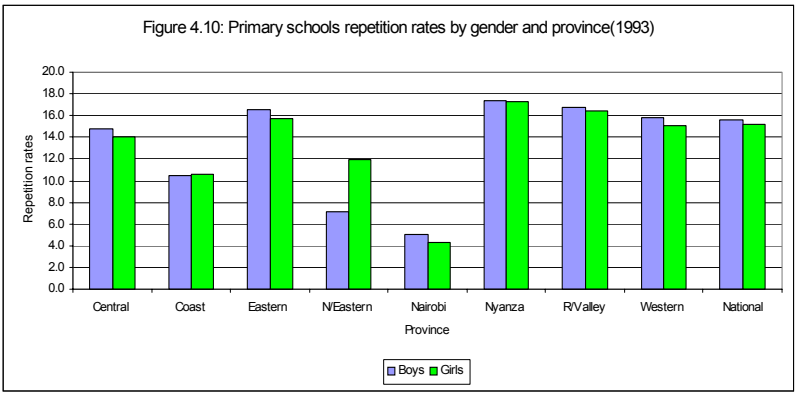


A study by Kalleghan, (1992) in fourteen African countries found large variations in primary school drop-out rates across countries. In Lesotho, it has been estimated that about a quarter of those entering the first level of education complete primary school (1987). In Togo, the drop-out rate at primary level was 10.2 percent in 1986.

Primary schools repetition rates

Percentage of repeaters is given by the total number of pupils who are enrolled in the same grade as the previous year, expressed as a percentage of the total enrolment in primary education. Progression is not considered smooth when students must repeat one or more years of schooling, or when their participation is interrupted for a period of time. Grade repetition remains an important impediment to efficiency of schooling, and high repetition rates, especially in education systems where demand for education outstrips supply, represent a waste of scarce resources. Traditionally, grade repetition has been used as an indicator of educational inefficiency. Students enrolling in the same grade or year of study a second or further time are classified as repeaters, except if the new Programme is classified as higher than the previous one.

A survey by Ministry of Education in 1993 found variations of repetition rates across regions and gender. Boys, with a repetition rate of 15.6 percent, had a higher rate than girls did at the national level. Rift Valley Province had the highest repetition rate of 17.3 percent followed by Nyanza Province with 16.6 and Eastern Province 16.1 percent. The rate was lowest in Nairobi and North Eastern provinces, 4.7 and 8.6 percent respectively.



A comparison of repetition rates in selected African countries in Table 4.2 shows variations across countries, with Botswana having the lowest percentage of repeaters at 3 percent, and Chad showing the highest at 33 percent. In Botswana, Swaziland, Algeria, Mauritius, Morocco, Niger, and Tunisia primary school boys have a higher repetition rate than girls (UNESCO, 1999).

Table 4.3 below shows that Latin America's repetition rates rank among the highest in the world, with the average student spending nearly seven years in primary school but completing just five grades. Nearly one out of every two students repeats the first year of school. The cost of teaching these repeaters has been estimated at US $ 2.5 billion, nearly one third of total public expenditure on primary education in the region (OECD, 2000a).

Table 4.3: Repetition rates in selected countries

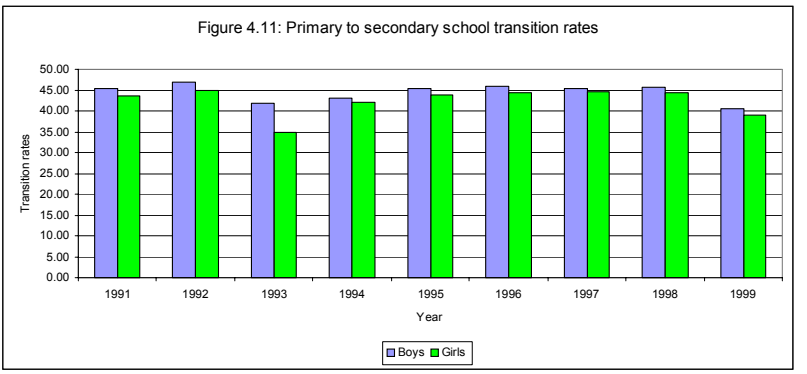
Country	% of first grade repeaters	% of students graduating from the 6th grade without repeating.
Argentina	31	17
Brazil	53	1
Chile	10	41
Colombia	31	26
Costa Rica	22	31
Dominica Republic	58	3
Guatemala	55	9
Mexico	33	23
Nicaragua	59	...
Peru	28	21
Venezuela	28	14

Source: Puryear (1996)
... Data not available

Primary to secondary school transition rates

While the transition from school to work has become a main policy focus in most countries, greater effort is required to facilitate other transitions throughout the schooling process, especially those between the primary and the secondary level. Transition rate in Kenya's education system can be defined as the percentage of Form 1 enrolment in secondary schools to the total number of pupils who completed Standard 8 the previous year. A low transition rate signifies education wastage, as most of the pupils who complete one level of education do not proceed to the next.

Since 1991, primary to secondary school transition rate has ranged between 39 and 46 percent. The year 1993 had the lowest transition rate when only 38.40 percent of those who completed standard 8 in 1992 joined Form 1. During the same period, boys had a higher transition rate than girls.



A comparison of transition rates in some selected African countries in Table 4.4 in 1995 shows major variations across countries and gender. Ethiopia, Swaziland, Algeria, Mauritania, Morocco, and Namibia had transition rates of more than 70 percent. Djibouti, Cote d' Ivoire, Niger, and Senegal had a lower transition rate than Kenya. On gender variations, girls had a higher transition rate than boys in Algeria, Mauritius, Morocco, Niger, and Tunisia.

Table 4. 4: Transition rates in some selected countries (1995)

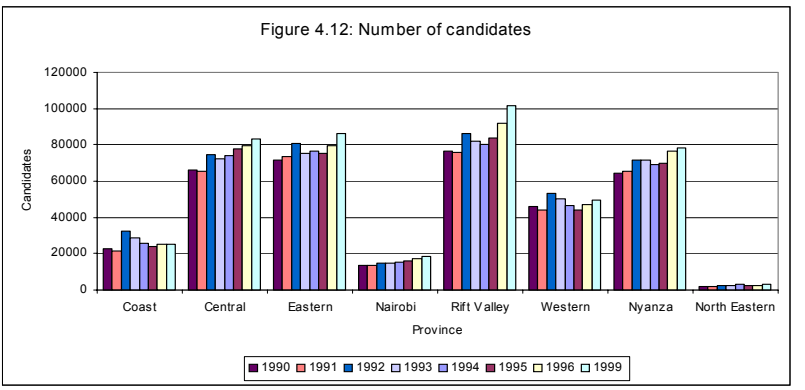
Country	Transition rate Total	Male	Female
Djibouti	39	...	...
Ethiopia	88	88	88
Swaziland	77	...	...
Algeria	78	74	82
Cote d 'Ivoire	39	42	34
Mauritania	76	79	73
Mauritius	61	57	65
Morocco	79	77	82
Namibia	77	78	77
Niger	29	28	29
Senegal	30	31	29
Tunisia	65	64	66

Source: UNESCO, 1999 ... Data not available

4.3 Performance in national examinations

Number of candidates

The total number of KCPE candidates decreased from 397,107 in 1993 to 390,315 in 1994, a drop of 1.71 percent. Between 1994 and 1996, there was a further decline of 12.03 percent. However, the 1996 and 1999 period had an upward trend in KCPE candidates as the number increased by 29.72 percent to stand at 445,405 in 1999. Across the provinces, North Eastern Province had the least candidates largely due to its small population size, followed by Nairobi Province.

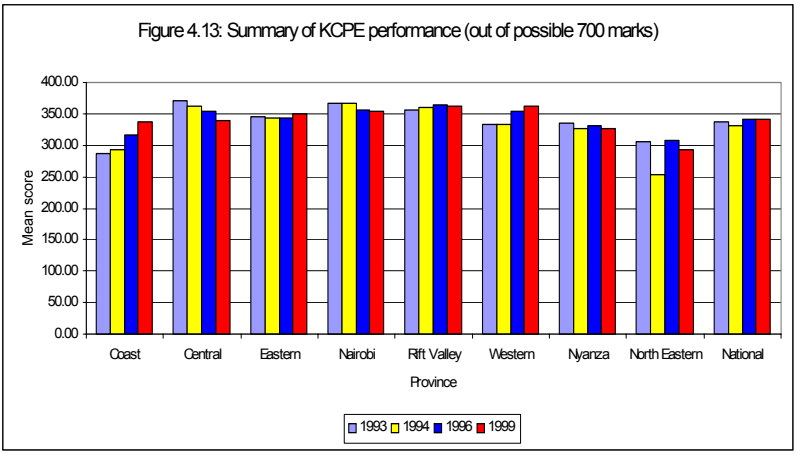


Rift valley had the highest number of KCPE candidates over the 1990 –1999 period, followed by Eastern and then Central Province. North Eastern Province recorded the lowest number of candidates over the same period, followed by Nairobi.

Performance in KCPE

Student performance in KCPE showed mixed results between 1993 and 1999. For the selected years, 1996 had the highest mean score of 340.85 out of a total of 700, relative to the lowest mean score of 330.03 for 1993.

Figure 4.13 shows that Coast Province had improved performance throughout the selected years, increasing from a mean score of 286 in 1993 to a mean of 337.57 in 1999. Central Province declined from a mean of 371.25 in 1994 to a mean of 339 in 1999.



Figures 4.14, 4.15 and 4.16 show that in the selected years, Coast Province had an improved performance in English, Mathematics, and Science respectively. The mixed KCPE performance across the provinces is an issue which calls for research to further investigate and arrive at meaningful conclusions.

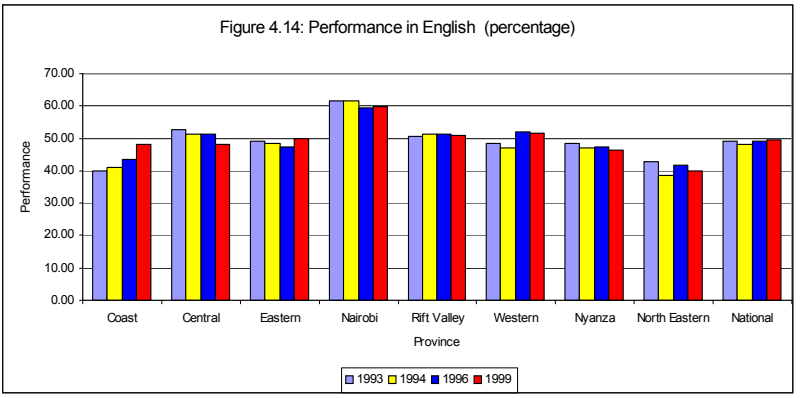


Figure 4.14: Performance in English (percentage)
Performance
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Coast
Central
Eastern
Nairobi
Rift Valley
Western
Nyanza
North Eastern
National
Province
1993
1994
1996
1999

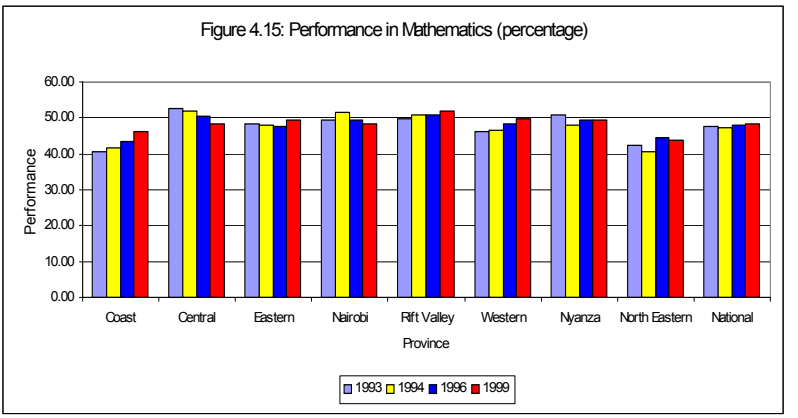


Figure 4.15: Performance in Mathematics (percentage)
Performance
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Coast
Central
Eastern
Nairobi
Rift Valley
Western
Nyanza
North Eastern
National
Province
1993
1994
1996
1999

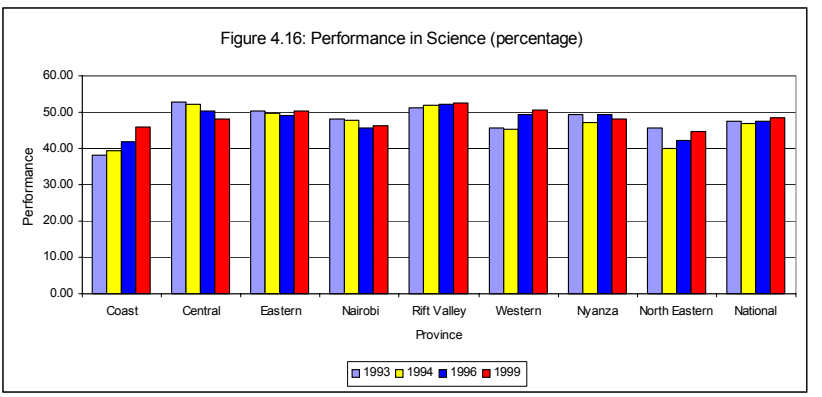


Figure 4.16: Performance in Science (percentage)
Performance
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Coast
Central
Eastern
Nairobi
Rift Valley
Western
Nyanza
North Eastern
National
Province
1993
1994
1996
1999

5. The Learning Environment

5.1 Instructor related indicators

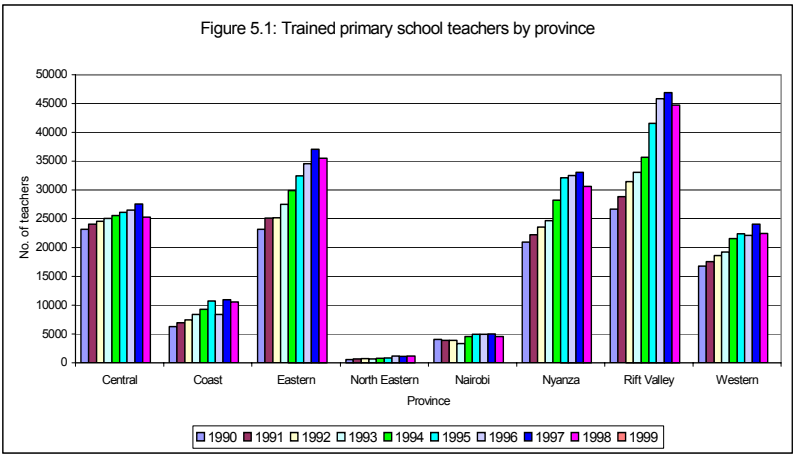
Primary school teachers

Despite the fact that changes in the area of information technology are occuring increasingly quickly, and that computers are becoming important learning tools in schools in many countries, teachers remain the most important resource for student instruction. A teacher is a person whose professional activity involves the transmission of knowledge, attitudes, and skills stipulated in a formal curriculum to students enrolled in an educational programme. The teaching force becomes a particularly important factor in the primary education system since a qualified and motivated teaching force is a prerequisite for the promotion of higher achievement among pupils. The ratio of students to teaching staff is therefore an important indicator of the resources the country devotes to education.

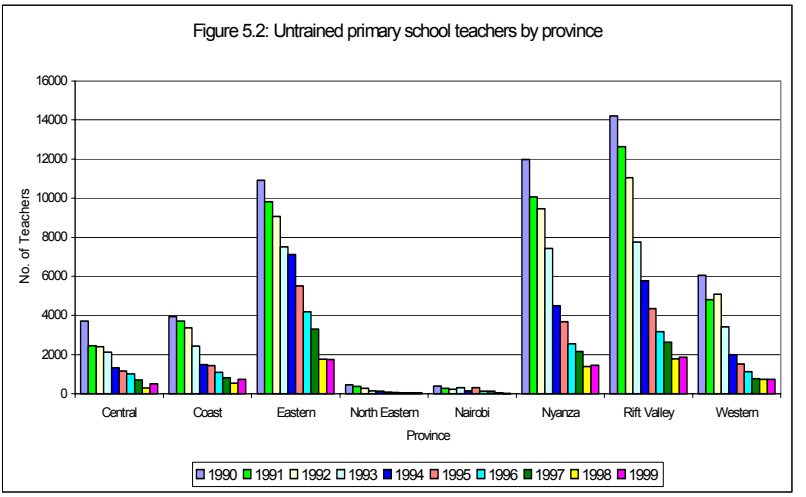
As countries face increasing constraints to education budgets, many are considering trade-offs in their investment decisions. Every sum invested in one particular purpose is money that cannot be invested in any other purpose. For example, if the government decides to hire more teachers' in order to reduce class sizes, less money will be available for teaching materials, teachers' training, or school building within the same education budget. Smaller students/teaching staff ratios may have to be weighed against higher salaries for teachers and large class sizes. In Kenya, teacher remuneration on average accounts for over 95 percent of the public allocation of funds to primary education, which limits the government's ability to contribute to non-salary requirements such as provision of instructional materials.

One of the governments' primary strategies for raising the quality of education is the improvement of teachers' qualifications. Effective education requires qualified and motivated personnel, adequate equipment and facilities, as well as motivated pupils who are ready to learn.

The total number of primary school teachers has been increasing over the years. Between 1990 and 1998, they increased by 11.08 percent to stand at 192,306. But there was a decline of 5.41 percent in 1999 as the total number of teachers declined to181,905.The decline may be partly attributed to the freezing of employment of more teachers in 1998, retirement of teachers and natural attrition. Trained primary school teachers who are professionally qualified account for over 70 percent of the total primary school teachers. Their proportion to the total number of primary school teachers increased from 70.16 percent in 1990 to 96.11 percent in 1999. Over the same period, the number of untrained primary school teachers, professionally unqualified, has been declining (see Figure 5.1 and 5.3). This is in line with the government commitment to train teachers to offer quality education.



Although most of the primary school teachers are trained, it should be noted that holding qualifications does not necessarily result in more effective teaching. Teachers' attitudes, classroom practices, and teachers remuneration have a strong bearing on pupils' performance.



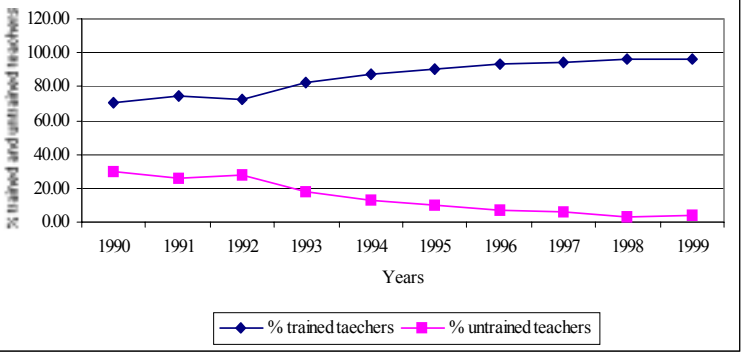
Although the proportion of trained male teachers has continued to decline over the 1990s, their total number is higher than their female counterparts. In 1990, 62.49 percent of the trained school teachers were males. This declined to 57.84 percent in 1999. The decline may be attributed to the increased trained female teachers as a result of increased female enrolment in primary teachers training colleges which stood at 44.8 percent of the total enrolment in 1990. The proportion increased to 49.2 percent in 1997.

There are variations in the distribution of primary school teachers by gender across regions. In Nairobi Province, trained female teachers are the majority, standing at 82.41 percent of the total trained teachers in 1990. This increased to 83.07 percent in 1999.

There are also variations of distribution of teachers by gender across districts, with most of the municipalities having more trained female teachers than males. These municipalities include Thika, Mombasa, Kisumu, Nakuru, and Eldoret.

Males constitute the highest number of untrained teachers. Between 1990 and 1999, untrained male teachers constituted at least 61 percent of the total number of untrained teachers.

Figure 5.3: Percentage of primary school teachers by qualifications



Primary school pupil-teacher ratios

In the education literature, pupil/teacher ratios are generally regarded as measures of school quality. The pupil/teacher ratio is an indicator for planning, and a low pupil/teacher ratio may give a pupil a better chance of contact with the teacher, hence better (quality) teaching or learning process. However, a lower pupil/teacher ratio increases the unit cost of education, since teachers' salaries constitute a large proportion of the total cost of schooling (Deolalikar, 1999).

$$\text{Pupil teacher ratio} = \frac{\text{Total number of pupils in a given level}}{\text{Total number of teachers in the same level}}$$

The pupil teacher ratio gives an indication of the utilisation of teachers ie, whether teachers are overutilised or underutilised.

When financial resources are limited both in absolute terms or spending per student, it is all the more important to invest resources effectively. New instructional technologies have the potential to increase learning without increasing the number of teachers and expenditure per student. Modest increases in pupil/teacher ratio tend to improve education when they permit

resources to be allocated to other critical inputs like textbooks. One of the strategies of the government is to raise the pupil/teacher ratio in primary school to 40, thus, generating savings which can be re-invested in other high priority education areas. Another strategy is to streamline the deployment of teachers across regions so that over-staffing and understaffing in some regions is eliminated.

Deolalikar (1999) examined expansion in school facilities in Kenya in 1994 and found that improvements in the pupil teacher ratio, which proxies increased quality of schooling, had the reverse effect of increasing enrolment rates of children in the top quintile and actually reducing the enrolment of children in the poor quintiles. The author concluded that, in settings where primary enrolment is not yet universal, programmes and policies that seek to expand the number of school facilities should have a higher priority than interventions that increase the pupil/teacher ratio.

Between 1990 and 1999, the national primary school pupil teacher ratio ranged between 29 to 33, 1992 having the lowest and 1999 the highest ratio. Across the provinces, North Eastern Province had the highest average pupil teacher ratio of 35.61 for the ten-year period. This is a hardship province with low number of teachers, and hence high pupil teacher ratio. On the other hand, Eastern Province had the lowest pupil teacher ratio averaging 29.04 over the same period (figure 5.4).

Figure 5.4: Primary school pupil/teacher ratio

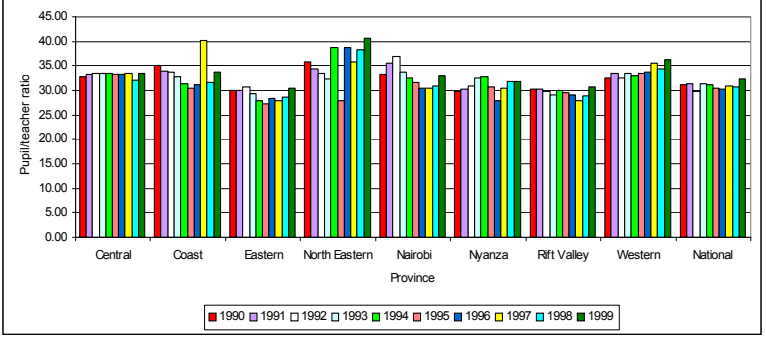


Figure 5.5 shows primary school pupil/trained teacher ratio by province. The national pupil/trained teacher ratio ranged between 31 and 45 during the 1990 – 1999 period. The pupil/trained teacher ratio declined from 44.40 in 1990 to 31.87 in 1998, and then increased to 33.56 in 1999. The decrease in the ratio may be partly explained by the increase in trained teachers over the same period.

The declines in pupil/teacher ratio carries cost implications. A study by Deolalikar (1999) in Kenya revealed that Kenya's pupil/teacher ratio was significantly below the levels that would be expected for a country at its level of per capita GDP. The results showed that, if Kenya were a typical country in the region, it would have a pupil/teacher ratio of slightly more than 40 at primary level and slightly more than 25 at the secondary level. The study also showed that the Kenya's current pupil/teacher ratio was comparable to countries that are two, three or even four times as rich (in terms of per capita GDP) as Kenya. The study projected that a primary pupil/teacher ratio of 35 would result in savings of 140 million Kenya pounds per year, which would be adequate enough to put 928,372 additional students in primary school for a year while a ratio of 40 would produce savings of 227 million Kenya pounds, enough to put 1.5 million additional pupils in school.

There were large increases in pupil/untrained teacher ratios in the 1990s which was attributed to the decrease in primary school untrained teachers from 51,659 in 1990 to 7,069 in 1999, through training and in line with the government policy of providing quality education by training teachers.

Kenya's primary school pupil/teacher ratio was lower in 1995 than most of the selected African countries. Burundi, with a pupil/teacher ratio of 60, had the highest compared to Botswana which had the lowest with a ratio of 25 pupils per teacher (Table 5.1)

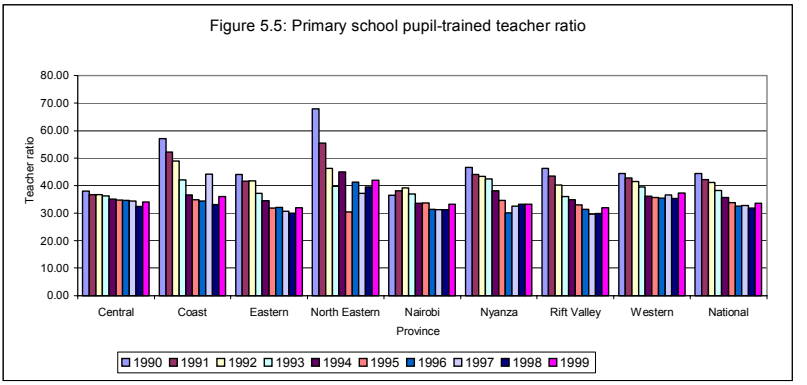


Table 5.1: Primary schools statistics in some selected countries (1995)

Country	Number of Schools	Teachers			Enrolment			Pupil Teacher ratio
		Total	Female	% Female	Total	Female	% Female	
Botswana	681	12306	9547	78	313693	157133	50	25
Burundi	1501	10316	5146	50	518144	234628	45	60
Djibouti	81	1005	329	33	36223	15371	42	36
Ethiopia	9276	83113	22707	27	2722192	1007757	37	33
Kenya	1645*	181975*	72672*	40*	5544998*	2742693*	49*	30*
Lesotho	1240	7923	6270	79	378011	198604	53	48
Malawi	3706	49138	19165	39	2887107	1358543	47	59
Tanzania	10927	105280	45482	43	3877643	1915764	49	37
Zimbabwe	4633	63475	27852	44	2482508	1222686	49	39
Zambia	3883	38528	16695	43	1506349	720604	48	39
South Africa	20863	224896	165398	74	8159430	4026702	49	36

Source: UNESCO, 1999

* Ministry of Education, Science and Technology, Statistics Section, 2000

5.2 Non-instructor related indicators

The problem of educational efficiency has two internal dimensions: the flow of students through the system with a minimum of waste, and the quality of learning achieved in the system. Wastage in the flow of students is manifested quantitatively in the form of drop-out cases and repetition, while the quality of learning is determined by the inputs and outputs of the education system.

The second aspect of efficiency, the quality of learning, involves input, outputs, and outcomes of education. Input, one of the indicators of educational quality, includes factors such as the size of class, qualification of teachers, materials facilities (both software and hardware), and years of schooling. Output refers to the learning achieved: knowledge, skills, behaviour, and attitudes – whether measured by tests, by diplomas, or in some other way. On the other hand, outcome – the external effect of education output – is the ability of people to be socially and economically productive.

Education input determines output and outcomes through both out of school variables – education of parents, socio-economic status, child-bearing patterns, nutrition, health care, and pre-school education; and school variables such as teachers, textbooks, and effective learning. Improving the efficiency in learning therefore implies improving the quality of school input in terms of curriculum, style of teaching, qualifications of teachers, availability of instructional materials, and use of mass media; as well as upgrading background factors, such as health, nutrition, and pre-school education.

Curriculum

Curriculum development has usually been considered a principal element of educational reform and a primary method of resolving educational problems. According to the Education Sector Policy Paper (1980), curriculum development involves an assessment of

educational objectives concerning output and outcome, sophisticated analysis and organisation of content, and design and preparation of corresponding textbooks, instructional materials, training courses, and educational facilities. Since the introduction of the 8-4-4 system of education, the primary curriculum has been broadened through increased number of subjects and also the content of each subject. This increase has made the workload for teachers much heavier, and resulting in poor quality teaching. It has also not been cost effective since some parts of the curriculum have not been implemented due to lack of funds. Because of the above, the effects of the curriculum on educational output has been below par. A study by Abagi (1977) found that the overloaded curriculum was one of the reasons for poor students' participation in school. The overburdened curriculum demands a lot from both the teachers and pupils, yet the time limit for syllabus completion is the same as in the previous education system. Additionally, the broad curriculum in the 8-4-4 system puts heavy financial burden on both households and communities, where parents are expected to purchase textbooks and other learning materials.

In primary school, the broad curriculum has taken away time from; a) key disciplines – such as language, mathematics, and natural and social sciences – that are the foundation of durable mental and attitudinal abilities and skills; and b) 'play' and free exploration which are an essential part of learning as a natural process (Deolalikar, 1999).

Curriculum development has long been confused with revision of syllabi and updating the outline of topics. According to Deolalikar (1999), detailed centrally planned curricula are handed down to schools and teachers. This has the effect of limiting teachers and learners activity towards making education a natural process which progressively builds abilities and skills on students' current knowledge and experience. Also, changes in curricula in developing countries are simply applications of experiences in curriculum development in Europe and North America.

The Government Master Plan for Education and training (MPET), 1997-2000, recommends three interrelated interventions; a) consolidation of the curriculum into fewer and more manageable subjects (in terms of time and material resources) which allow for development of key abilities and skills; b) creation of a system in which broad national guidelines are used as the base for detailed curriculum development at the local, school and teacher level; and c) research and development aimed at making public examinations more supportive of teaching – learning as a process principally geared to the development of relevant abilities and skills.

In order to reduce workload for both students and teachers and cost of providing education, the Government, in 2000, effected some curriculum changes effective from 2001. In primary education, the examinable papers were reduced to five consisting of six subjects. Previously, the primary school leaving examination – Kenya Certificate of Primary Education (KCPE) – had seven subjects comprising of English; Kiswahili; Mathematics; Science and Agriculture; Geography, History, Civics (GHC) and Religious Education; Art, Craft and Music; and Home Science and Business Education.

School equipment

School equipment include textbooks, pupils' stationery, teacher guides and reference material, teaching aids, chalk, science teaching/ learning kits, and other classroom equipment. Inadequences in school equipment constitute one of the most important factors adversely affecting the quality of primary education.

Textbooks, as inputs in education, play a crucial role in the determination of educational outputs and outcomes. According to the World Bank (1980), availability of textbooks has been found to be the most consistently positive determinant of academic achievement. However, next to the cost of paying trained teachers, textbooks remain the most costly item required for a given standard of education.

Government can put more efforts and resources into design, production, and distribution of learning materials, including equipment and printed matter. Results from Philippines indicate that after the first year, learning in the first grade increased 12% on tests in Mathematics, Science, and language subjects after sufficient investment was made to alter the ratio of pupils to book from 10:1 to 2:1 (World Bank, 1980).

In Kenya, the availability of textbooks in primary schools is grossly inadequate since a book is shared between many pupils in most schools. According to the Government of Kenya (1994), the pupil/ book ratio in primary school in 1990 was 17: 1. Previously, textbooks were procured and supplied by the government through the Kenya School Equipment Scheme. However, the scheme was discontinued when the cost-sharing programme was introduced and parents were expected to buy books. But many parents cannot afford all the books. Also, the recommended primary schools textbooks are not widely available to pupils, particularly in rural areas, because of the long distance from primary schools to the nearest shopping centres where bookshops are found. Although the government has intervened to have school textbooks available through parastatal publishing by the Kenya Literature Bureau and the Jomo Kenyatta Foundation, the cost of books is still very high especially for poor households. And sometimes failure to disseminate information to primary schools regarding the books recommended for use also contributes to wrong titles being bought.

Figure 5.6: Purchase of school equipment (constant prices)

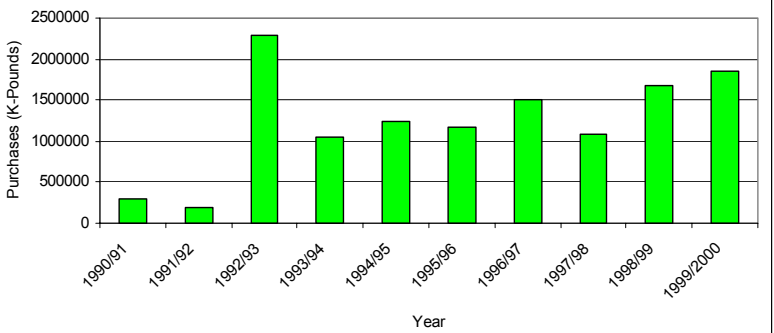
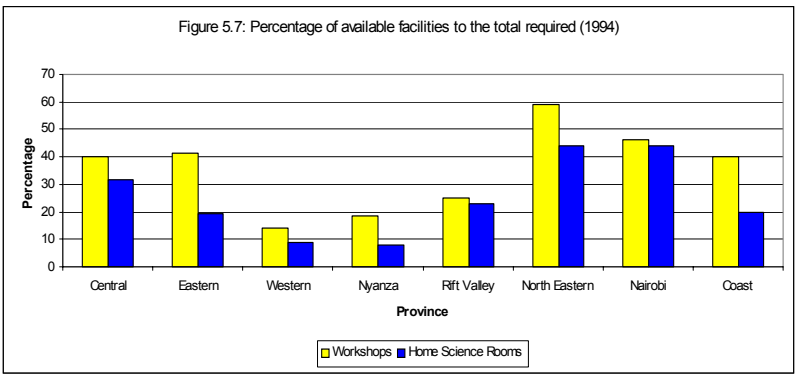


Figure 5.6 above shows expenditure on school equipment in primary school at constant prices. Although the school equipment allocations at current prices have been increasing over the ten years– except the 1997/98 financial year – they are still inadequate given the total primary school enrolment which stood at 5.87 million by 1999 (Annex Table 48).

Educational facilities

According to the recommendations of the presidential working party on education and manpower training for the next decade and beyond (1998), primary schools should be provided with adequate science facilities, equipment, and materials for effective teaching of subjects. Inadequacy of educational facilities partly contributes to low enrolment rates, poor quality instruction, and poor achievement levels.

There are gross inadequacies of educational facilities in primary schools in the country. For example, only 46.3 percent of the required workshops were available in Nairobi Province in 1994. Figure 5.7 shows that Home Science rooms are the most inadequate educational facilities, with some provinces such as Western and Nyanza having less than 10 percent of the total required.



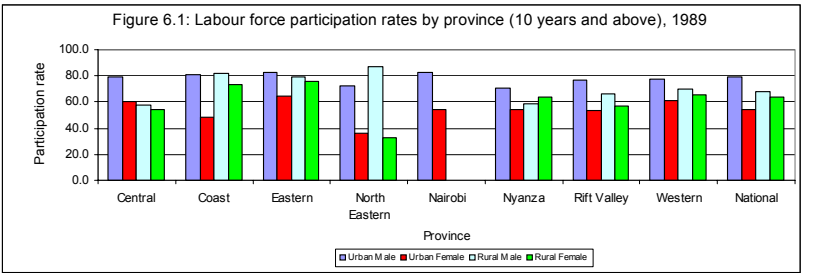
6. Labour Market Outcomes

6.1 Labour force participation

One reason why people pursue higher levels of education is its anticipated benefits in the labour market, not only in terms of the types of jobs for which they will be qualified, but also in terms of the ability to find employment, remain employed, and receive at least a living wage. The greater the labour market's rewards, the greater the incentive to continue with one's education. Therefore, a labour market that rewards higher levels of education attainment can help a country in its pursuit of expansion of educational participation and completion, as people will have the incentive to pursue education.

Labour force is a very important segment of a nation's population because of its functional role in the production of economic goods and services. In this study, labour force is taken to be the economically active population which comprises all persons aged 10 years and above, supplying labour for the production of economic goods and services (Kenya Population Census, 1989). However, the official labour force age in Kenya is defined as between 15 and 65 years, which also conforms to most international definitions. Labour force participation is influenced by the existing structure of labour market returns. Labour force participation rate for a particular age group is equal to the percentage of individuals in the same age group who are either employed or without work, but actively seeking employment and currently available to start work.

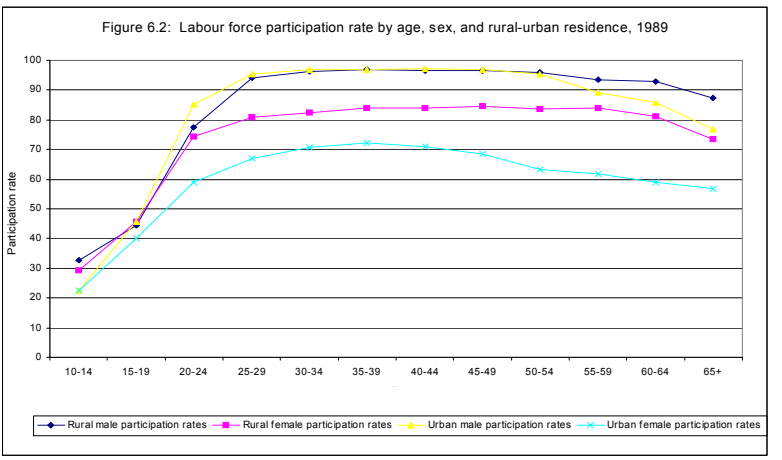
The overall labour force participation rate stood at 66.2 percent in 1989, with the urban areas having a higher rate of 68.4 percent relative to 65.7 percent for rural areas. Males had a higher participation rate of 70.5 percent compared to the female rate of 62.0 percent. Eastern Province had the highest labour force participation rate of 77.4 percent, followed by Coast Province with 73.6 percent, while Central Province had the lowest rate of 57.5 percent.



According to the 1989 population census, labour force participation rates ranged between 30.1 percent and 89.7 percent for different age groups. The 45 – 49 age group had the highest participation rate followed by the 35 – 39 and 40 – 44 age groups, while the 10 – 14 age group had the lowest rate (30.1%). The 10 – 14 age group is school going-age, which explains its low participation rate.

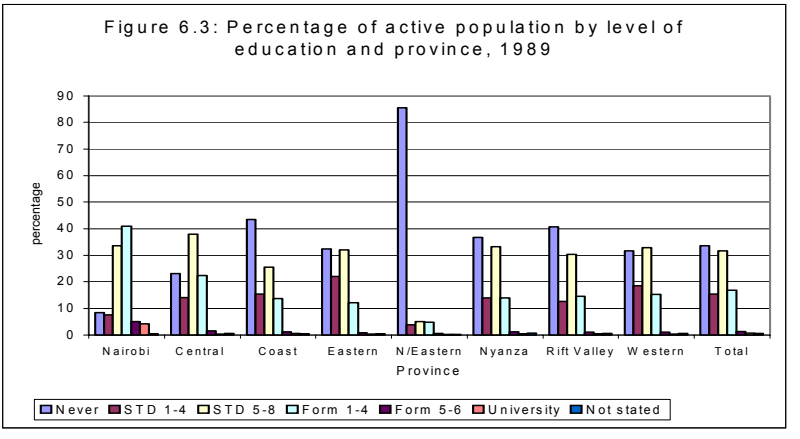
On gender variations, males had higher a participation rate than females. Male participation rate ranged between 31.6 percent in the 10 – 14 age group, to 96.8 percent both in the 40 – 44 and 45 – 49 age groups. The highest female participation rate was 83.1 percent in the 45 – 49 age group.

Labour force in the age group 45 – 49 had the highest participation rate of 90.1 percent and 87.8 percent for rural and urban labour force respectively. Also, for both rural and urban labour force, 10–14 age group had the lowest participation rates.



According to the 1989 national population census, 33.6 percent of the economically active population have never gone to school, and only 0.7 percent of the active population have university education, relative to 47.1 and 18.1 percent with primary and secondary education.

Nairobi Province had the highest percentage of economically active population of 46 and 4.1 percent for secondary and university education, followed by Central Province with 23.9 and 0.6 percent. In North Eastern Province, 85.4 percent of the total economically active population had never attended school.

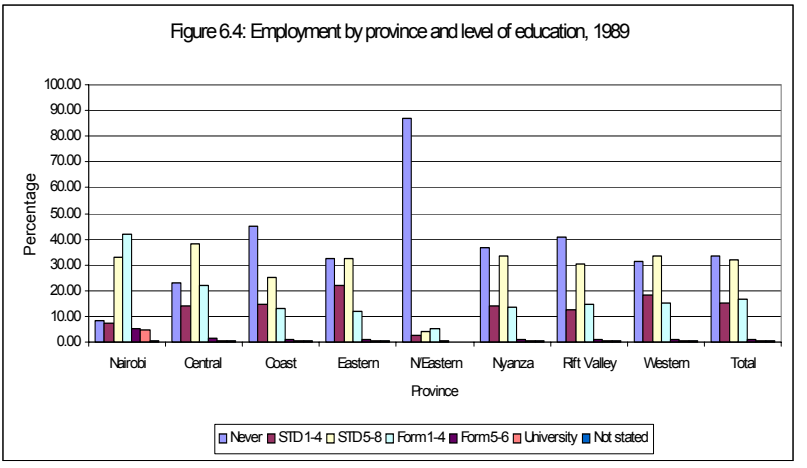


6.2 Employment

The employed individuals are those who during a survey reference period, work for pay (employees) or profit (self- employed and unpaid family workers) for at least one hour or, have a job but are temporally not at work (through injury, illness, holiday or vacation, strike or lock-out, educational or training leave, maternity or parental leave, etc.) and have a formal attachment to their job (OECD, 2000a).

Over 33 percent of the people employed in Kenya in 1989 had no schooling, while a mere 0.7 percent of the employed had university education. Of the total employed, 47.2 percent had primary education and 17.9 percent had secondary education.

Figure 6.4 shows that the level of education for those employed differed across regions, with North Eastern Province having 86.8 percent of the total employed with no schooling relative to 8.2 percent in Nairobi Province. Nairobi and Central Province had the highest percentage of employed people with secondary and university education.



6.3 Unemployment

The unemployed are defined as individuals who are without work and are actively seeking employment and currently available to start work.

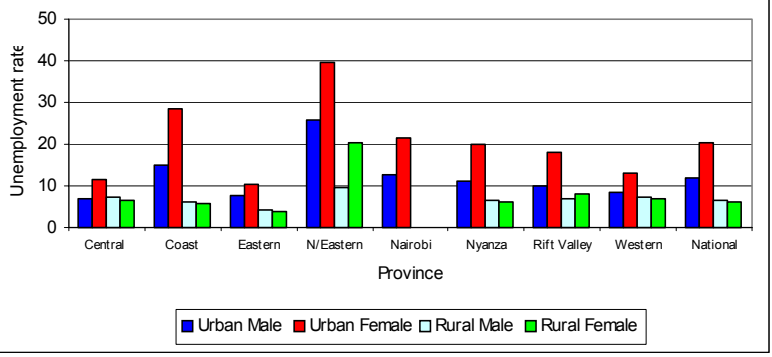
$$\text{Unemployment rate} = \frac{\text{The number of unemployed}}{\text{Number of labour force participants}} \times 100$$

Although there are numerous cases of declines in unemployment associated with increase in educational attainment across countries, the relationship is not always consistent or significant. In Brazil and Uruguay for instance, the unemployment rate for women in both countries decreases steadily from the lower secondary level to university level, but unemployment for both men and women appears to rise with increasing levels of education attainment in Indonesia and the Philippines (OECD, 2000a).

The national unemployment rate in Kenya for the population aged 10 years and above was 7.9 percent in 1989, with females having a higher rate of 8.2 percent relative to 7.6 percent for males. North Eastern Province had the highest unemployment rate of 16.5 percent, followed by Nairobi Province with 15.6 percent, while Eastern Province had the lowest rate of 4.4 percent.

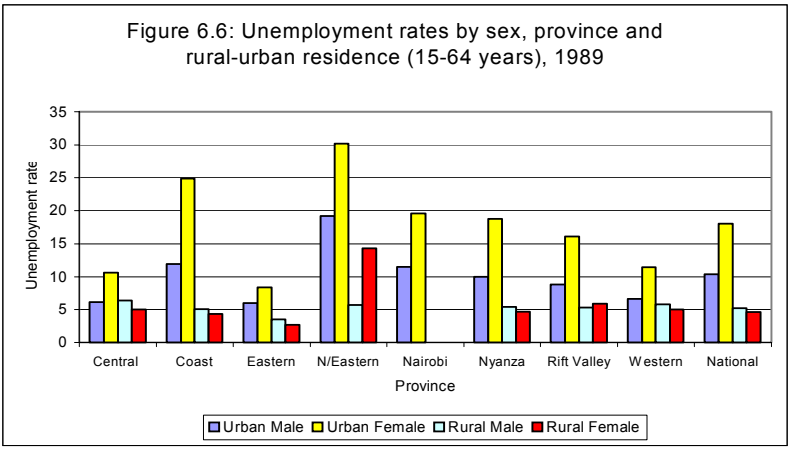
The overall urban unemployment rate was 14.8 percent, with North Eastern Province leading with 30.1 percent. Rural areas had a lower unemployment rate of 6.3 percent.

Figure 6.5: Unemployment rates by sex, province and rural-urban residence (over 10 years), 1989

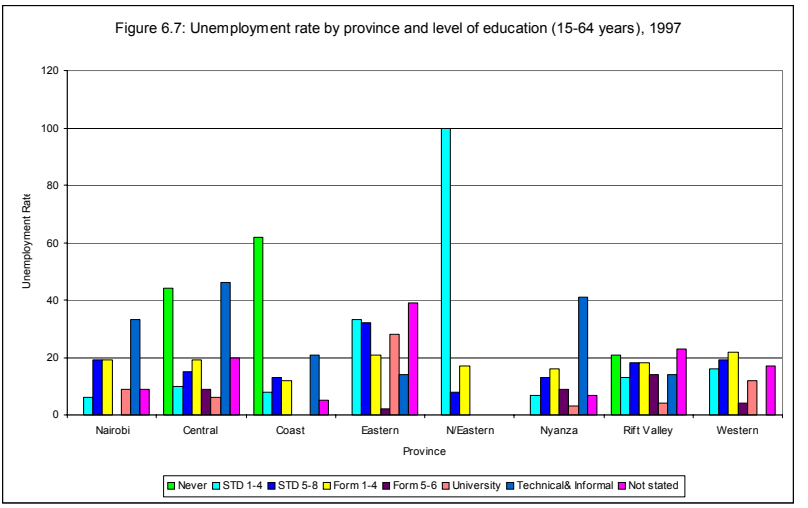


For the population aged between 15 and 64 years, the national unemployment rate was 6.5 percent, with females and males having an unemployment rate of 6.6 and 6.5 percent respectively. There were variations across the provinces, with Eastern Province having the lowest rate of 3.3 percent and Nairobi the highest rate of 14 percent.

Unemployment was more pronounced in urban than in rural areas. Urban areas had a higher unemployment rate of 13.0 percent, relative to 4.9 percent for rural areas. North Eastern Province had the highest unemployment rate for both rural and urban areas (Figure 6.6).



Results from the 1997 WMS III show that the unemployment rate, for the population age 15-64 years, was 18 percent in 1997 which is more than double the 1989 rate of 6.5 percent. According to the results, population with technical and informal education has the highest unemployment rate of 29 percent, whilst population with Forms 5–6 level of education has the least unemployment rate of 7 percent, followed by those with university education. Eastern province has the highest unemployment rate of 28 percent, while Nyanza Province has the lowest rate of 13 percent (Figure 6.7).



6.4 Transition from education to work

One of the largest problems confronting the country is that of unemployment. This problem is aggravated by the annual output of school leavers whose numbers continue to swell following the expansion of the education system since independence.

One view of the relationship between education and employment is that education has not been related to the realities of the country. The curriculum has not incorporated the teaching and learning of creative capability and has, therefore, tended to alienate youth against the realities of their surroundings. This in turn creates frustrations by widening the gap between aspirations and achievements in wage employment in which they have put all their expectations. Involving themselves in work in rural areas becomes unacceptable, even when they fail to get wage employment (Government of Kenya, 1994).

To promote economic growth, it is essential for a country to have a trained labour force equipped to handle technical and managerial problems. A key concept in the development of expertise is that of skills: determining the number and types of skills required by an economy on the basis of the technologies and techniques actually used in the production process; selecting cost-effective ways of acquiring these skills among the alternatives that are offered by the total educational and training system; and ensuring that, once acquired, these skills are properly deployed and used.

In many developing countries, policy makers, employing organizations, as well as individuals tend to consider formal education a passport to jobs in the modern sector. Educational ambitions of young people reflect conditions of the labour market rather than unrealistic career aspirations. To increase their chances for wage employment, therefore, students tend to remain in school as long as possible, sometimes for more years than required by the available jobs (qualification syndrome).

To make educational qualifications more realistic, a country needs to reduce the disparities in wages between the modern and traditional sectors and between clerical and technical jobs, and to relate job specifications to the minimum required education, and wages to job specifications rather than to credentials.

More jobs can also be created by a shift from the capital intensive system of production to a more labour intensive one, by improving rural infrastructure, or allocating a large proportion of the country's development budget for job creating activities. In Kenya, not enough resources have been directed towards the creation of jobs while relatively too many resources have been spent on education. Education has been oriented towards wage employment and has not prepared people for self-employment, which is one of the realities for the great majority of people. Therefore the country needs to re-orient national development towards employment generating activities, to be able to absorb the products of education and to give top priority to employment creation in resource allocation.

6.5 Returns to education

No single sector can have a monopoly on investing in education as the investments made by individuals, families, enterprises, and public authorities all go towards the overall stock of human capital. Investment by governments may be most appropriate where public benefits are likely to be high, while individuals and enterprises need to take substantial responsibility for learning that yields high private returns (OECD, 2000a).

According to Pritchett, (1997) there is broad consensus that expenses in the skills, knowledge, and capacities of individuals – increasing human capital – are a key element in economic progress and raising living standards. Links have been established between education and numerous outcomes, including productivity (both market and non-market), wages and earnings, adoption of new

technologies, one's own health, nutrition and fertility; and others including one's children's health, nutrition, fertility, and schooling. According to Appleton (1999), conventional estimates of returns to education at the microeconomic level have been used to support calls for governments, particularly in developing countries, to prioritise educational spending.

The private rate of return to education for a given level of education is given by the discount rate that equalises the stream of benefits to the stream of costs at a given point in time. Calculations of rates of return to education are based on a comparison of the discounted value of the income increase one gets in the future after taking an extra year of education, and the discounted value of the costs one incurs to get this education. For example, the rate of return for a university graduate is the discount rate which equates the difference between the stream of earnings for a university graduate and a secondary school graduate to the stream of foregone earnings and direct costs of university education. On the other hand, social rate of return to education includes the direct costs of education to the government, as well as benefits in terms of higher taxes.

The impact of education on incomes works mainly through the labour market even if education, to some extent, also may raise the productivity of various self- employed groups, such as farmers. The returns to education were long measured through wage or earnings regressions, with the focus naturally on labour market outcomes and in poor rural settings, then non-farm informal sector. A survey of income determination in the urban areas in LDCs (Bigsten, 1984) found that education and experience (or age) are the best predictors of income. They typically explain 30–50 percent of the variance in income, while other variables provide little additional explanatory power.

Low levels of schooling produce high returns for the few who are educated. As average levels of education rise, not only is the return for those who are educated reduced, but differences between the

educational levels of some individuals and others also tend to decline. Individual returns on education are higher where the scarcity of this resource is most acute. An individual with an additional year of education in a country where educational levels are very low is likely to receive a much greater income increase than someone in country where high levels of education are common.

Surveys of rate of return to education studies in developed and developing countries show that the social rate of return to primary education is higher than rates of return to secondary and higher education (see Psacharopoulos, 1985 and 1994). Also, studies have shown that private returns to education increase with level of education (Manda, 1997).

Johnson, 2000, found private returns to education in Australia to be considerably higher than social returns because of the public subsidisation of education and overall, the returns to female education are higher than those to male education, although at individual levels of education the pattern is more mixed. His model on returns to education also found that social and private returns at all levels generally decline with the level of a country's per capita income, and returns decline by level of schooling, reflecting diminishing returns to schooling. (Returns to primary schooling are higher than secondary education, and the latter is higher than returns to higher education). The results show that higher education does pay, and that it pays both the individual student and the government. The results also show that higher education pays a greater return to the individual than it does to the government.

Several studies on rates of return to education and experience have been undertaken in Kenya in the last three decades, but very few analyse changes in the rate of returns over time. Bigsten (1984), in a study on education and income determinants in Kenya, found that the returns to university education are considerably lower than the returns to secondary education, at least Forms 3–6, in the urban areas. University education had rate of return of 14.3

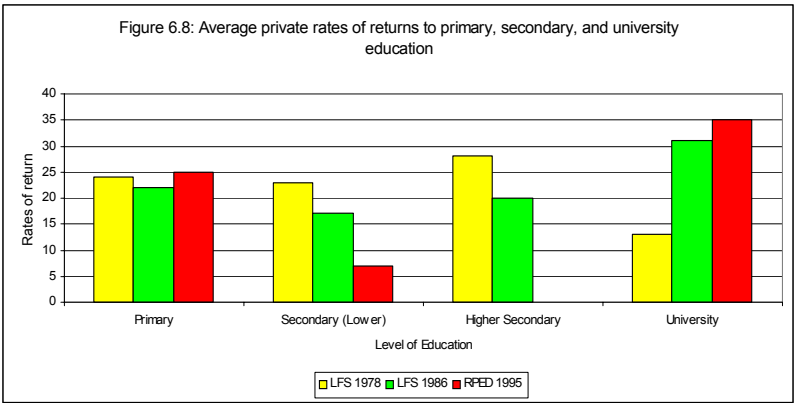
percent in urban areas, relative to 39.8 and 22.0 percent for Form 3 – 4 and 5 – 6 respectively. However rates of return to education in rural areas were higher for university education (41%) than for the Forms 3 – 4 (15.4%) and Forms 5 – 6 (22.0%) education.

An estimation of rates of returns to three levels of education in Kenya ie, primary, secondary, teacher training college and university in 1980 found the rates of return to be 0.28, 0.33, and 0.31 respectively (Bigsten, 1984).

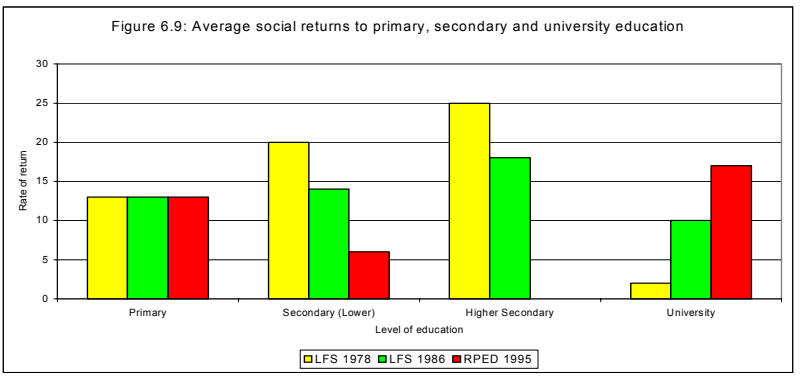
Manda, 1997, used three cross-section data sets – the 1977/78 labour force survey, the 1986 urban labour force survey, and the Regional Programme on Enterprise Development survey (RPED) of the manufacturing sector in Kenya in 1993/95 to estimate returns to education in the country. Estimation of returns to education from the three surveys shows that the average rate of return to secondary education was higher than the average rate of return to primary education. The study also found that the rates of return to primary and secondary school education have declined over time from 18.2 and 55.7 percent in 1977/78 to 12.6 and 37.3 percent in 1986 and 4.7 and 12.5 percent in 1993-95 respectively. This is probably due to the rapid increase in enrolment in primary and secondary in the 1970s and their effect on labour force in 1980s and 1990s.

The rate of return to university education was 53 percent much higher than the rate of return to primary and secondary education (1993-95 data). Thus, consistent with the other surveys done in Kenya, the study concluded that the rate of return to education in Kenya increases with the level of education.

Appleton, Bigsten, and Manda, 1999, used the 1978 and 1986 Labour Force Survey (LFS) data and the 1993/95 RPED survey to estimate the Mincerian returns to education in Kenya. The results show that education, potential experience, sex, and location explain around half of the variance in the log of real monthly earnings in the labour surveys, and just more than a third in the RPED survey.



The study found high private returns (25%) to primary school education and reasonable social returns (13%) in 1995. The high private returns to primary education were partly due to low direct costs in primary education. Social returns were found to be lower than private returns, and the difference was most marked at university level and least pronounced at the secondary level. Private returns to university education in 1995 was very large – 35 percent relative to 17 percent social returns.



Appleton (1999), also estimated the Mencerian returns to schooling for self- employed and found little differences to those for wage employees. Returns to primary schooling in self- employment were 9 percent compared to 8 percent for wage employees, and returns to lower secondary schooling were 40 percent compared to 42 percent.

Table 6.1: Earnings functions for the self-employed

Level of Education	LFS 1978	LFS 1986
Primary	9.1	12.4
Secondary	40.0	14.9

Source: Appleton, 1999

Bigsten et al., 1998, study on rates on physical and human capital in manufacturing sector in five sub-Saharan African countries found that private rates of return to education rise with the level of education. The results of the study show that Kenya and Zimbabwe, with a rate of return to education of 2 percent, had the lowest rate on primary education whilst Zambia had the highest rate at 5 percent. Kenya had also the lowest rate of return to secondary education of 5 percent. However, the rate of return to university education of 43 percent was higher, relative to 38, 29, and 37 percent for Cameroon, Ghana, and Zimbabwe respectively.

Table 6.2: Rates of return (%) to human capital in Africa's manufacturing sector (1998)

Level of Education	Cameroon	Ghana	Kenya	Zambia	Zimbabwe
Primary Completers	3	3	2	5	2
Secondary Completers	8	15	5	22	27
University Completers	38	29	43	65	37
Weighted Rate of Return	8	5	4	12	12

Source: Bigsten et al., 1998

There are some limitations in the analysis of returns to education. Private returns are somewhat exaggerated since everybody who has a certain level of education cannot be expected to get employment. An analysis of rates of return does not give a reliable estimate of the returns to present education if the rate of unemployment is high, or if people no longer can expect to end up in the kinds of jobs which earlier were normal for certain level of education.

If the unemployment rate is higher than before, or if people with a certain type of education get less paid jobs than before, the traditional estimates overestimate the rate of return. The only costs considered here are earning figures, while in most cases direct costs in the form of school fees are disregarded. The impact of the tax system is also disregarded.

Also, there is likelihood of a bias in estimation of education returns if years of education are highly correlated with innate ability or family background and thus proxy for unobservable endowments. According to studies by Cawley (1996) and Boissiere (1985), the fact that education in the earnings function may include a measure of general intelligence or cognitive skills which will have an effect on earnings have been highlighted. Bossierre, 1985, found that the return to education drops by two thirds once cognitive skills are taken into account (Denny, 2000).

7. Summary and Conclusions

Kenya has achieved an impressive increase in adult literacy since its independence in 1963. At the time of independence, the adult literacy rate in Kenya was a mere 20 percent. By 1975, it had doubled to 40 percent. And by 1989, it had increased to 74 percent – an impressive increase by the record of any developing country. These achievements in literacy reflect Kenya's effort in expanding access to education since independence, largely by establishing a comprehensive network of schools throughout the country.

However, the gains made in the first two decades after independence appear to have been eroded since 1989. After peaking at 105.4 percent in 1989, the gross primary enrolment rate fell to as low as 86.9 percent in 1999. The secondary enrolment rate also declined from 29.4 percent in 1990 to 21.5 percent in 1999. There are also large regional disparities in primary school enrolment. Even though the national gross primary enrolment

rate was 86.9 percent in 1999, Garissa, Mandera, and Wajir districts had gross enrolment rates of 22.16, 27.98 and 26.82 percent respectively. While the three districts had very low enrolment rates, some districts enjoyed universal primary enrolment in 1999. These include Machakos, Embu, and Nyandarua whose gross primary enrolment rates were more than 100 percent. It should be noted, however, in comparison with other African countries, Kenya's effort to narrow the gap between male and female enrolment rates and increase literacy rates is particularly impressive.

As in other developing countries, grade repetition is common in Kenya. Boys with a repetition rate of 15.6 percent in 1993 had a higher rate than girls did at the national level. There are variations across regions with Rift Valley Province having the highest repetition rate of 17.3 percent. According to Deolalikar, 1999, that large discrepancy between gross and net primary school enrolment rates is largely due to the high level of grade repetition, combined with delayed entry into school.

The declining transition rate from 44.60 in 1990 to 39.90 percent in 1998 is disturbing evidence, as it may be an indication that wastage and inefficiency in the education system have increased over time. In the 1990s, boys had a significantly higher transition rate than girls, perhaps due to factors such as teenage pregnancy, early marriage for girls, and household preference for males in allocating resources to education.

The share of recurrent education expenditure to total public recurrent budget lies between 30 and 40 percent, while the development share lies below 10 percent of the total development budget. At this level, the Ministry of Education commands the largest share of the public budget in Kenya. The current allocation of resources within the education sector is inappropriate and ineffective. More than three-quarters of the education budget goes to teachers' salaries. Within the primary and secondary budgets, teachers' salaries account for 95 – 97 percent of recurrent expenditure. As a result, there are hardly any public resources left for other necessary school inputs such as learning materials and textbooks.

Between 1991 and 2000, the share of education to the total public budget ranged between 26 and 33 percent. In contrast, government expenditure on health as a proportion to total public expenditure lay between 7 and 10 per year over the same period. Education has therefore been one of the most favoured sectors in Kenya over the last decade, and indeed throughout the post-independence era.

The primary pupil/teacher ratio declined from 31.15 in 1990 to 30.78 in 1998 and then increased to 32.26 in 1999. The decline has been a supply-driven phenomenon with teaching being seen as a source of employment for an increasing number of Kenyans. There are wide variations in the pupil/teacher ratios across regions. In 1999, Isiolo District had a primary school pupil/teacher ratio of 22.64 relative to 46.99 for Mandera, a similar semi-arid district. The low pupil/teacher ratio in the country, which is significantly below the levels that would be expected for a country at its level of per capita GDP, makes a case for a gradual increase in the average pupil/teacher ratio in Kenyan schools even stronger. A rise in the pupil/teacher ratio could result in savings which could be used to increase the primary school enrolment. One way of increasing the pupil/teacher ratio is to slow down the growth of the teachers and to retire those who are over 55 years.

The overall labour force participation rate stood at 66.2 percent in 1989 with the urban areas, having a higher rate of 68.4 percent relative to 65.7 percent for rural areas. There are variations by gender, age groups and by regions. Employees with no schooling constituted the highest percentage (33.7 %) of the employed people in the country in 1989, whilst those employed with university education were 0.7 percent of the total.

Unemployment in Kenya varies across regions, sex, and level of education and age groups. Unemployment rate stood at 6.5 percent in 1989, with 6.6 and 6.5 percent of the female and males in the total labour force unemployed. Estimates from the 1997 Welfare Monitoring Surveys shows that 18 percent of the total labour force are unemployed.

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Annexes

Annex Table 1: Primary school gross enrolment (numbers) by province

Province	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Central	878534	883256	901989	905698	898262	951010	903944	911009	894583	64889
Coast	358898	360204	365057	352900	339864	352579	368004	369851	362593	79729
Eastern	1018506	1043760	1050217	1023780	1030429	1020805	1042091	1060872	1110164	34707
N/Eastern	34811	34221	33793	26343	35272	25105	35892	43245	44693	48134
Nairobi	146565	149565	152384	122626	153668	157080	154946	153640	155834	50852
Nyanza	977996	979098	1020864	1045759	1075373	991687	966508	1060126	1100144	17864
Rift Valley	1232845	1254890	1267692	1192267	1245464	1263127	1303057	1354439	1400759	32842
Western	744164	751002	771992	759023	778676	783604	793048	811673	850951	38582
National	5392319	5455996	5563988	5428396	5557008	5544998	5567490	5764855	5919721	67608

Source: Ministry of Education, Science and Technology, Statistics Section, 2000

Annex Table 2: Primary school gross enrolment (numbers & %) by sex

Year	Primary school going			Primary school enrolment			Gross enrolment rates		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
1990	2938000	2911000	5849000	2766376	2625943	5392319	94.16	90.21	92.19
1991	2997000	2973000	5970000	2796972	2659024	5455996	93.30	89.40	91.40
1992	3052000	3026000	6078000	2840502	2723485	5563987	93.07	90.00	91.54
1993	3108000	3073000	6181000	2760929	2668457	5429386	88.83	86.84	87.84
1994	3158000	3122000	6280000	2814825	2742183	5557008	89.13	87.83	88.49
1995	3208000	3170000	6378000	2802305	2734091	5536396	87.35	86.25	86.80
1996	3256000	3220000	6476000	2843355	2754301	5597656	87.33	85.54	86.44
1997	3311000	3269000	6580000	2933982	2830873	5764855	88.61	86.60	87.61
1998	3351000	3315000	6666000	2994554	2925167	5919721	89.36	88.24	88.80
1999	3397000	3354000	6751000	2993054	2874554	5867608	88.11	85.71	86.91

Source: Ministry of Education, Science and Technology, Statistics Section, 2000

Annex Table 3: Primary schools (numbers) by province

Province	1990	1991	1993	1994	1995	1996	1997	1998	1999
Central	1530	1566	1625	1671	1684	1744	1786	1801	1799
Coast	981	1007	1029	1040	1000	1014	1083	1079	1121
Eastern	3313	3408	3595	3638	3689	3797	3976	4078	4091
N/Eastern	134	136	139	141	143	153	163	171	175
Nairobi	216	211	232	182	198	242	242	248	248
Nyanza	3326	3385	3448	3485	3451	3479	3528	3588	3806
Rift Valley	3628	3728	3976	3948	4096	4247	43921	4482	4494
Western	1736	1755	1760	1801	1854	1876	1908	1909	1877
National	14864	15196	15804	15906	16115	16552	17080	17356	17611

Source: Ministry of Education, Science and Technology, Statistics Section, 2000

Annex Table 4: Primary school classes (numbers) by province

Province	1990	1991	1994	1995	1996	1997	1998	1999
Central	24070	24314	24787	25557	25534	25739	25374	22176
Coast	10827	11147	11278	10983	11171	11638	11785	13824
Eastern	32440	33534	36372	35986	36823	37596	37528	37948
N/Eastern	1094	1183	1183	1200	1249	1382	1261	1333
Nairobi	3536	3628	3744	4045	4045	4045	4005	3817
Nyanza	32148	32768	34638	35195	36423	34730	35741	36466
Rift Valley	38212	39497	40026	41175	42568	43419	43972	47708
Western	22540	21490	22664	22939	23000	23482	24881	24841
National	164867	167561	174692	177080	180813	182031	184547	188113

Source: Ministry of Education, Science and Technology, Statistics Section, 2000

Annex Table 5: Primary school completion (numbers & %) by sex, 1989 – 1999

Year in Std 1	Year in Std 8	Enrolment in Std 1 ('000)			Enrolment in Std 8 ('000)			% Completing Std 8		
		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
1982	1989	467.8	440.9	908.8	224.1	190.5	414.6	47.9	43.2	45.6
1983	1990	460.6	429.4	890.0	210.4	174.1	384.5	45.7	40.5	43.2
1984	1991	447.2	417.4	864.6	207.3	173.7	381.0	46.4	41.6	44.1
1985	1992	436.5	412.1	848.6	195.0	198.8	393.8	44.7	48.2	46.4
1986	1993	473.0	439.0	912.0	210.4	185.3	395.7	44.5	42.2	43.4
1987	1994	476.0	442.3	918.3	212.5	190.3	402.8	44.6	43.0	43.9
1988	1995	491.6	461.2	952.8	211.6	194.0	405.6	43.0	42.1	42.6
1989	1996	482.2	457.3	939.5	217.3	199.0	416.3	45.1	43.5	44.3
1990	1997	484.6	457.2	941.8	224.6	209.3	433.8	46.3	45.8	46.1
1991	1998	476.2	447.8	924.0	221.0	215.3	436.3	46.4	48.1	47.2
1992	1999	479.6	453.2	932.8	228.6	216.6	445.2	47.7	47.8	47.7

Source: Ministry of Education, Science and Technology, Statistics Section, 2000

Annex Table 6: Primary school dropout (numbers & %) by gender & province, 1993

	Enrolment			Drop-outs			% Drop-out rate		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Central	287070	287240	574310	6458	6296	12754	2.25	2.19	2.22
Coast	116302	94777	211079	4883	3706	8589	4.20	3.91	4.07
Eastern	294625	299547	594172	17133	16261	33394	5.82	5.43	5.62
N/Eastern	10158	3791	13949	885	424	1309	8.71	11.18	9.38
Nairobi	26766	25045	51811	1786	831	2617	6.67	3.32	5.05
Nyanza	286069	267347	553416	18566	17607	36173	6.49	6.59	6.54
R/Valley	337128	315557	652685	19299	18456	37755	5.72	5.85	5.78
Western	201858	204100	405958	16173	16378	32551	8.01	8.02	8.02
Total	1559976	1497404	3057380	85183	79959	165142	5.46	5.34	5.40

Source: Ministry of Education, Science and Technology, Statistics Section, 2000

Annex Table 7: Repetition rates in primary school (numbers & %) by sex and district, 1993

Province	Total enrolment			Total repeaters			Repetitionr Rate (%)		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Central	412154	414834	826988	60764	58198	118962	14.7	14.0	14.4
Coast	134577	112213	246790	14121	11914	26035	10.5	10.6	10.5
Eastern	326457	332169	658626	53874	52267	106141	16.5	15.7	16.1
N/Eastern	12629	5391	18020	904	641	1545	7.2	11.9	8.6
Nairobi	43618	41647	85265	2209	1800	4009	5.1	4.3	4.7
Nyanza	406635	386383	793028	70660	66755	137415	17.4	17.3	17.3
R/Valley	456229	431402	887631	76247	71126	147373	16.7	16.5	16.6
Western	285055	288045	573100	45161	43402	88563	15.8	15.1	15.5
National	2077354	2012084	4089448	323940	306103	630043	15.6	15.2	15.4

Source: Ministry of Education, Science and Technology, Statistics Section, 2000

Annex Table 8: KCPE candidates

Province	1990	1991	1992	1993	1994	1995	1996	1999
Coast	22442	21506	32289	28563	25467	23896	24955	25328
Central	66073	65381	74592	72417	74131	77504	79548	83201
Eastern	71831	73733	80747	75130	76236	75545	79881	86128
Nairobi	13239	13537	14540	14670	15203	15738	17245	18577
Rift Valley	76591	76203	86043	82197	80354	84101	91919	101645
Western	45685	44126	53230	49983	46552	44321	47210	49681
Nyanza	64316	65790	71336	71600	69435	70006	76482	78069
North Eastern	1767	1817	2550	2547	2937	2374	2415	2776
National	361944	362093	415327	397107	390315	393485	419655	445405

Source: KCPE Newsletter, Kenya National Examination Council (Various Issues)

Annex Table 9: Performance in English, mean score (%)

Province	1993	1994	1996	1999
Coast	39.89	41.03	43.38	48.06
Central	52.71	51.35	51.16	48.04
Eastern	49.01	48.33	47.45	49.90
Nairobi	61.42	61.42	59.28	59.88
Rift Valley	50.40	51.39	51.34	50.93
Western	48.55	47.14	52.08	51.77
Nyanza	48.33	46.91	47.32	46.27
North Eastern	42.93	38.42	41.77	39.95
National	49.16	48.25	49.29	49.35

Source: Kenya National Examination Council, 2000

Annex Table 10: Performance in Mathematics, mean score (%)

Province	1993	1994	1996	1999
Coast	40.65	41.78	43.30	46.39
Central	52.47	52.02	50.43	48.48
Eastern	48.25	47.88	47.73	49.39
Nairobi	49.56	51.54	49.32	48.40
Rift Valley	49.62	50.69	50.98	51.97
Western	46.19	46.54	48.36	49.87
Nyanza	50.75	48.15	49.38	49.35
North Eastern	42.50	40.65	44.59	43.69
National	47.50	47.41	48.02	48.44

Source: KCPE Newsletter, Kenya National Examination Council, (various issues)

Annex Table 11: Performance in Science, mean score (%)

Province	1993	1994	1996	1999
Coast	38.00	39.45	41.81	45.87
Central	52.72	52.26	50.20	48.07
Eastern	50.45	49.82	49.08	50.21
Nairobi	48.05	47.85	45.60	46.17
Rift Valley	51.32	51.97	52.08	52.65
Western	45.63	45.39	49.36	50.76
Nyanza	49.52	47.11	49.34	48.13
North Eastern	45.50	39.91	42.21	44.77
National	47.65	46.72	47.47	48.32

Source: KCPE Newsletter, Kenya National Examination Council, (various issues)

Annex Table 12: Trained primary school teachers (numbers) by province

Province	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Central	23125	24054	24582	25036	25564	27407	26147	26492	27569	25320
Coast	6287	6912	7459	8369	9292	10108	10719	8389	10939	10567
Eastern	23129	25080	25146	27514	29913	32032	32409	34549	37052	35454
N/Eastern	512	617	731	663	784	823	870	1162	1131	1145
Nairobi	4020	3923	3890	3319	4570	4652	4940	4922	4993	4537
Nyanza	20951	22248	23541	24651	28238	28642	32084	32520	33097	30586
Rift Valley	26660	28835	31454	33099	35669	38326	41541	45858	46895	44764
Western	16777	17560	18605	19221	21561	21925	22345	22142	24060	22463
National	121461	129229	135408	141872	155591	163915	171055	176034	185736	74836

Source: Ministry of Education, Science and Technology, Statistics Section, 2000

Annex Table 13: Untrained primary school teachers (numbers)

Province	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Central	3706	2442	2403	2111	1338	1153	1023	705	281	489
Coast	3939	3713	3368	2420	1504	1437	1091	816	544	721
Eastern	10918	9809	9071	7508	7120	5517	4193	3296	1764	745
N/Eastern	460	375	279	154	125	78	56	47	37	39
Nairobi	390	280	238	321	144	317	129	129	37	20
Nyanza	11971	10074	9469	7438	4505	3681	2556	2156	1399	462
Rift Valley	14219	12632	11040	7752	5773	4359	3165	2642	775	1874
Western	6053	4816	5086	3426	1997	1518	1125	765	733	719
National	51659	44141	50952	31130	22506	18060	13338	10556	6570	7069

Source: Ministry of Education, Science and Technology, Statistics Section, 2000

Annex Table 14: Education expenditure by levels (k£'000')

Year	Gen.. ad &plan	Primary eduction	Secondary education	Technical education	Teachers training	Special educ.	Polytech educ.	Higher educat.	Miscell	Total exp..ed.
1967/68	349.2	42.2	3730.2	586.1	1125.4	775.5	0	1280.9	256.5	8146
1968/69	399.3	5.4	4454.3	588	1185.9	97.4	0	1444.6	516.7	8691.6
1969/70	819.7	3929.3	4708.3	695	1257.5	102.8	0	1847.3	0	13449.4
1970/71	992.3	10309.8	5489.8	791	1275.5	144	0	3386.9	0	22474.2
1971/72	2540	12654.9	6328.1	997.8	1507	164.8	0	3849	0	28128.8
1972/73	1953.8	21308.1	6367.2	1052.7	1544.6	696.4	1182.8	4657.8	1058.4	39821.8
1973/74	2385.9	26154.2	7042.4	1176.4	1834.3	463.1	747.6	4782	54	44639.9
1974/75	1961.4	33946.1	11073.1	1013.1	1950.7	652.9	965.3	7437.8	675	59675.4
1975/76	2382.1	43608.7	10539.3	1475.7	2351.8	298.7	1010.2	6685.2	640.8	68992.5
1976/77	3347.8	46701.4	11035.5	1623.2	3917.1	355.9	1131.4	8590.8	750.9	77454
1978/79	128.3	129.1	1127.5	205.7	548.9	87.5	2278.8	570.2	22.6	5098.6
1980/81	5054.5	60686.5	14783.1	1666.3	3686.1	147	6474	12754.6	1338.1	106982.3
1982/83	470.4	1428	3257.2	145.5	101	1694.5	18.1	2760.9	84.3	9959.9
1984/85	7422.5	98427.5	20169.3	2986	6684.4	940	2468.2	21437.8	2333.7	163454.9
1986/87	39650	190050	49900	2870	14490	2170	4050	52010	2000	357410
1987/88	44260	222020	59500	3200	16750	3030	3150	73430	1790	427430
1988/89	60090	225190	76550	3220	22650	3730	5420	87490	2120	487040
1989/90	61720	267610	87580	9830	20720	3900	6880	132810	6390	597440
1991/92	44380	351960	103460	8030	33100	5680	9960	121470	2490	681200
1992/93	67810	395280	125030	5150	30800	7030	4870	159070	1550	797270
1993/94	46790	570800	160390	8690	33150	8280	5870	165800	2980	1003530
1994/95	987960	33650	18080	12430	36040	2010	7230	219970	4020	1321570
1995/96	1114050	37030	17970	13440	16530	4310	6990	283320	4440	1498320
1996/97	1188960	39450	28250	14730	25560	9080	7710	248210	6140	1569120
1997/98*	1783920	29490	16490	22470	25890	5920	9350	299460	6650	2202270
1998/99*	1857340	26410	16130	30710	19920	3660	10080	259470	9220	2238330
1999/2000**	2013710	40470	32130	37060	10010	4230	9770	278130	13190	2464250

Source: Economic Survey (Various issues)

*Provisional **Estimates

Annex Table 15: Education expenditure (K£'000')

Year	Education Expenditure				Public Expenditure		
	Development	Recurrent	Total	% of Recurrent to total exp.	Recurrent	Development	Total
1991/92	55820	625380	681200	91.81	1823400	649880	2473280
1992/93	66390	730880	797270	91.67	2192320	851410	3043730
1993/94	59560	943970	1003530	94.06	2659480	1024860	3684340
1994/95	74920	1246650	1321570	94.33	3527140	1306220	4833360
1995/96	83610	1414710	1498320	94.42	4193600	1384160	5577760
1996/97	65610	1503510	1569120	95.82	4685120	1342180	6027300
1997/98*	80530	2121740	2202270	96.34	5608630	1191970	6800600
1998/99*	76250	2162080	2238330	96.59	6006670	1005000	7011670
1999/2000**	84270	2379980	2464250	96.58	6445040	2178460	8623500

Source: Economic Survey (Various issues)

Annex Table 16: Primary School public expenditure per student

Year	Primary schools total public expenditure (K£'000')	Primary school enrolment	Expenditure per student (Ksh.)
1986/87	190050	4937386	769.84
1987/88	222020	5077461	874.53
1988/89	225190	5256365	856.83
1989/90	267610	5390734	992.85
1991/92	351960	5482994	1283.82
1992/93	395280	5503339	1436.51
1993/94	570800	5494942	2077.55

Source: Own computations

Annex Table 17: Distribution of education attainment by age and sex (%), 1989

Level of education	Sex	6-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60+	Not stated	Total
None	Male	55.16	15.89	8.64	8.85	11.37	16.22	19.80	24.14	32.62	40.35	47.91	66.96	47.31	25.75
	Female	53.33	15.99	12.22	16.56	26.69	40.24	49.11	61.53	70.85	77.46	81.74	89.50	67.97	37.47
Std1-4	Male	41.08	56.61	13.38	7.75	8.71	10.91	13.17	14.87	20.51	24.19	24.78	20.39	12.80	25.84
	Female	43.09	35.13	10.74	8.28	10.89	12.69	13.81	14.26	14.76	12.51	10.99	5.84	8.99	23.29
Std 5-8	Male	0.00	26.66	59.27	42.71	37.79	34.61	36.13	37.40	32.15	25.63	19.65	8.78	20.47	30.14
	Female	0.00	27.97	59.53	44.39	34.42	27.91	25.11	17.65	10.06	6.62	4.42	1.83	11.62	26.95
Form 1-4	Male	0.00	0.41	17.59	34.26	36.16	32.78	25.90	19.30	11.25	7.15	5.32	1.81	10.82	14.95
	Female	0.00	0.46	16.50	27.53	25.20	16.71	9.72	4.47	2.19	1.42	0.86	0.39	4.03	10.13
Form 5+	Male	0.00	0.00	0.77	5.70	4.44	3.33	2.63	1.90	1.25	0.75	0.55	0.22	0.94	1.67
	Female	0.00	0.00	0.62	2.42	1.49	0.85	0.53	0.35	0.24	0.19	0.14	0.09	0.39	0.64
University	Male	0.00	0.00	0.01	0.22	1.04	1.56	1.70	1.63	1.31	0.96	0.66	0.29	0.31	0.50
	Female	0.00	0.00	0.01	0.18	0.55	0.62	0.54	0.41	0.29	0.20	0.15	0.08	0.22	0.19
Not stated	Male	3.76	0.43	0.34	0.51	0.49	0.59	0.67	0.76	0.91	0.97	1.13	1.55	7.35	1.15
	Female	3.58	0.45	0.38	0.64	0.76	0.98	1.18	1.33	1.61	1.60	1.70	2.27	6.78	1.33

Source: 1989 Population Census

Annex Table 18: Distribution of level of education completed by age and sex (%), 1997

Level of education	Sex/age group	6-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-99
Pre-school	Male	25.48	1.17	0.01	0.05	0.07	0.00	0.00	0.00	0.36	0.00	0.08	0.65
	Female	21.65	1.04	0.13	0.04	0.03	0.00	0.19	1.33	0.27	0.13	0.00	1.10
Std 1-4	Male	72.79	52.64	9.92	4.54	3.69	5.74	7.17	7.23	14.67	18.28	40.80	50.46
	Female	76.19	50.67	6.59	4.79	6.43	12.01	15.17	23.51	21.22	44.76	46.28	61.55
Std 5-8	Male	0.67	43.72	63.43	49.92	46.83	40.71	43.88	49.32	44.67	49.15	38.36	31.24
	Female	1.38	45.86	67.70	57.86	58.00	54.45	50.88	48.55	47.41	39.82	35.43	23.25
Form 1-4	Male	0.00	1.46	24.80	36.99	39.37	43.77	39.29	33.68	30.14	19.93	11.90	8.59
	Female	0.00	1.41	23.21	32.52	30.61	28.06	27.79	19.66	19.57	9.21	4.70	2.17
Form5+	Male	0.00	0.00	0.17	0.57	1.10	3.36	3.04	2.99	1.48	1.07	1.95	0.44
	Female	0.00	0.00	0.23	0.13	1.13	0.67	0.75	1.43	2.39	0.00	0.00	0.00
University	Male	0.00	0.00	0.30	2.04	2.84	2.48	1.64	2.22	2.95	3.50	2.69	2.22
	Female	0.00	0.00	0.03	1.12	0.82	0.99	0.80	0.16	0.64	0.00	0.00	0.74
Others	Male	0.00	0.00	0.53	4.22	4.83	1.91	2.46	2.17	2.19	4.72	1.54	0.87
	Female	0.00	0.01	0.87	1.46	0.73	1.27	0.71	1.20	4.34	2.57	9.42	4.93
Not stated	Male	1.06	1.00	0.84	1.67	1.28	2.03	2.52	2.39	3.53	3.35	2.70	5.53
	Female	0.78	1.01	1.24	2.07	2.25	2.55	3.72	4.16	4.16	3.50	4.17	6.26

Source: Welfare Monitoring Survey, 1997

Annex Table 19: Distribution of level of education completed by age & sex (%), 1999

Level of education	Sex/age group	6-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-99
None	Male	18.77	9.90	8.73	7.50	7.38	8.95	10.66	16.18	18.76	23.12	30.64	48.63
	Female	18.57	10.75	10.15	9.91	12.64	17.56	24.62	37.80	45.24	57.06	66.02	78.94
Pre-primary	Male	47.19	6.94	1.09	0.48	0.40	0.36	0.47	0.48	0.55	0.56	0.75	1.26
	Female	45.04	5.33	0.89	0.47	0.45	0.45	0.60	0.68	0.75	0.74	0.88	0.99
Std 1-4	Male	25.37	60.04	18.94	9.64	7.55	8.02	10.50	13.19	16.05	17.60	23.99	25.65
	Female	27.99	56.59	13.54	7.97	8.36	10.69	14.65	16.85	18.57	18.08	19.11	12.33
Std 5-8	Male	0.00	20.09	47.60	43.79	40.50	36.43	33.94	30.48	32.47	33.69	28.15	15.31
	Female	0.00	24.21	50.79	48.08	43.75	38.03	31.72	24.92	22.99	16.94	9.58	4.26
Form 1-4	Male	0.00	0.28	16.56	35.25	39.10	37.17	36.56	32.63	25.86	19.55	12.18	5.88
	Female	0.00	0.34	18.16	30.91	31.47	28.53	24.80	16.70	9.97	5.04	2.65	1.34
Form 5-6	Male	0.00	0.00	0.04	0.18	0.77	4.04	3.87	2.98	2.41	1.82	1.16	0.50
	Female	0.00	0.00	0.04	0.16	0.60	1.81	1.29	0.78	0.54	0.34	0.22	0.10
University	Male	0.00	0.00	0.05	0.74	2.82	3.48	2.65	2.65	2.55	2.26	1.82	0.78
	Female	0.00	0.00	0.06	0.62	1.43	1.53	1.11	1.06	0.82	0.63	0.42	0.17
Others	Male	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Female	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Not stated	Male	8.67	2.75	6.99	2.42	1.47	1.55	1.37	1.41	1.35	1.40	1.32	2.01
	Female	8.40	2.79	6.37	1.89	1.30	1.41	1.20	1.20	1.12	1.17	1.13	1.86

Source: Government of Kenya, Population Census

Annex Table 20: Literacy rates (%) by age group and gender, 1989

	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	Total%
Male literacy rates (national)	91.82	90.95	88.58	84.14	81.20	77.67	70.22	63.87	57.03	39.24	74.47
Female Literacy rates (national)	88.01	82.64	72.49	59.45	51.21	39.48	30.51	23.71	19.15	11.24	47.79
Male literacy rates (rural)	91.32	88.91	85.13	80.23	77.02	73.66	66.00	60.32	54.60	37.77	71.50
Female literacy rates (rural)	87.37	80.27	68.67	55.21	47.21	36.27	28.08	21.96	17.74	10.37	45.32
Male literacy rates (urban)	94.96	95.99	95.28	93.40	91.74	89.37	84.80	78.94	72.76	57.42	85.47
Female literacy rates (urban)	91.36	90.81	85.66	77.68	72.13	61.57	51.99	41.70	37.62	24.35	63.49

Source: National Population Census, 1989

Annex Table 21: Number of years of schooling of the working population by age group, 1997

Age/years of schooling	15-19	20-24	25-29	30-34	35-49	40-44	45-49	50-54	55-59	60-64	Total
0	0.07	0.05	0.05	...	0.09	0.55	0.35	0.05	0.06	1.34	0.12
1	0.22	0.15	0.26	0.15	0.48	0.70	0.89	0.61	2.34	0.73	0.37
2	1.17	0.71	0.53	1.27	1.21	2.61	2.71	4.16	5.09	4.55	1.41
3	1.97	1.34	1.60	2.81	2.39	3.19	4.06	6.02	13.05	13.92	2.64
4	5.08	2.69	2.98	5.12	7.42	7.80	10.87	18.26	24.60	28.53	6.19
5	6.92	4.10	3.52	5.40	4.94	5.92	6.23	6.05	9.31	10.56	5.48
6	31.13	18.98	21.10	22.72	24.98	23.58	21.11	16.29	11.33	14.73	23.68
7	20.02	16.53	16.17	18.47	18.26	19.58	18.49	17.92	12.85	8.72	18.00
8	8.59	17.08	14.38	3.17	1.35	2.44	3.27	9.56	6.78	4.66	8.87
9	5.69	2.64	1.20	1.63	1.50	1.30	1.41	0.45	0.37	0.78	2.70
10	5.51	3.41	3.37	4.81	4.02	3.88	3.10	1.49	1.29	1.21	4.06
11	1.19	1.34	1.23	1.91	3.57	3.45	5.08	4.56	3.87	4.04	2.12
12	8.93	9.75	7.99	9.72	6.75	5.11	4.98	4.88	2.12	0.72	7.96
14	3.14	19.22	22.58	19.01	19.67	15.89	13.28	6.38	3.19	3.07	13.99
15	0.21	0.29	0.21	0.38	0.38	0.62	0.49	0.22	...	...	0.30
16	...	0.06	0.95	1.67	1.67	1.88	1.49	0.56	1.57	0.58	0.78
20	0.17	1.64	1.86	1.78	1.30	1.49	2.18	2.55	2.17	1.88	1.33

Source: Own computation from Welfare Monitoring Survey, 1997 ... Data not available

Annex Table 22: Distribution of educational attainment all ages (%), 1997

Highest level of schooling attained / Sex	Male	Female	Group total
Pre-school	5.57	5.58	5.57
Primary complete	13.04	13.40	13.22
Primary incomplete	57.04	63.04	59.93
Lower secondary incomplete	11.16	9.42	10.32
Lower secondary complete	9.51	6.96	8.28
Higher secondary incomplete	0.22	0.13	0.18
Higher secondary complete	0.66	0.25	0.46
University	1.20	0.38	0.81
Technical / informal	1.59	0.84	1.23
Group total	100.00	100.00	100.00

Source: Own computation from Welfare Monitoring Survey, 1997

Annex Table 23: Educational distribution of the working age population by sex (%), 1997

Higest level of schooling attained 15-64 / Sex	Male	Female	Group total
Pre-school	0.07	0.17	0.12
Primary complete	20.38	21.62	20.97
Primary incomplete	40.47	48.57	44.32
Lower secondary incomplete	17.60	15.31	16.51
Lower secondary complete	15.56	11.66	13.71
Higher secondary incomplete	0.36	0.22	0.29
Higher secondary complete	1.08	0.41	0.76
University	1.90	0.64	1.30
Technical / informal	2.59	1.40	2.03
Total	100.00	100.00	100.00

Source: Welfare Monitoring Survey, 1997

Annex Table 24: Illiteracy rates (%) in some selected African countries

Country	1990			1995			2000		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Kenya	28.9	18.6	39.0	22.7	14.4	30.9	17.5	11.0	24.0
Uganda	43.9	30.8	56.6	38.1	26.3	49.6	32.7	22.3	42.9
Tanzania	36.9	24.2	48.9	30.9	19.8	41.0	24.8	15.9	33.4
Cameroon	37.7	28.2	46.9	30.7	22.8	38.4	24.6	18.2	30.8
Egypt	52.9	39.7	66.4	48.9	36.5	61.5	44.7	33.4	56.3
Ethiopia	71.7	64.0	79.4	66.8	60.1	73.5	61.3	56.1	66.6
Ghana	42.7	30.6	54.4	36.1	25.3	46.6	29.8	20.5	38.8
Botswana	31.8	43.2	29.6	27.3	30.0	24.9	22.8	25.6	20.2
Malawi	48.1	31.2	63.7	44.0	28.3	58.7	39.7	25.5	53.3
Nigeria	51.2	40.5	61.5	43.5	33.9	52.7	35.9	27.7	43.8
Rwanda	46.6	37.0	55.8	39.6	31.3	47.6	33.0	26.3	39.4
South Africa	18.7	17.7	19.7	16.7	15.9	17.5	14.9	14.2	15.5
Burundi	62.2	51.5	72.0	57.7	47.8	66.8	51.9	43.7	59.5
Sub-Saharan Africa	50.7	40.7	60.3	45.2	36.0	54.0	39.7	31.5	47.6
Africa	51.0	40.2	61.5	45.6	35.6	53.4	40.3	31.3	49.1
World	24.8	18.1	31.4	22.7	16.4	29.0	20.6	14.7	26.4

Source: UNESCO, 2000

Annex Table 25: Primary school gross enrolment rates (%) by sex

	Gross Enrolment Rates		
Year	Boys	Girls	Total
1990	94.16	90.21	92.19
1991	93.30	89.40	91.40
1992	93.07	90.00	91.54
1993	88.83	86.84	87.84
1994	89.13	87.83	88.49
1995	87.35	86.25	86.80
1996	87.33	85.54	86.44
1997	88.61	86.60	87.61
1998	89.36	88.24	88.80
1999	88.11	85.71	86.91

Source: Ministry of Education, Science and Technology, Statistics Section, 2000

Annex Table 26: Primary schools class size (pupils per class)

Province	1990	1991	1994	1995	1996	1997	1998	1999
Central	36.50	36.33	36.24	37.21	35.40	35.39	35.26	39.00
Coast	33.15	32.31	30.14	32.10	32.94	31.78	30.77	27.47
Eastern	31.40	31.13	28.33	28.37	28.30	28.22	29.58	29.90
N/Eastern	31.82	28.93	29.82	20.92	28.74	31.29	35.44	36.11
Nairobi	41.45	41.23	41.04	38.83	38.31	37.98	38.91	39.52
Nyanza	30.42	29.88	31.05	28.18	26.54	30.52	30.78	27.91
R/Valley	32.26	31.77	31.12	30.68	30.61	31.19	31.86	30.03
Western	33.02	34.95	34.36	34.16	34.48	34.57	34.20	33.76
National	32.71	32.56	31.81	31.31	30.79	31.67	32.08	31.19

Source: Ministry of Education, Science and Technology, Statistics Section, 2000

Annex Table 27: Primary school completion rates (%) by sex, 1989 – 1999

Year in Std 1	Year in Std 8	% Completing Std 8		
		Boys	Girls	Total
1982	1989	47.9	43.2	45.6
1983	1990	45.7	40.5	43.2
1984	1991	46.4	41.6	44.1
1985	1992	44.7	48.2	46.4
1986	1993	44.5	42.2	43.4
1987	1994	44.6	43.0	43.9
1988	1995	43.0	42.1	42.6
1989	1996	45.1	43.5	44.3
1990	1997	46.3	45.8	46.1
1991	1998	46.4	48.1	47.2
1992	1999	47.7	47.8	47.7

Source: Ministry of Education, Science and Technology, Statistics Section, 2000

Annex Table 28: Primary school drop-out rates (%) by gender and province, 1993

Province	% Drop-out rate		
	Boys	Girls	Total
Central	2.25	2.19	2.22
Coast	4.20	3.91	4.07
Eastern	5.82	5.43	5.62
North Eastern	8.71	11.18	9.38
Nairobi	6.67	3.32	5.05
Nyanza	6.49	6.59	6.54
Rift Valley	5.72	5.85	5.78
Western	8.01	8.02	8.02
Total	5.46	5.34	5.40

Source: Ministry of Education, Science & Technology, Statistics Section, 2000

Annex Table 29: Repetition rates in primary school by sex and district, 1993

Province	Repetition rate (%)		
	Boys	Girls	Total
Central	14.7	14.0	14.4
Coast	10.5	10.6	10.5
Eastern	16.5	15.7	16.1
North Eastern	7.2	11.9	8.6
Nairobi	5.1	4.3	4.7
Nyanza	17.4	17.3	17.3
Rift Valley	16.7	16.5	16.6
Western	15.8	15.1	15.5
National	15.6	15.2	15.4

Source: Ministry of Education, Science & Technology, Statistics Section, 2000

Annex Table 30: Primary to secondary school transition rates (%)

Year in Std 8	Year in Form 1	Percentage transiting to Form 1		
		Boys	Girls	Total
1990	1991	45.40	43.70	44.60
1991	1992	46.90	45.00	46.00
1992	1993	41.80	35.00	38.40
1993	1994	43.20	42.10	42.70
1994	1995	45.40	43.90	44.70
1995	1996	46.00	44.30	45.20
1996	1997	45.30	44.50	44.90
1997	1998	45.60	44.30	45.00
1998	1999	40.50	39.10	39.90

Source: Ministry of Education, Science and Technology, Statistics Section, 2000

Annex Table 31: Summary performance in KCPE

Province	Average mean score			
	1993	1994	1996	1999
Coast	286.00	292.81	315.42	337.57
Central	371.25	363.34	354.32	338.70
Eastern	345.00	342.77	343.39	350.75
Nairobi	366.73	367.41	356.52	353.79
Rift Valley	357.01	360.77	364.20	363.22
Western	332.28	333.50	353.20	361.76
Nyanza	336.00	325.72	331.75	326.02
North Eastern	306.38	253.95	307.83	292.55
National	337.58	330.03	340.85	340.55

Source: KCPE Newsletter, Kenya National Examination Council (various issues)

Annex Table 32: Primary school teachers

Year	Trained	Untrained	Total	% trained
1990	121461	51659	173120	70.16
1991	129229	44141	173370	74.54
1992	135408	50952	186360	72.66
1993	141872	31130	173002	82.01
1994	155591	22506	178097	87.36
1995	163915	18060	181975	90.08
1996	171055	13338	184393	92.77
1997	176034	10556	186590	94.34
1998	185736	6570	192306	96.58
1999	174836	7069	181905	96.11

Source: Ministry of Education, Science and Technology, Statistics Section, 2000

Annex Table 33: Primary schools pupil/teacher ratio by province

Province	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Central	32.74	33.34	33.43	33.36	33.39	33.30	33.27	33.50	32.12	33.51
Coast	35.10	33.90	33.72	32.71	31.48	30.54	31.16	40.18	31.58	33.64
Eastern	29.91	29.92	30.69	29.23	27.82	27.19	28.47	28.03	28.60	30.50
N/ Eastern	35.81	34.50	33.46	32.24	38.80	27.86	38.76	35.77	38.26	40.65
Nairobi	33.23	35.59	36.91	33.69	32.60	31.61	30.57	30.42	30.98	33.10
Nyanza	29.71	30.29	30.93	32.59	32.84	30.68	27.90	30.57	31.89	31.76
Rift Valley	30.16	30.26	29.83	29.19	30.05	29.59	29.15	27.93	28.78	30.72
Western	32.60	33.56	32.59	33.52	33.05	33.43	33.79	35.43	34.32	36.17
National	31.15	31.47	29.86	31.38	31.20	30.47	30.19	30.90	30.78	32.26

Source: Ministry of Education, Science and Technology, Statistics Section, 2000

Annex Table 34: Primary school pupil/trained teacher ratios

Province	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Central	37.99	36.72	36.69	36.18	35.14	34.70	34.57	34.39	32.45	34.16
Coast	57.09	52.11	48.94	42.17	36.58	34.88	34.33	44.09	33.15	35.94
Eastern	44.04	41.62	41.76	37.21	34.45	31.87	32.15	30.71	29.96	32.01
N/Eastern	67.99	55.46	46.23	39.73	44.99	30.50	41.26	37.22	39.52	42.04
Nairobi	36.46	38.13	39.17	36.95	33.63	33.77	31.37	31.21	31.21	33.25
Nyanza	46.68	44.01	43.37	42.42	38.08	34.62	30.12	32.60	33.24	33.28
Rift Valley	46.24	43.52	40.30	36.02	34.92	32.96	31.37	29.54	29.87	32.01
Western	44.36	42.77	41.49	39.49	36.12	35.74	35.49	36.66	35.37	37.33
National	44.40	42.22	41.09	38.26	35.72	33.83	32.55	32.75	31.87	33.56

Source: Ministry of Education, Science and Technology, Statistics Section, 2000

Annex Table 35: Primary school facilities available by province, 1994

Region	% of available facilities of the total required	
	Workshops	Home Science rooms
Central	40	31.5
Eastern	41.5	19.4
Western	13.9	9
Nyanza	18.5	8
Rift Valley	25	23
North Eastern	59	44
Nairobi	46.3	44
Coast	40	19.7

Source: Republic of Kenya, 1994

Annex Table 36: Labour force participation rates (%) by province, 1989 (pop. aged 10 years and above)

Province	Overall			Urban			Rural		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Central	60.0	55.2	57.5	79.6	60.6	70.9	58.1	54.7	56.4
Coast	81.4	65.6	73.6	80.9	48.3	66.8	81.8	73.3	77.3
Eastern	79.9	75.2	77.4	82.8	64.9	74.4	79.7	75.7	77.6
N/Eastern	83.7	33.5	59.4	72.4	35.8	54.7	87.2	32.7	60.9
Nairobi	82.4	54.6	70.9	82.4	54.6	70.9	...	...	...
Nyanza	59.8	62.7	61.3	70.6	54.3	62.7	58.4	63.5	61.2
Rift Valley	68.2	56.2	62.2	76.3	53.1	65.8	66.8	56.6	61.7
Western	70.2	65.6	67.7	77.2	61.4	69.3	69.8	65.8	67.6
National	70.5	62.0	66.2	79.6	54.1	68.4	68.2	63.4	65.7

Source: National Population Census, 1989 ... Data not available

Annex Table 37: Percentage of economically active population by level of education

Province	Never	Std 1-4	Std 5-8	Form 1-4	Form 5-6	University	Not stated
Nairobi	8.4	7.5	33.6	41	5	4.1	0.40
Central	23.1	14.1	37.9	22.3	1.6	0.6	0.5
Coast	43.5	15.4	25.5	13.6	1.2	0.5	0.4
Eastern	32.4	22.1	32	12.1	0.8	0.3	0.4
N/Eastern	85.4	3.9	5	4.8	0.5	0.2	0.2
Nyanza	36.7	14	33.3	13.9	1.1	0.4	0.7
Rift Valley	40.6	12.7	30.3	14.5	1	0.4	0.5
Western	31.7	18.5	32.8	15.2	1	0.3	0.5
Total	33.6	15.4	31.7	16.8	1.3	0.7	0.5

Source: National Population Census, 1989

Annex Table 38: Labour force participation rates by age, sex and region

Age Group	National			Rural			Urban		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
10-14	31.6	28.5	30.1	32.6	29.3	31.0	22.6	22.6	22.6
15-19	44.6	44.7	44.6	44.4	45.6	45.0	45.7	40.2	42.7
20-24	79.7	70.9	75.0	77.5	74.4	75.7	85.2	58.8	72.7
25-29	94.6	77.9	85.9	94.2	81.0	86.8	95.4	67.1	83.6
30-34	96.5	80.3	88.4	96.4	82.5	88.9	96.8	70.8	87.1
35-39	97.0	82.1	89.5	96.9	84.0	90.0	97.0	72.1	88.0
40-44	96.8	82.2	89.5	96.7	83.8	89.7	97.2	71.0	88.5
45-49	96.8	83.1	89.7	96.7	84.7	90.1	97.0	68.4	87.8
50-54	95.8	81.8	88.7	95.9	83.5	89.3	95.4	63.4	85.1
55-59	92.9	82.3	87.6	93.5	83.9	88.5	89.2	61.6	79.5
60-64	92.3	79.6	85.6	93.0	81.1	86.6	85.9	58.8	74.0
65+	86.5	72.5	79.3	87.2	73.5	80.2	76.9	56.8	67.0

Source: National Population Census, 1989

Annex Table 39 : Employment by province and level of education, 1989

	Never	Std 1-4	Std 5-8	Form 1-4	Form 5-6	University	Not stated	Total
Nairobi	8.20	7.10	33.00	41.70	5.10	4.60	0.40	6.80
Central	22.90	14.20	38.00	22.20	1.60	0.70	0.50	13.10
Coast	44.80	14.90	24.90	13.30	1.20	0.60	0.30	9.50
Eastern	32.30	22.00	32.20	12.20	0.80	0.30	0.40	21.10
N/Eastern	86.80	2.70	4.40	5.10	0.60	0.20	0.20	1.40
Nyanza	36.80	14.00	33.50	13.70	1.00	0.40	0.60	15.00
Rift Valley	40.60	12.50	30.50	14.40	1.00	0.50	0.50	20.90
Western	31.40	18.10	33.30	15.30	1.00	0.30	0.50	12.20
Total	33.70	15.30	31.90	16.60	1.30	0.70	0.50	100.00

Source: National Population Census, 1989

Annex Table 40: Unemployment rates (%) by sex and regions for population aged 10 years and above

Province	Overall			Urban			Rural		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Central	7.1	6.9	7	6.9	11.7	8.8	7.2	6.5	6.8
Coast	9.4	11	10.1	14.9	28.3	19.3	6.2	5.9	6
Eastern	4.5	4.2	4.4	7.6	10.4	8.8	4.2	3.9	4.1
N/Eastern	12.9	25.5	16.3	25.7	39.6	30.1	9.5	20.5	12.3
Nairobi	12.7	21.7	15.6	12.7	21.7	15.6			
Nyanza	7.2	7.2	7.2	11	20	14.8	6.7	6.1	6.3
Rift Valley	7.3	9.4	8.2	9.9	17.9	12.9	6.8	8.2	7.5
Western	7.3	7.5	7.2	8.3	12.9	10.3	7.4	6.9	7.2
National	7.6	8.2	7.9	11.9	20.2	14.8	6.4	6.3	6.3

Source: National Population Census, 1989

Annex Table 41: Unemployment rates (%) by sex, province and rural urban residence for population aged 15-64 years, 1989

Province	Overall			Urban			Rural		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Central	6.4	5.5	5.9	6.1	10.6	7.8	6.4	5	5.7
Coast	8.2	9.3	8.7	11.9	24.9	15.8	5.1	4.3	4.7
Eastern	3.7	3	3.3	6	8.4	7	3.5	2.7	3.1
N/Eastern	8.2	19.1	11.2	19.2	30.2	22.4	5.7	14.3	7.6
Nairobi	11.5	19.6	14	11.5	19.6	14			
Nyanza	6.1	5.8	5.9	10	18.8	13.6	5.4	4.7	5
Rift Valley	5.9	7.2	6.5	8.8	16.1	11.4	5.3	5.9	5.5
Western	5.8	5.3	5.6	6.6	11.4	8.7	5.8	5	5.4
National	6.5	6.6	6.5	10.4	18	13	5.2	4.6	4.9

Source: 1989 National Population Census

Annex Table 42: Unemployment rate (%) by province and level of education for Population aged 15-64 years, 1997

Province	Never	Std 1-4	Std 5-8	Form 1-4	Form 5-6	Univ.	Tech/ Inf	Not stated	Total
Nairobi	...	6	19	19	0	9	33	9	19
Central	44	10	15	19	9	6	46	20	16
Coast	62	8	13	12	0	0	21	5	12
Eastern	0	33	32	21	2	28	14	39	28
N/Eastern	...	100	8	17	0	0	0	0	21
Nyanza	0	7	13	16	9	3	41	7	13
Rift Valley	21	13	18	18	14	4	14	23	17
Western	...	16	19	22	4	12	0	17	19
National	21	15	19	19	7	8	29	18	18

Source: Welfare Monitoring Survey, 1997

Annex Table 43: Average rate of return (%) to primary, secondary and university education

	All Cohorts	Older Cohorts	Recent Cohorts
1977/78			
Primary	18.2	23.9	16.4
Secondary	55.7	66.0	33.3
1986			
Primary	12.8	19.9	-2.0
Secondary	37.2	38.1	36.3
1993-95			
Primary	4.7	8.4	-2.3
Secondary	12.5	12.7	12.2
University	52.5	54.5	48.4

Source: Manda, 1997

Annex Table 44: Returns to education in Kenya, 1978- 1995

	LFS 1978		LFS 1986		RPED 1995	
Level of Education	Private	Social	Private	Social	Private	Social
Primary	24	13	22	13	25	13
Secondary (Lower)	23	20	17	14	7	6
Higher Secondary	28	25	20	18	...	...
University	13	2	31	10	35	17

Source: Appleton, 1999 ... Data not available

Annex Table 45: Rates of return to education for men and women in urban and rural areas in 1977/78

Educational Level	Urban	Rural
University	14.3	41.0
Form 5-6	22.0	22.0
Form 3-4	39.8	15.4
Form 1-2	13.0	44.6

Source; Bigsten, 1984

Annex Table 46: Reasons for not currently being in school by age (%), 1997

Age	Too old	Got Married	Too far	Too expensive Cannot afford	Found paid employment	Become an apprentice	Must work in the home field	School useless/ uninteresting	Cultural rituals	Illness	Pregnancy	Failed exam	Other	Not stated
15	1.15		1.59	35.70	2.77	0.30	2.98	27.95		2.14	1.91	8.59	11.13	3.78
16	0.26	2.60	1.19	34.29	1.49	1.17	2.37	16.68	0.79	2.65	4.86	10.67	13.87	7.10
17	1.38	6.57	1.89	33.83	0.70	2.22	1.87	19.04	1.71	4.26	4.97	9.30	8.40	3.86
18	2.24	12.88	0.53	31.26	1.37	1.17	1.56	11.57	0.48	1.67	6.31	9.42	16.94	2.60
19	1.00	12.74	0.71	27.94	1.62	2.01	3.69	9.37	-	2.35	5.37	10.53	18.98	3.70
20	3.40	14.24	0.91	26.45	3.70	2.64	1.53	7.87	0.32	1.83	5.99	9.25	17.39	4.46
21	5.36	10.73	0.93	27.03	4.98	2.50	0.95	6.18	0.18	1.83	4.12	8.26	23.85	3.09
22	9.78	20.93	0.31	22.78	2.99	1.42	0.97	6.86	0.31	1.06	4.54	9.42	14.54	4.09
23	6.28	21.92	0.57	26.19	5.54	1.13	0.95	5.47	0.07	1.29	2.98	6.90	17.74	2.97
24	6.18	16.55	-	25.29	8.17	1.39	2.27	4.98	0.61	0.97	5.16	8.23	16.03	4.18
25	9.63	19.29	1.10	21.84	5.62	1.49	1.49	5.19	0.22	0.73	3.78	7.04	19.71	2.87
26	11.93	24.14	0.61	17.17	6.54	2.68	1.55	3.90	0.21	1.97	3.98	6.59	16.24	2.48
27	9.94	20.79	0.47	22.46	8.77	1.72	1.62	4.96	0.12	1.40	3.48	5.14	15.46	3.67
28	13.44	26.53	-	15.58	9.89	1.58	1.89	3.24	0.73	0.97	2.44	4.92	15.95	2.82
29	17.23	21.02	-	20.18	7.35	0.61	3.20	3.35	0.26	0.78	4.28	2.96	17.52	1.26
30	18.59	26.71	0.30	14.68	10.63	1.24	1.56	3.17	0.10	0.17	2.44	5.26	11.97	3.18
31	18.49	29.13	0.24	11.40	8.79	1.14	1.99	7.35	-	0.47	4.35	3.03	11.98	1.64
32	16.46	27.42	0.05	12.06	14.29	1.07	2.72	3.50	0.47	0.70	2.19	3.15	11.80	4.13
33	18.65	26.21	1.10	13.27	9.52	0.55	2.22	3.12	0.26	0.29	4.11	3.23	12.58	4.89
34	20.49	23.63	0.03	18.87	18.41	1.12	1.91	1.26	-	0.20	1.45	2.78	7.91	1.94
35	21.20	25.70	0.05	16.45	8.75	0.83	1.93	1.35	0.12	0.18	2.38	2.41	14.36	4.26
36	24.10	25.25	-	11.86	7.91	1.82	2.17	2.72	0.53	0.52	1.53	4.41	13.18	3.99
37	21.60	22.44	-	14.66	11.35	1.68	3.19	0.67	0.22	0.36	3.30	2.81	10.68	7.06

38	21.14	23.14	0.10	17.21	12.60	0.73	2.64	1.03	-	0.43	0.48	4.11	11.37	5.03
39	22.43	22.93	-	17.05	14.69	1.47	3.14	1.36	0.81	0.72	0.88	2.40	8.09	4.03
40	31.35	23.60	0.59	12.53	9.77	0.39	1.71	1.18	0.50	0.49	0.48	3.12	12.22	2.06
41	31.46	15.05	-	12.07	19.86	1.16	2.04	1.57	-	1.54	1.35	1.50	8.62	3.76
42	26.44	24.39	-	9.18	15.41	2.80	2.09	1.08	0.68	0.74	1.03	1.93	8.97	5.25
43	29.78	21.48	-	10.20	11.63	0.25	3.38	0.93	0.60	-	1.17	2.55	10.76	7.28
44	40.19	17.12	-	11.18	8.76	1.72	3.31	0.47	0.87	-	-	1.90	11.95	2.54
45	35.93	17.87	-	12.23	14.97	0.33	2.35	1.54	0.14	0.67	-	1.06	9.00	3.92
46	40.12	21.34	-	14.02	7.00	0.92	1.59	0.59	1.00	0.96	0.98	0.43	7.77	3.28
47	48.24	13.33	0.13	12.66	10.96	-	2.22	0.92	-	-	-	0.31	8.68	2.56
48	42.07	17.04	-	8.87	13.18	-	2.68	1.09	1.46	0.45	1.25	1.08	8.13	2.70
49	35.58	17.59	-	15.13	12.02	-	1.66	3.27	0.53	0.53	0.27	0.97	8.36	4.09
50	42.96	15.45	0.50	6.87	15.05	0.26	2.72	1.31	0.21	0.77	-	0.73	7.77	5.40
51	44.99	12.03	-	6.28	12.92	2.12	2.68	2.13	-	0.82	-	-	8.96	7.06
52	55.15	15.42	-	7.24	6.98	1.05	5.25	1.22	-	-	-	0.51	6.30	0.87
53	48.59	11.10	-	10.62	8.85	-	2.28	1.36	0.50	-		2.00	9.21	5.48
54	46.42	13.29	-	10.46	6.46	-	5.76	0.80	0.60	-	0.44	2.54	9.52	3.70
55	65.15	6.84	-	10.79	3.33	-	0.51			-	-	0.44	7.81	5.12
56	68.99	9.72	-	1.88	5.75	-	1.42	1.20		-	-	0.45	3.46	7.13
57	57.10	11.94	-	10.72	4.87	-	3.76		0.97	2.04	-	-	3.00	5.60
58	55.03	11.80	-	3.30	3.17	2.18	5.43	2.98	0.17	0.75	-	1.04	10.25	3.91
59	37.31	14.49	-	12.60	5.10	5.82	4.43	1.68	8.34	1.01	-	-	3.83	5.40
60	65.66	3.82	1.00	5.45	3.99	-	3.40		0.85		0.69	-	6.89	8.26
61	53.12	1.80	-	8.68	8.17	-	2.11	9.74	-	1.16	-	1.80	9.63	3.78
62	39.62	5.19	-	16.62	-	3.17	4.54	1.06	12.05	-	-	2.22	10.13	5.40
63	69.42	7.68	-	8.77	5.64	-	5.23	2.14	-	-	-	-	-	1.11
64	55.37	21.64	-	10.53	-	-	-	3.19	-	-	-	-	9.27	-

Source: WMS III, 1997. - Data not available

Annex Table 47: Primary school gross enrolment rates (%) by province

Province	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Coast	79.93	78.80	78.85	75.09	71.40	73.30	75.57	75.17	73.25	75.95
Central	103.60	102.60	103.56	102.80	101.04	104.95	100.22	100.44	98.20	93.81
Eastern	96.82	97.40	96.35	92.57	91.76	89.86	90.46	90.75	93.84	94.88
Nairobi	66.32	65.30	64.57	50.46	61.47	60.65	58.91	57.12	56.87	54.07
R/Valley	91.73	90.90	89.53	82.35	83.93	83.32	84.01	85.35	86.68	86.94
Western	104.08	103.00	103.90	100.53	101.65	100.46	99.88	100.33	103.40	00.31
Nyanza	91.06	89.70	92.47	93.54	95.25	86.99	86.22	90.53	92.92	85.75
N/Eastern	23.84	22.70	21.80	16.57	21.64	14.94	20.99	24.57	24.83	26.30
National	92.19	91.40	91.54	87.84	88.49	86.80	86.44	87.61	88.80	86.91

Source: Ministry of Education, Science and Technology, Statistics Section, 2000

Annex Table 48: Public Expenditure on school milk, feeding programme and school equipment (K£)

	School milk and feeding programme	Purchase of school equipment
1990/91	22334081	450000
1991/92	22715000	350000
1992/93	12398594	7000000
1993/94	10416500	4400000
1994/95	9626600	6000000
1995/96	10660590	6000000
1996/97	13200000	8388750
1997/98	9000000	6557776
1998/99	8409000	11000000
1999/2000	7156000	13000000

Source: Recurrent and Development Estimates (Various issues)

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