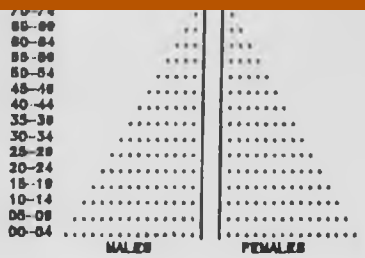

WORKING PAPERS IN DEMOGRAPHY, no. 5

THE IMPACT OF RAPID POPULATION GROWTH ON SCHOOL ENROLMENTS IN SOUTHERN AFRICA

by
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Working Paper No.5
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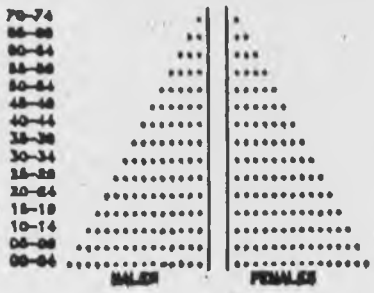

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FOREWORD

This study illustrates the impact of rapid population growth on school enrolments in the Southern African states which are members the the E.C.A. It also highlights the importance of incorporating population variables in planning for education. Researchers, planners and students interested in the relationship between rapid population growth and planning for education or for that matter, for general socio-economic development, will find something useful from the paper.

The working papers in Demography represent a continuing effort by the Demography Unit to get studies on population and related issues from any contributer for consideration for publication and dissemination as widely as possible. Your contribution will be welcomed for consideration.

Acknowledgements

Mr Makatjane read through the initial draft of this paper and made useful comments on its structure. His time and interest in the study are quite appreciated.

Mr J Mukasa and Ms D Mungaya went through the tedious process of typing the drafts. Many thanks to them.

TABLE OF CONTENTS

List of Tables

List of Tables (Cont'd) Page

List of Figures

INTRODUCTION

This study sets out to illustrate the impact of rapid population growth on school enrolments in Southern Africa, and the importance of incorporating population variables in planning for educational development. The study does not in any way assume to predict what will happen in future in the respective Southern African countries with regard to education since many factors interplay to affect the educational planning process. This planning process is the important task of national planning units in the Ministries of Education in each respective state.

The study is only illustrative in the sense that the results will not only clearly bring out the usefulness of utilizing population estimates and projections in planning, especially in education, but also highlight the need to formulate policies for coping with the consequencies of rapid population growth as well as policies for influencing the factors which lead to rapid population growth.

DATA SOURCES

The study utilizes enrolment ratios projected by UNESCO to the year 2000 for each level of education, and population projections up to the year 2000 made by ECA Population Division.[1] Information

1. A thorough examination of the trends in enrolment ratios and their projection is presented in UNESCO, Development of Education in Africa: A Statistical Review, ED-82/MINEDAF/REF 2 Paris, 1982. The population projections are recent and are currently being compiled by ECA, Population Division for publication.

provided by UNESCO on enrolment ratios was based on education data supplied by Member States of UNESCO in response to the UNESCO Statistical questionnaire, or obtained from official national publications.

The base year for the population projections is 1980, and three projections variants were provided:-

1. the high variant reflecting continued high fertility and declining mortality;

2. the medium variant reflecting lower fertility than assumed in the high variant; and

3. the low variant reflecting lower fertility than that assumed in the first two variants.

The high variant, reflecting the consequences of continued high fertility, is largely utilized in this paper, with occasional reference made to the medium variant to show the impact of declining fertility on student enrolments and the implied financial burden.

POPULATION and DEVELOPMENT

The relationship between population growth and socio-economic

development is briefly summarized by the following quotation:-

> "... this analysis calls attention to the fact that rapid population growth rates have serious implications on the economic growth of any region because they slow down efforts to achieve rapid socio-economic development. Increased demand for food supplies and agricultural production tends to constrain the allocation of resources to other economic and social sectors. Unemployment and underemployment also become serious problems because the number of people seeking employment is larger than the number of available jobs. Because an ever increasing number of workers cannot be absorbed in the modern sector, they are either forced into unproductive service occupations or back into the traditional sector with its low productivity and bare subsistence levels. This large supply of cheap labour tends to hold back technological change, industrialization is slowed down by mass poverty, which in turn reduces the demand of manufactured goods. This widespread poverty, low productivity of labour, the growing demand for food and slow industrialization distort and degrade the international trade of the countries with rapidly growing populations. Worse still, essential services such as education, health and housing fail to keep pace with the population's requirements, resulting in social unrest."[1]

With special reference to education, if the historical rapid increase in school-age population continues into the future, there will be substantial pressure on the educational services. The rapid increase in the population expected in schools implies rapid increases in the number of teachers required, the number of new classrooms to be built and the amount of educational materials that have to be provided. Educational services would definately

1. ECA, ECA and Africa's Development, 1983-2008: A Preliminary Perspective Study, Addis Ababa, 1983, p.22

be strained and educational standards may be jeopardized.[1]

Yet rapid population growth rates are not viewed as a problem by most African countries although the same countries admit that it is becoming more and more difficult to meet planned development targets.[2] Although their aim is to improve the quality of life, they do not see the delicate link between population growth and economic development. The number of states which recognize the real need to formulate population policies which aim at reducing fertility and consequently the growth rate is still small (Table 1).

It is difficult to assess, however, to what extent demographic changes in population size, age structure and distribution are taken into account in the development plans of these nations. Stamper analysed the use of eight demographic parameters in the national development plans of 60 countries in the 1970s including those of Southern Africa.[3] From this analysis, it is possible to

1. For a thorough examination of the relationship between population and economic development, see A.J. Coale and E.H. Hoover, Population Growth and Economic Development in Law-Income Countries, Princeton, Princeton University Press, 1958.

2. National Academy of Sciences, In Search of Population Policy: Views from the Developing World, 1974, pp.55-72.

3. B.M. Stamper, Population and Planning in Developing Nations Population Council, 1977; United Nations, Population Trends and Policies, Their Relationship to Some Aspects of Development and Economic Growth and their Status in African Development Plans, Second Session of the Joint Conference of African Planners, Statisticians and Demographers, Addis Ababa, 8 - 17 March 1982.

TABLE 1

Status of governmental perception of, and policies on, fertility level, and estimates of GRR and r, selected ECA member States

Government perception of, and policies on, fertility level		GRR estimate 1980 - 1985 (percentage)	Annual growth rate, 1980-1985 (percentage)
	United Republic of Cameroon	2.7	2.4
Level too low	Central African Republic	2.8	2.5
	Ivory Coast	3.2	2.9
	Egypt	2.3	2.0
	Madagascar	3.0	2.8
Level too high	Liberia	3.3	3.3.
	Togo	3.3	3.1
	Rwanda	3.4	3.2
Level to be maintained	Mozambique	3.0	2.7
	Gabon	2.2	1.4
Level to be raised	Guinea	3.0	2.5
	Libyan Arab Jamahiriya	3.6	3.7
	Mauritius	1.3	1.7
	Tunisia	2.5	2.4
	Lesotho	2.6	2.5
	Swaziland	3.0	3.8
Level to be reduced	Uganda	3.0	3.2
	Botswana	3.1	3.0
	Morocco	3.1	3.1
	Ghana	3.2	3.0
	Kenya	4.0	4.2
	Guinea Bissau	2.7	1.9
	Chad	2.9	2.6
	Congo	2.9	2.5
	Zaire	2.9	2.7
	Ethiopia	3.0	2.4
	Sierra Leone	3.0	2.8
	Somalia	3.0	2.5
	Burundi	3.1	2.9
	Angola	3.2	2.6
No expressed desire to	Gambia	3.2	2.6
intervene with level	Senegal	3.2	2.7
	Sudan	3.2	2.8
	United Republic of Tanzania	3.2	3.2
	Upper Volta	3.2	2.6
	Benin	3.3	3.1
	Mali	3.3	2.9
	Zambia	3.3	3.2
	Algeria	3.4	3.6
	Mauritania	3.4	3.6
	Nigeria	3.4	2.9
	Malawi	3.5	3.4
	Niger	3.5	3.0

Source: ECA, 1983. International Migration and Population Trends and their Implications for Africa African Population Studies Series No. 4 Addis Ababa, p.50.

assess to what degree the three Southern African countries have intergrated demographic variables in their development planning. The eight demographic parameters are:-

1. Rate of population growth;
2. Estimate of fertility;
3. Estimate of mortality;
4. Projection of future population size;
5. Estimate of current school age population;
6. Projection of future school age population;
7. Estimate of working age population;
8. Projection of future working age population.[1]

Parameters 1, 4, 5, 7 and 8 are included in the 1970-1975 national development plan of Botswana; 1, 2, 3, 5 and 7 in the 1973-1977 development plan of Swaziland; and no information is provided for Lesotho. Therefore, if the number of variables included in the plan are used as measures of the degree of attention paid by each nation to demographic variables in its development planning, it is quite evident that more attention has been paid to population factors in Botswana than in the other Southern African states.

Parameters 5 and 6 are specifically on educational planning, and 6 is missing in the development plan for all the three states. Thus

1. B. M. Stamper, op.cit. pp. 9-23.

educational planning in these states gives inadequate attention to the number of future children being planned for.

The crudest error a planner, whether skilled or unskilled, can make is to ignore the effects of demographic changes on plans for education. Population growth is very relevant to educational planners because it affects the school-age population and future enrolment figures in educational institutions.[1] In Nigeria, for example, regional governments assumed plans for the free universal and compulsory primary education without proper consideration of the number of children who would require this education and what this number would imply in terms of educational expenses. For example, for age 6 - 7 alone, the Western Region government planned in 1952 for enrolment of 150,000 children by January 1955. But when the children turned out to register for the service on that date, the number was 391,895, almost triple the number that was planned for the beginning. The regional government had therefore to abandon the free compulsory universal education scheme. In Eastern Region, the regional government introduced a similar scheme in 1957. When the number of children who turned out for enrolment were far more than anticipated, the government was forced to abandon the scheme. The financial burden of providing free universal primary education was unbearable.

1. A. Callaway and A. Musone, Financing Education in Nigeria, African Research Monographs No.15, UNESCO, IIEP, 1968; A.C.R. Wheeler, The Organisation of Educational Planning in Nigeria, African Research Monographs No.13 UNESCO; IIEP 1968; I. I. Ekanem, Population and Development Planning in Nigeria, Nigerian Institute for Social and Economic Research, Forthcoming, p.54

In Madagascar, targets were set in 1963 to achieve universal primary education by 1983.[1] Primary school enrolment was expected to increase to 75% by 1973. But subsequent evaluation of the manner of students that would be enrolled revealed that it would be difficult for the government to meet the targets due to lack of adquately trained teachers and to the large amount of financial requirements that would have to be met. A new target of 60% enrolment ratio was set for 1974 but further evaluation revealed that the data used in the plans were not adequate and led to under estimation of the situation. As more information became available, it was discovered that even the 60% enrolment target would be difficult to achieve in 1974. Nevertheless, this exercise clearly demonstrated the need for incorporating all relevant variables in development planning and the need for a continuous evaluation of the plan as more information becomes available.

Similar exercises were carried out for Tanzania and Uganda during their early five year development plans.[2] The findings led to the postponment of their targets for universal primary education. But

1. Ta Ngoc Chau, Jacques Itallak and Philip H. Coombs, "Madagascar: The Role of Cost Analysis in the Introduction and Implementation of the 1962 Reform of Primary Education" in IIEP, Educational Cost Analysis in Action: Case Studies for Planners II, UNESCO, Paris, 1972, pp. 63-94.

2. Nicholas Bernet, "Tanzania: Planning for Implementation", in IIEP, Educational Cost Analysis in Action: Case Studies for Planners I, UNESCO, Paris, 1972, pp. 11-36; J.B. Knight, "The Costing and Financing of educational Development in Tanzania", in IIEP, Educational Development in Africa II, UNESCO, Paris 1972; Nicholas Bernet, "Uganda: Educational Cost Analysis", in IIEP, Educational Cost Analysis in Action: Case Studies for Planners, III, UNESCO, Paris 1972, pp. 11-66; J.D. Chesswas, Educational Planning and Development in Uganda, African Research Monographs, No. 1, IIEP 1966.

as stated earlier, the evaluation exercises were useful and indicated "that planning must be a continuous process ranging from the initial setting of policy goals and planning targets to their final implementation and evaluation, with many steps there between ... Almost anything about a plan can change from time to time - political frontiers, economic conditions, insights into educational cost aspects and so forth."[1]

The present study is therefore, aimed at serving two purposes:-

(1) To demonstrate the usefulness of including population variables in educational planning; and

(2) To highlight the implication of rapid population growth rates on the provision of universal primary education and expanded educational facilities at the second and third levels of education.[2]

---

1. Nicholas Bernet, "Uganda: Educational Cost Evaluation", pp. 11-66.

2. In this paper, primary, secondary and higher education have the same meaning as first, second and third level education respectively. They will be used interchangeably.

TRENDS IN EDUCATION AND LITERACY

INTRODUCTION

Since the 1961 Addis Ababa Conference, all African Member states of UNESCO pledged to eradicate illiteracy; to increase educational facilities in order to make education accessible to the largest possible number; to improve the quality of the education provided particularly in order to reduce wastage; and to make national educational systems correspond more closely to the requirements of economic and social development through modifications of varying degrees of depth.[1] But due to a number of problems including rapid population growth and the slenderness of the resources available, the targets set at the Addis Ababa Conference were not achieved. Nevertheless, substantial progress was made in the eradication of illiteracy and the provision of education. This section reviews the trends in literacy and education in the Southern African states.

ILLITERACY

Information on illiteracy in Africa still suggests that educational facilities were very scarce in the past in most of the African countries. The rate of illiteracy in Africa is still the highest in the world although only 19% of the total number of illiterates in the world in 1980 were to be found in Africa as compared to 74%

1. UNESCO, Final Report: Meeting of Ministers of Education of Countries Participating in the Implementation of the Addis Ababa Plan, UNESCO HOUSE, 1962, UNESCO/ED/191.

in Asia.[1] However, the illiteracy rate in Africa declined from 71% to 61% between 1970 and 1980 (Table 2) and the region recorded the fastest rate of decline in illiteracy in the world. Thus, problems withstanding, this is indeed a clear demonstration that all the African countries have made a great effort and continue to make a great effort to remove illiteracy.

TABLE 2

Evolotion of Illiteracy in Africa as Compared to Other World Regions

Region	Illiteracy Rates (Population Aged 15+)		Percentage Decrease Between 1970-1980
	1970	1980	
Africa	70.6	60.6	10.0
Asia	43.6	38.4	5.2
Latin America	28.1	20.3	7.8
Oceania	9.9	8.3	1.6
Europe and USSR	3.1	2.2	0.9
North America	1.0	0.5	0.5
World	32.4	28.9	3.5

Source: UNESCO, Development of Education in Africa: A Statistical Review, p.8

1. UNESCO, Development of Education in Africa: A Statistical Review, p.7

Within Africa illiteracy varies from country to country (Table 3). Out of 46 countries with adequate data, 11 countries had illiteracy rates below 50% in 1980, the lowest rate being that of the United Republic of Tanzania where the impact of the mass literacy campaign carried out between 1967 and 1978 brought down the rate from 72% in 1967 to 26.5% in 1978. Table 3 further indicates that in 1980 illiteracy was very high in Chad, Ethiopia, Gambia, Mali, Senegal, Sierra Leone, Somalia and Upper Volta where the rate was 80% or more. It should, however, be noted that significant strides forward were made between 1970 and 1980 in the majority of African countries for whereas 17 countries out of 40 countries with relevant data had illiteracy rates of 80 per cent or more in 1970, only 9 countries fell in this category, in 1980. On the other extreme, while only Mauritius had an illiteracy rate below 30% in 1970, Mauritius, the United Republic of Tanzania and Zimbabwe fell in this category in 1980. Further, only 8 countries had illiteracy rates below 50% in 1970 but by 1980, 21 countries were in this group, more than double the first number.

With special reference to Southern Africa, Botswana (one of the two countries with relevant data) improved from an illiteracy rate in the range 70-79% in 1970 to 60-69% in 1980, while Lesotho fell in the range 30-39% both in 1970 and in 1980. Information from the 1976 census suggests that Swaziland's illiteracy rate was in the range 40-49% at the time.[1]

---

1. UNESCO, Statistical Yearbook, 1984 p.1-17.

Table 3

Estimated Evolution of Illiteracy from 1970 to 1980 for Forty Countries

Percentage of Illiterates (age group 15 yrs and above)	1970	1980
80%+	Benin, Burundi, C.A. Republic, Chad, Ethiopia, Gambia, Guinea, Guinea-Bissau, Upper Volta, Liberia, Mali, Niger, Senegal, Sierra Leone, Somalia, Sudan, Togo (17)	Chad, Gambia, Mali, Nigeria, Ethiopia, Senegal, Sierra Leone, Somalia, Upper Volta (9)
70-79%	Algeria, Botswana, Ivory Coast, Nigeria, Moroco, Mozambique, Malawi (7)	Beni, Burundi, Guinea-Bissau, Liberia, Morocco, Mozambique, Nigeria, Sudan (8)
60-69%	Ghana, Kenya, Libya A.J., Rwanda, Uganda, U.R. Cameroor, U.R. Tanzania, Tunisia (8)	Botswana, Ethiopia, C.A. Republic, Malawi, Togo (5)
50-59%	Congo, Egypt, Gabon, Zaire, Zambia (5)	Algeria, Ghana, Ivovy Coast, Kenya, Rwanda, Tunisia, Uganda (7)
40-49%	Zimbabwe (1)	Egypt, Libya A.J., U.R.Cameroon, Zaire (4)
30-39%	Lesotho (1)	Congo, Gabon, Lesotho, Zambia (4)
Below 30%	Mauritius (1)	Mauritius, Zimbabwe, U.R. Tanzania (3)

Source: UNESCO, Development of Education in Africa: A Statistical Review, pp. 12-13.

ENROLMENT BY LEVEL OF EDUCATION

Table 4 shows that between 1960 and 1980 the number of children enrolled at each level of education expanded very rapidly. This expansion was greater in developing than in developed countries, and within developing countries, the expansion was greater in Africa than in other developing regions. Within each region the expansion was fastest at the third level followed by the second level.

The rapid expansion of enrolment at all levels in Africa is a clear demonstration of the effort being made by all countries in the region to achieve universal primary education, and to expand education at the second and higher levels so that the educational systems can yield an increasing number of badly needed middle and high level manpower.

FIRST LEVEL EDUCATION

The gross enrolment ratios shown in Table 5 indicate that disparities exist among individual countries in Southern Africa.[1]

---

1. The gross enrolment ratio has the following limitations as an indicator of enrolment:-

   (i) It gives the impression that a limited supply of school places is the only cause of ratios below 100 per cent. But as a matter of fact, enrolment may also be affected by failure of parents to send their children to school due to a number of socio-economic reasons (despite availability of educational services); capacity may be underutilized in some regions while it is scarce in others; and within the same region, capacity may be available in, for example, grade 1 but not in grade 4 where the demand may be excessive or the grade may not be available.

   (ii) The potential enrolment capacity is distorted by repetition and late entrants. It is estimated by UNESCO, for example that an average of 12-14 per cent of primary school pupils in developing countries are repeaters. Thus the real capacity of the system is reduced by the same proportion.

   (iii) Enrolment figures used in calculating enrolment ratios are registered at the beginning of the school year and are not adjusted for school drop-outs.

   (iv) The duration of studies varies from country to country. A comparatively lower capacity to obtain universal primary education will be required with a shorter duration of primary education than in a country with a longer duration of primary education.

TABLE 4

Average Annual Rates of Growth in Enrolment by Level of Education, Major Regions, 1960-1980
(Percentages)

Region	Level of Education	Average Annual Rates of Growth (%) 1960-65	1965-70	1970-75	1975-80
Developed Countries	1	1.5	0.7	-1.0	-0.9
	2	6.0	2.2	2.4	0.6
	3	8.7	7.2	5.2	2.6
	Total	3.2	1.6	0.7	0.0
Developing Countries	1	6.4	4.2	3.9	3.6
	2	10.7	7.7	6.8	6.5
	3	11.8	6.9	10.9	6.8
	Total	7.2	4.9	4.7	4.4
Latin America	1	5.6	5.4	3.7	2.8
	2	10.3	8.8	10.4	7.7
	3	9.8	12.4	17.4	7.8
	Total	6.2	6.0	5.2	4.0
South Asia	1	6.7	3.6	3.4	3.2
	2	10.6	7.0	5.3	5.8
	3	12.8	7.8	8.0	5.6
	Total	7.5	4.4	4.0	3.9
Africa	1	6.6	4.8	6.7	6.7
	2	12.6	10.6	10.2	9.4
	3	12.1	9.5	14.8	8.2
	Total	7.3	5.6	7.3	7.2

Source: UNESCO: Development of Education in Africa: A Statistical Review, p.25

TABLE 5

Gross Enrolment Ratios at the First Level of Education, 1970 and 1980 (Percentages)

Country	1970	1980		
	Both Sexes	Both Sexes	Males	Females
Botswana	67	102	93	111
Lesotho	101	104	85	124
Swaziland	89	103	104	103

Source: Development of Education in Africa: A Statistical Review PP. 38-39.

In 1970 the ratios ranged from 67 per cent in Botswana to 101 per cent in Lesotho. By 1980 these disparities were greatly minimized. The range was from 102 per cent in Botswana to 104 in Lesotho. This indicates considerable improvement between 1970 and 1980 especially on the part of Botswana and Swaziland.

Disparity by sex (male percentage minus female percentage) was of the order of -18 in Botswana, -39 in Lesotho and 1 for Swaziland. This disparity in favour of females is unique to Southern Africa since disparity indices from other parts of Africa indicate wide disparities in favour of males. For example, the lowest recorded disparity for the rest of Africa was 2 per cent for Mauritius and

the highest was 70 per cent for Guinea Bissau. A number of socio-economic factors in Southern African countries, especially Lesotho, favour higher enrolment of females than males in schools. These include the value of boys in household labour activities such as herding livestock, and the readily available labour market for males in the mines of the Republic of South Africa.

The high enrolment ratios reflect a high repetition rate. This is certainly the explanation for the enrolment ratios above 100 per cent. In addition to repetition the three Southern African states, especially Lesotho experience very high drop-out rates which are reflected by the proportion of cohorts surviving through the primary school education system (Table 6). By grade 7, almost two thirds of pupils in the primary schools of Lesotho have dropped out of the system (see Figures 1 and 2). This leads to a great deal of wastage and those who drop out stand the high risk of relapsing into illiteracy.

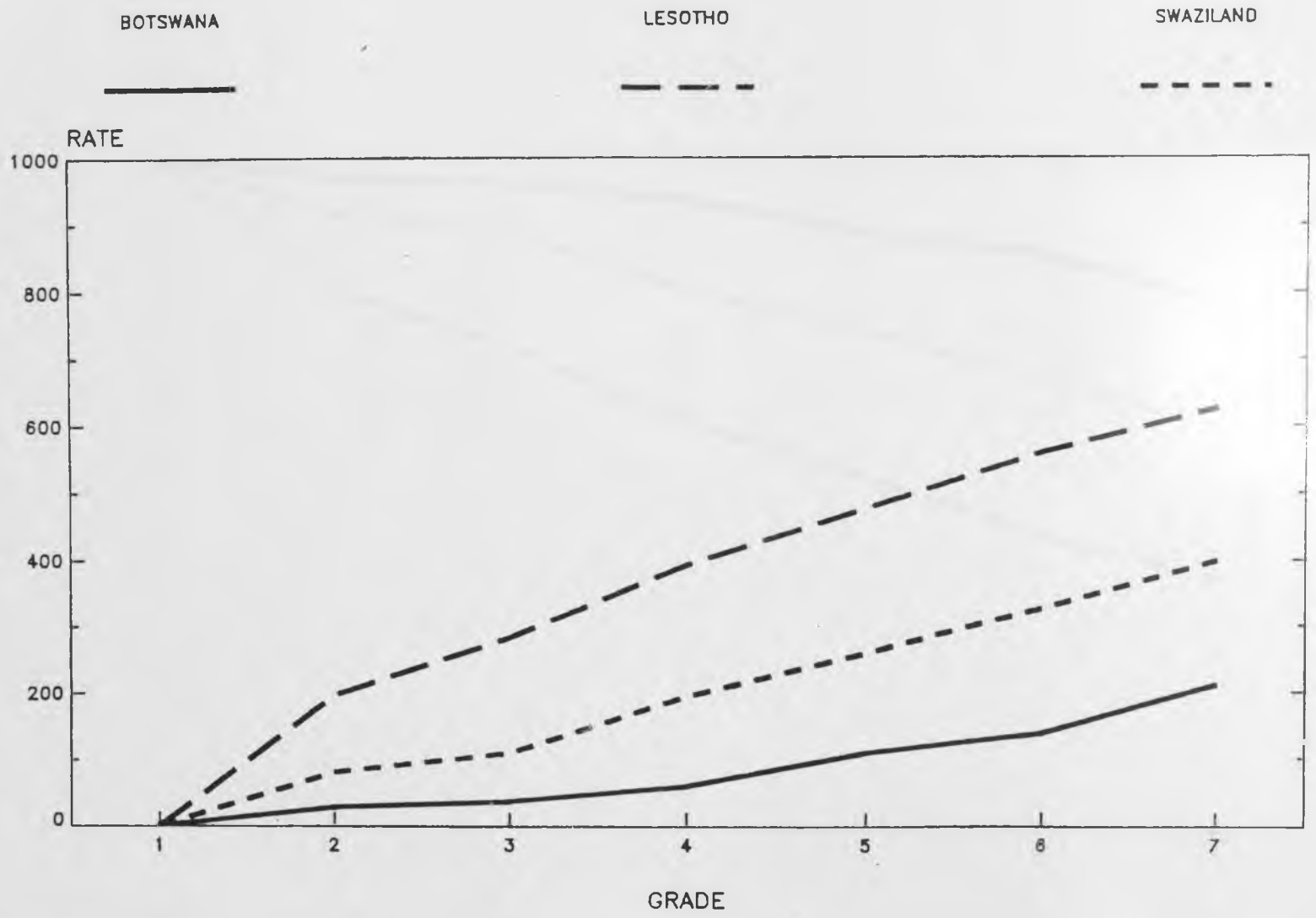
TABLE 6

Survival in Primary Education and Percentage of Repeaters
Both Sexes

Country	Year	Proportion of Cohort Reaching Grade:							Repeaters
		1	2	3	4	5	6	7	
Botswana	1978	1000	972	963	940	890	861	789	-
Lesotho	1978	1000	803	717	608	524	440	375	16.4
Swaziland	1978	1000	919	890	806	741	673	602	10.9

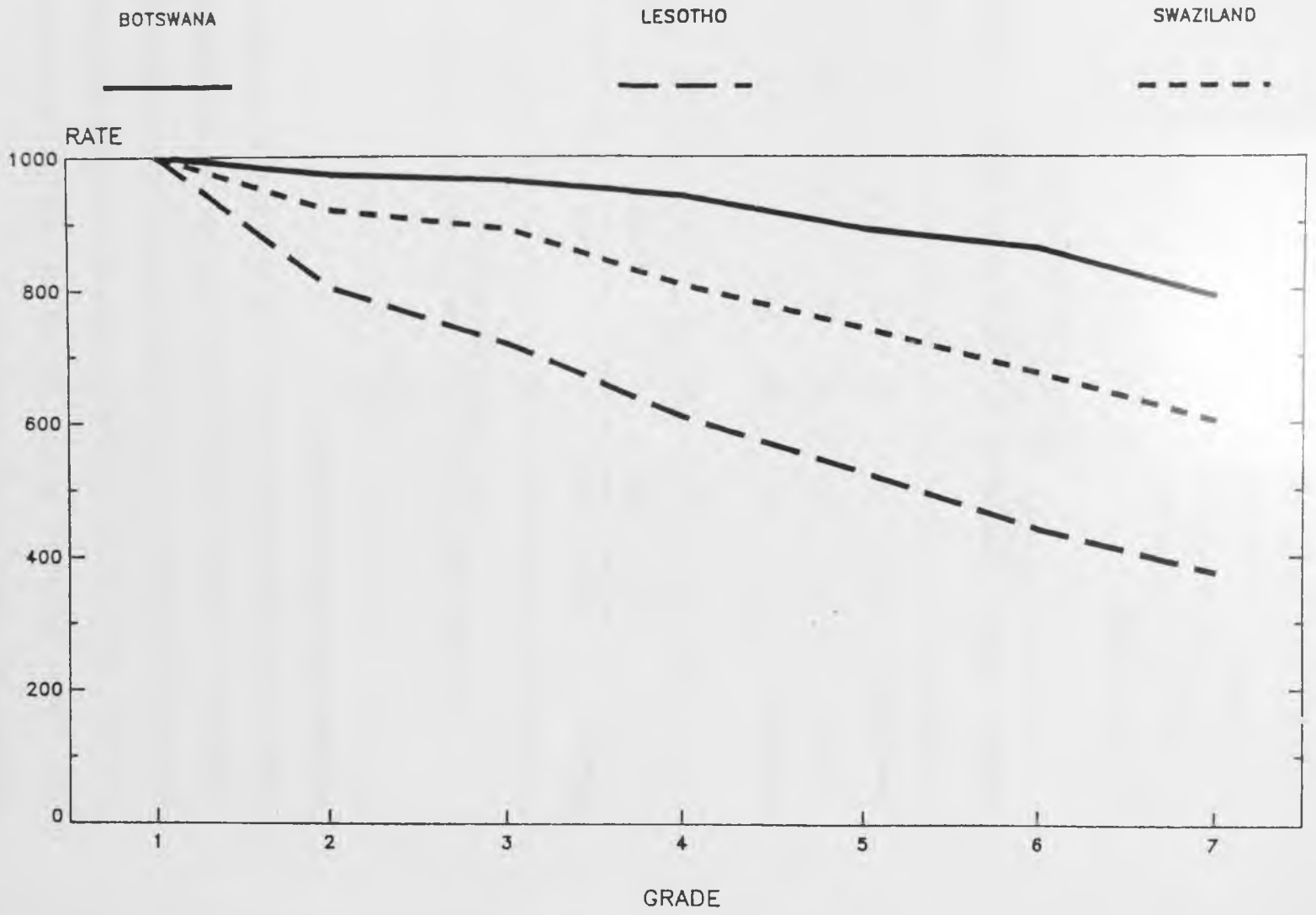
Source: UNESCO: Development of Education in Africa: A Statistical Review, pp. 49-50, 55.

FIG. 1: WASTAGE RATES AT PRIMARY LEVEL PER 1000(1978).



SOURCE: TABLE 6

FIG. 2: SURVIVAL RATES AT PRIMARY LEVEL PER 1000(1978).



SOURCE: TABLE 6

SECOND AND THIRD LEVEL EDUCATION

The gross enrolment ratios at second and third levels still indicate the limited access to secondary and tertiary education available to children in the Southern African states. Despite this limitation, however, there is a general kind of improvement over time as the enrolment ratios more than doubled at both levels between 1970 and 1980 (Table 7).

TABLE 7

Gross Enrolment Ratios at the Second and Third Levels
1970, 1980 (Percentages)

Country	Second Level				Third Level		
	1970	1980			1970	1975	1979
	BS	BS	M	F	BS	BS	BS
Botswana	7	22	20	23	-	0.7	1.1
Lesotho	7	21	17	25	0.4	0.8	1.4
Swaziland	16	36	36	35	0.6	2.4	1.7

Source: UNESCO, Development of Education in Africa: A Statistical Review, pp. 69-70.

BS = Both Sexes

M = Male

F = Female

TEACHING STAFF

The pupil/teacher ratio is one of the measures of the quality of education in a given country, given good teacher training facilities. Available information indicates that while pupil/teacher ratios are lower in Botswana than in Lesotho and Swaziland, the percentage of trained teachers is higher in Swaziland than in the other two states (Table 8). This suggests that the quality of education is relatively better in Swaziland than in the other two states, especially in Lesotho.

TABLE 8

Pupil/Teacher Ratios and Percentage of Female Teachers in 1970 and The Latest Year Available (LYA) (First Level)

Country	Pupil/Teacher Ratio		% Trained		% Female	
	1970	LYA	1970	LYA	1970	LYA
Botswana	36	32	59	63	54	72
Lesotho	46	49	66	66	60	74
Swaziland	40	35	79	85	61	79

Source: The Development of Education in Africa: A Statistical Review, Annex Table V, pp. 169-174.

PUBLIC EXPENDITURE ON EDUCATION

The effort made by the Southern African states to improve education is finally reflected by the proportion of public expenditure devoted to education in each state. When data permit, an increasing trend in expenditure on education is observed between 1970 and 1979 (Table 9). Again the percentages are higher in Swaziland and Botswana than in Lesotho, reflecting better education in the former two than in the latter.

TABLE 9

Public Expenditure on Education as Percentage of GNP, 1970 and 1975 to 1979

Country	Total Education Expenditure as % of GPN						Current Education Expenditure as % of GPN					
	1970	1975	1976	1977	1978	1979	1970	1975	1976	1977	1978	1979
Botswana	5.2	7.3	6.4	7.1	7.3	7.5	4.4	4.0	4.4	5.0	5.1	5.6
Lesotho	3.6	-	-	-	-	-	3.3	-	-	-	-	-
Swaziland	5.2	5.8	5.8	7.0	6.9	-	4.5	-	-	-	4.8	-

Source: UNESCO, Development of Education in Africa: A Statistical Review, pp. 123-125.

CONCLUSION

It is evident that the Southern African states have made important steps to expand educational facilities and make it accessible to all. It is, however, highly likely that among the factors which may hamper this process of expansion and democratization is rapid population growth.

POPULATION PROJECTIONS AND ENROLMENTS

PROJECTIONS OF SCHOOL AGE POPULATION

The projections presented in this analysis are derived from those made by ECA for its member countries (Table 10). When we examine the growth rates for both potential school population and total population, it is indicated that in both decades (1980-1990 and 1990-2000) school age population grows faster than the total population (Table 11). The growth rates are quite rapid and generally fall within the range 2.5% to almost 4.0%. This suggests that the effort to provide education (especially universal primary education) is going to become more and more difficult in these countries in the coming decades.

Projections of enrolment ratios given in Table 12 anticipate near universal primary education and significant increases in secondary

TABLE 10

Projected Potential School Enrolments and Total Population ('000s) for Southern African States 1980-2000 (Medium and High Variants)

Level — Potential School Enrolment Population by Country

	Botswana			Lesotho			Swaziland		
	1980	1990	2000	1980	1990	2000	1980	1990	2000
Primary (P)									
Official Age Group	6-12			6-12			6-12		
Medium	158.2	229.6	282.1	233.0	317.0	403.0	105.9	135.8	184.5
High	158.2	233.8	337.6	233.0	315.3	427.3	105.6	147.8	208.9
Secondary (S)									
Official Age Group	13-17			13-17			13-18		
Medium	86.3	131.5	178.8	139.0	181.0	247.0	71.6	96.2	128.8
High	86.3	131.1	189.6	139.0	184.0	249.0	71.6	98.5	140.5
Higher(H)									
Official Age Group	18-22			18-22			19-23		
Medium	72.8	102.8	153.8	120.0	155.0	210	49.4	66.8	86.1
High	72.8	102.8	155.2	120.0	155.0	211	49.4	66.8	94.0
All Three Educational Levels (P+S+H)									
Medium	317.3	46 .8	614.7	492.0	653.0	860.0	226.9	298.8	399.
High	317.3	467.7	682.4	492.0	654.3	887.3	226.6	313.1	443.
Total Population									
Medium	819.0 (38.7)	1121.0 (41.4)	1455.0 (42.2)	1339.0 (36.7)	1729.0 (37.8)	2224.0 (38.7)	549.2 (41.3)	728.0 (41.0)	960. (41.
High	819.0 (38.7)	1150.7 (40.6)	1643.0 (41.5)	1339.0 (36.7)	1736.0 (36,7)	2282.0 (38.9)	557.3 (40.7)	758.7 (41.3)	1048. (42.

NB: The numbers in the brackets are the derived potential school enrolment rates for the three educational levels put together.

Source: ECA Projections, 1982.

TABLE 11

Estimated growth rates (per cent) of School Age and Total Population for Southern African States 1980-2000 (Medium and High Variant)

Total Potential School Age Population (a)	Botswana	Lesotho	Swaziland
1980-90			
M	3.8	2.8	2.8
H	3.9	2.8	3.2
1990-2000			
M	2.8	2.8	2.9
H	3.8	3.0	3.5
Total Population			
1980-90			
M	3.1	2.6	2.8
H	3.4	2.6	3.1
1990-2000			
M	2.6	2.5	2.8
H	3.6	2.7	3.2

a. Total Potential School Age Population is the sum of potential school population at the primary, secondary and tertiary levels using the official age structures.

M = Medium Variant of Population Projections

H = High Variant of Population Projections.

TABLE 12

Enrolment Ratios (per cent) by Age and Sex for Southern African States, 1980-2000

Countries	Age Group	1980			1990			2000		
		M	F	B	M	F	B	M	F	B
Botswana	6-12	92.5	111.1	101.8	98.9	104.8	101.8	100.9	102.5	101.7
	13-17	19.7	23.4	21.6	42.3	57.6	50.0	59.3	66.9	63.1
	18-22	2.0	1.3	1.6	5.1	4.8	5.0	8.7	7.6	8.1
	6-22	51.7	60.7	56.3	61.9	68.6	65.2	68.3	70.7	69.5
Lesotho	6-12	84.8	123.5	104.0	92.9	122.2	107.4	100.8	119.4	110.0
	13-17	16.8	25.0	20.9	33.4	45.0	39.1	48.0	55.7	51.8
	18-22	1.3	2.1	1.7	4.8	6.1	5.4	8.9	8.5	8.7
	6-22	45.2	65.9	55.5	55.2	72.7	63.9	63.2	73.8	68.4
Swaziland	6-12	103.5	103.3	103.4	106.0	106.2	106.1	106.4	106.5	106.4
	13-18	36.2	35.1	35.7	55.7	58.1	56.9	69.2	67.1	68.1
	19-23	2.5	1.8	2.1	8.4	9.5	9.0	15.6	13.1	14.3
	6-23	60.3	59.5	59.9	69.5	70.3	69.9	74.9	73.5	74.2

and higher education enrolments.[1] Both rapid population growth and the increase in enrolment ratios will lead to at least a 40% increase in the primary level enrolments in all countries in Southern Africa by 1990. At the second and third level enrolments will be more than double. By the year 2000, enrolments will be more than double at the primary level for both Botswana and Swaziland, and almost double in Lesotho (a change of 95%) and more than triple for all countries at the second and third levels.

Increases in overall enrolments are a function of population growth rates, enrolment ratios and the combined effect of both factors. In Table 13 an attempt was made to disaggregate the prospective change in school enrolments up to the year 2000 into the demographic, enrolment and residual effects. The standardization procedure used in as follows:-

1. Population size is held constant for different levels of enrolment in order to identify what proportion of the predicted increase in school population may be attributed to enrolment ratios alone;

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1. It should be pointed out once again that enrolment ratios approximating 100 merely reflect that the capacity of primary schools in the respective countries will be sufficient to enrol all the children of official primary school age. But it is most likely that this ratio will be affected by over age enrolments and repetitions. This is the most likely explanation for cases where the ratio is far above 100 per cent.

TABLE 13

Percentage Change in Enrolments by Level of Education and National Age Structures for Southern African States, 1980-2000 (High Variant)*

Countries	Primary		Secondary		Higher	
	1980-1990	1980-2000	1980-1990	1980-2000	1980-1990	1990-2000
			OVERALL EFFECTS			
Botswana	47 (100)	111 (100)	250 (100)	504 (100)	325 (100)	942 (100)
Lesotho	40 (100)	95 (100)	148 (100)	342 (100)	305 (100)	771 (100)
Swaziland	43 (100)	104 (100)	116 (100)	250 (100)	436 (100)	1027 (100)
			DEMOGRAPHIC EFFECTS			
Botswana	47 (100)	111 (100)	51 (20)	106 (21)	42 (13)	108 (11)
Lesotho	35 (88)	84 (88)	32 (22)	78 (23)	29 (10)	71 (9)
Swaziland	40 (93)	98 (94)	35 (30)	83 (33)	27 (6)	64 (6)
			ENROLMENT EFFECTS			
Botswana	- (0)	- (0)	133 (53)	191 (38)	200 (62)	392 (42)
Lesotho	3 (8)	6 (6)	87 (59)	147 (43)	214 (70)	400 (52)
Swaziland	5 (12)	5 (5)	60 (52)	91 (36)	309 (71)	555 (54)
			RESIDUAL EFFECTS			
Botswana	- (0)	- (0)	66 (26)	207 (41)	83 (25)	442 (47)
Lesotho	2 (4)	5 (5)	29 (19)	117 (34)	62 (20)	300 (39)
Swaziland	-2 (-5)	1 (1)	21 (18)	76 (31)	100 (23)	408 (40)

* The values in brackets are percentages indicating the distribution of the overall percentage changes among Demographic, Enrolment and Residual Effects.

2. Enrolment ratios are held constant while population is allowed to increase at predicted growth rates in order to see how much contribution population growth makes towards increases in school enrolments.[1]

The demographic effect will be most heavily felt at the primary school level where its contribution to the change in enrolments will be more than 85% in all cases. Its effect will be almost uniform over the next two decades.

The rise in enrolment ratios over the next 20 years generally accounts for an increasing share in contributing to the change in enrolments at the second and third levels. Its effect is at least one-half at the second level and three-fifth at the third level in the period 1980 to 1990 (see Figure 3, 4 and 5). In the two decades combined (1980-2000) the rise in enrolment ratios contributes at least one-third at the second level and two-fifth at the third level.

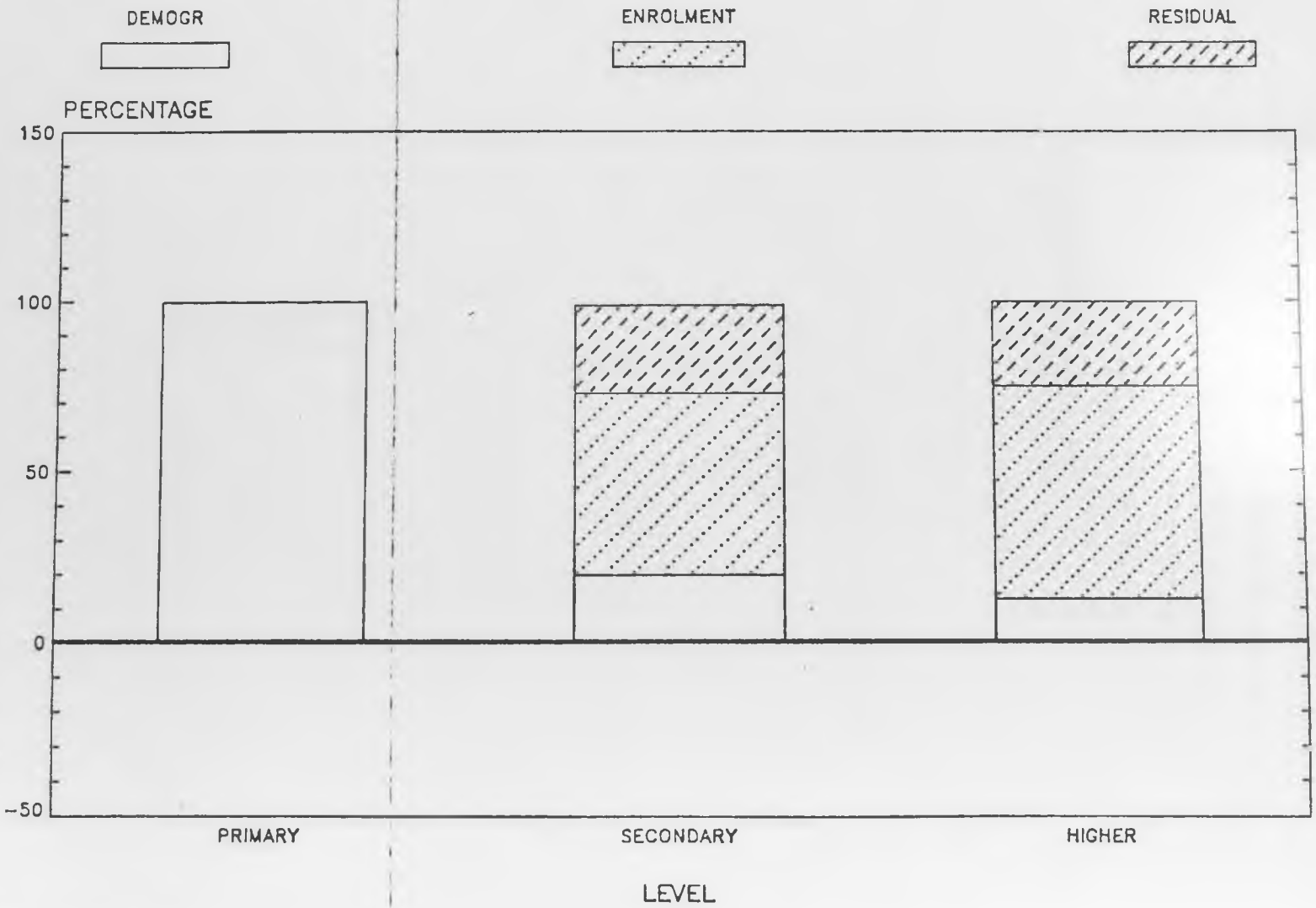
THE NEED FOR TEACHERS AND CLASSROOMS

The projected rapid increase in school enrolments implies extreme strain on the educational facilities and services in the form of more teachers, classrooms and educational materials. With some

1. For more information on this method, see ECA, 1983. Population Growth and Educational Expenditures in ECA Member States, African Population Studies No.6; Jones G., 1975. Population Growth and Educational Planning in Developing Nations, Chap.6.

FIG. 3:DEMOGRAPHIC, ENROLMENT & RESIDUAL EFFECTS(1980–1990):

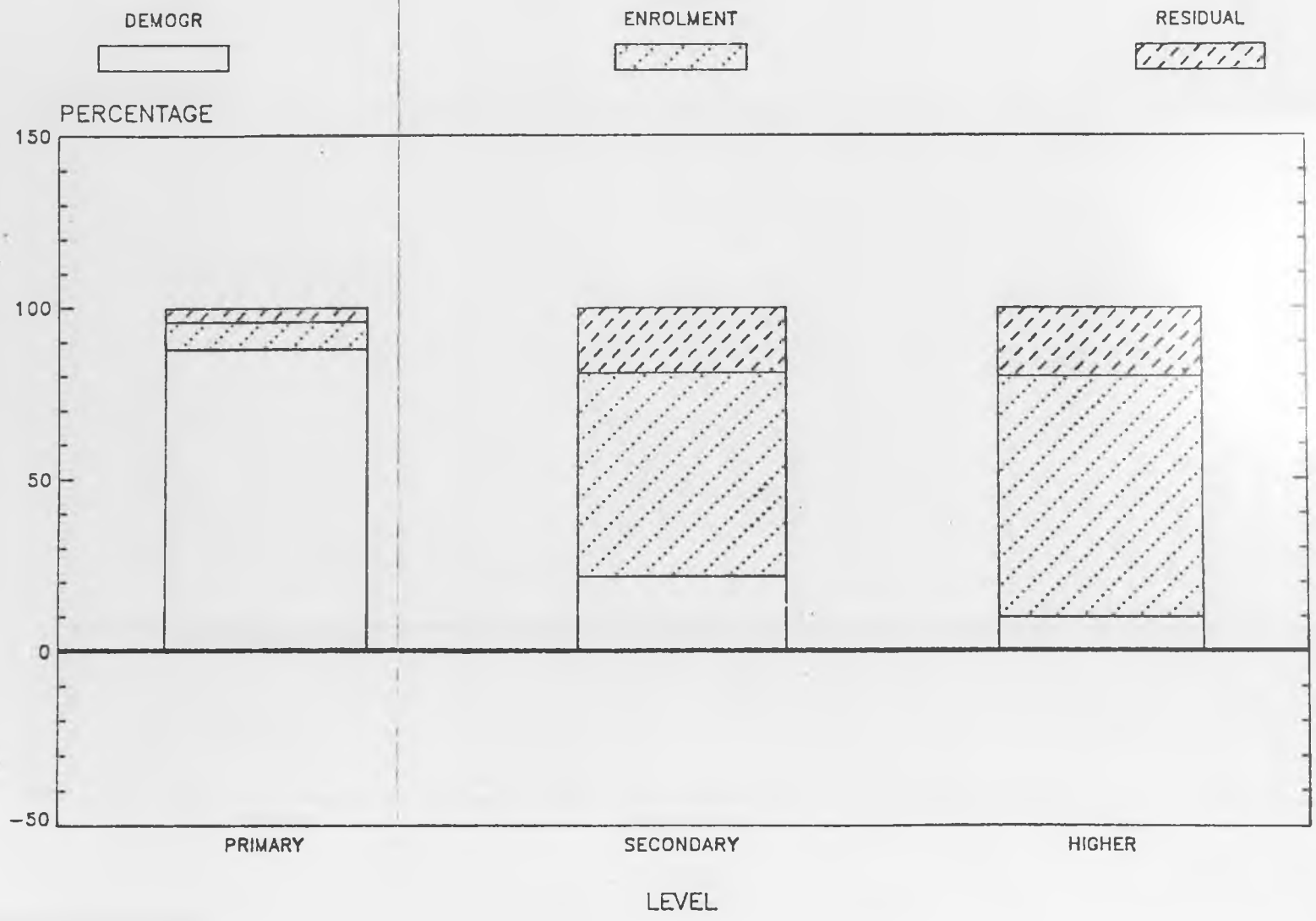
BOTSWANA



DEMOGR=DEMOGRAPHIC

FIG. 4:DEMOGRAPHIC, ENROLMENT & RESIDUAL EFFECTS(1980–1990):

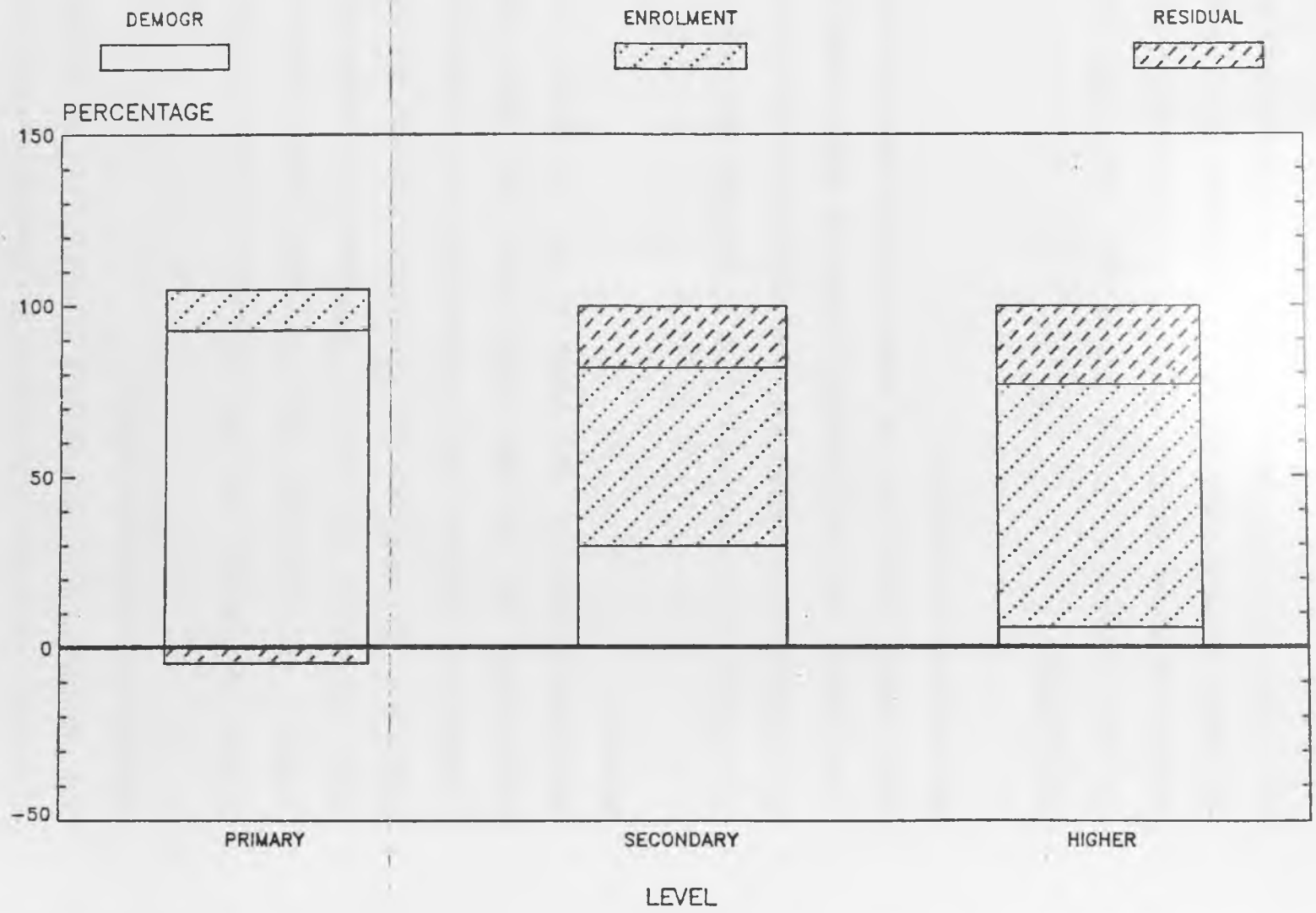
LESOTHO



DEMOGR=DEMOGRAPHIC

FIG. 5:DEMOGRAPHIC, ENROLMENT & RESIDUAL EFFECTS(1980–1990):

SWAZILAND



DEMOGR=DEMOGRAPHIC

luck the education systems may just manage to keep the prevailing standards, but given the magnitude of demand for school facilities and services that will prevail in the future, it is likely that educational standards will fall.

Taking the demand for school teachers at the first level as an example, it is estimated that if the pupil teacher ratios of 1980 apply throughout the period, the demand for teachers will rise from about 4940, 4760 and 3020 for Botswana, Lesotho and Swaziland respectively to about 10550, 8720 and 5970 for the same countries respectively in the year 2000 (Table 14). This implies a percentage change in the range of 83 in Lesotho to 114 in Botswana.

The demand for classrooms will be of a similar magnitude as that for teachers if we assume that each additional class will require a new teacher and a new classroom. These are rough assumptions but they clearly bring out the impact of rapid population growth on the provision of education.

CONCLUSION

The three Southern African States have made important steps towards universal primary education and more expanded secondary and higher education enrolments. Future progress by be similar but due to rapid population growth there may still be several thousand

TABLE 14

Need for Teachers (1980-2000)[1]

Country	Year		
	1980	1990	2000
Botswana	4940 (100)	7310 (148)	10550 (214)
Lesotho	4760 (100)	6430 (135)	8720 (183)
Swaziland	3020 (100)	4220 (140)	5070 (198)

children without access to primary school education by the year 2000.

The effect of population growth on the increase in enrolments will be more heavily felt at the primary level than at the second and third levels. At the primary level, it contributes more than 60% to the increase in enrolments while the effect of the increase in enrolment ratios gains more and more weight as one progressively moves to the higher levels of education.

Although it is true that perceptions of the relevance of population factors in development planning have grown among the Southern African countries over the last two decades (1960-1980) there is a need for action oriented programmes aimed at:-

1. In brackets are percentages from 1980-2000.

(1) integrating population factors in all aspects of development planning; and

(2) formulating appropriate population policies as an integral part of the overall socio-economic development strategy in which the relationship between population growth and the provision of education should be one of the priority areas for consideration.

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