

POPULATION STRUCTURE: EDUCATIONAL FACILITIES AND ENVIRONMENTAL IMPLICATIONS IN THE CROSS RIVER REGION, NIGERIA.

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ABSTRACT

Population pyramid is an important planning tool, and has implications for the allocation of educational facilities. The structure of cross river population used for this study indicated an expansive and dependent population of 48 percent, with the population of those of school age observed to be 42 percent. A sample of the population of school age as well as the actual number of school enrollment was collected for 3 metropolitan areas. Of these more than 70 percent of the population was enrolled in school. To determine the adequacy of classrooms to take care of the enrollment, data on number of classrooms were collected. Analysis of this data showed that the number of pupils per classroom was 51 for primary school as against the recommended standard of 20-25 per classroom and 54 per classroom for secondary schools as against the 30-35 recommended standard. The study therefore recommended for the expansion of the present facilities in our public schools and the establishment schools. Analysis also showed that overcrowded classrooms, and indeed the schools, generally could have deleterious effect on the school environment as well as the neighbourhood. It was concluded that more schools could contribute significantly in reducing the pressure on available school facilities and reducing the associate health risk.

KEYWORDS: Population pyramid, school facilities, urban/metropolitan areas, school age population, urbanization and environment.

INTRODUCTION

The importance of adequate knowledge and appreciation of population and its various parameters in the allocation of resources cannot be overemphasized. Populations, especially in developing countries, have been observed to be increasing in a rather alarming and explosive rate. Chiras (1994) summarizes this as "too many people reproducing too quickly". This to a large extent is attributed to improvement in medical care as well as non implementation of, and/or indifference to population control programmes. As a planning tool, knowledge of the size structure and rate of population growth is very important. For instance, industries and shops need to know the size of their markets as well as age for which goods are needed most; health authorities need to know what facilities and personnel are likely to be in high demand; government needs to plan for the adequacy of facilities as well as employment opportunities for the differential population structure; education authorities need to know how many places, personnel and facilities to provide for the children of school age, etc.

Education at the various levels is designed to cater for a particular age range. In most cases, educational planners restrict themselves to education based on the size and rate of population growth alone. This is not adequate for educational planning, especially in the area of allocation of adequate classrooms and personnel. Education authorities need to have an in-depth understanding of the age and sex

structure of a population. This forms the basis of this study, which analyses the structure of the population of Cross River State and considers its educational implications. Three urban centers in the state are used to consider the enrolment of children in the basic and post basic levels, and comparison made with available classrooms in our public schools. Anchored on the observable high number of children in the classroom, environmental implications of the situation are also considered. The implications of the differential gender enrolment are also given attention.

The study adopts a survey research design, specifically the cross-sectional design. Here all the data collected are not manipulated but only observed and analyzed using simple descriptive statistics of measures of central tendencies and deviation, including simple percentages. The survey is thus a descriptive research with the statistical analytical tool being descriptive too.

POPULATION AND SAMPLE FOR THE STUDY

Cross River State has an estimated population of 2,526,511 comprising 1,263,915 males and 1,262,626 females (NPC, 2002). This is however a projected population from the official census of 1,911,297 (Ibid). The state is made up of 18 local government areas and 3 senatorial districts. A total of 3 metropolitan areas were selected, one from each district, using stratified random sampling. The sampled areas were used to illustrate the implications of the

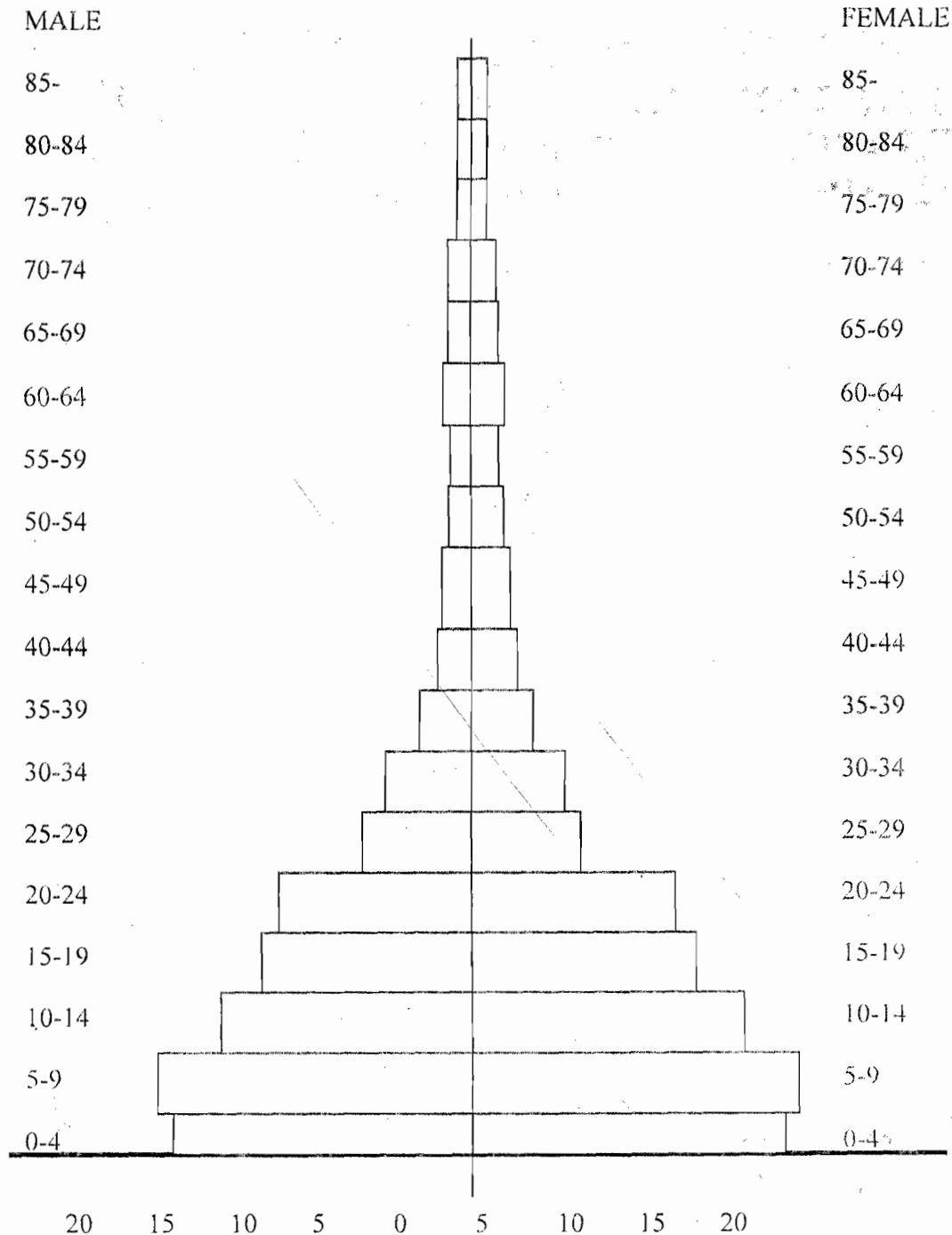


FIG. 1.1: POPULATION STRUCTURE OF CROSS RIVER (STATE)

SOURCE: Computed NPC Statistics, 2002

population structure on the availability of educational facilities and services.

SOURCES OF DATA, INSTRUMENTATION AND DATA TYPES

The main source of data for the study was secondary, derived from published statistics. However to ease the collection of data from these sources, a questionnaire was designed as survey instrument to elicit information from the authorities in custody of the data. This questionnaire was in sections, each of which spelt out vividly the indicators or indices needed. The

type of data required for the study was that of age and sex structure of the population, school enrolment, classroom number and size (m^2), and average number of children per classroom for the sampled areas.

STRUCTURE OF THE POPULATION

The structure of a population is defined by its age cohort and sex (gender group) distribution. The analysis of a population structure is an important planning tool because each age cohort and gender group (sex) has its resource requirement. Planners, government and policy makers therefore need a good

knowledge of population structure for adequate and effective allocation of scarce resources. The structure a population is usually graphically represented in the form of a histogram, a bar graph (also called population pyramid). On it the percentage of males and females within each area group is shown (fig. 1.1). The pyramid derived from the percentage population distribution within various age groups. This pyramid is subject to change as it follows the dynamics of population growth. It is therefore only reliable for short term planning such as for schools, hospitals, manufacturing and distribution of goods.

The pyramid shows that 16.3 percent of the population is made up of infants under 5 years and 17.5 percent is between 10-18 years. In general 42 percent of the population is of school age (5-19) and 48 percent below 15 years, constituting those dependent on the economically productive population. The high percentage (48%) of those unproductive and dependent groups belonging to the pre-reproductive years suggests that as children grow up and move into their reproductive years, the size of the child bearing population will increase, all things being equal. This also suggests a subsequent increase in the size of the youngest age group. The implication of this is that with the existence of this group, even if progress is made immediately in reducing the number of births per female, it would take about 30 years before such progress could slow population growth (Law and Smith, 1993).

The profile also shows that 49.9 percent of the population belongs to the economically productive age, which is arbitrarily considered to consist of those in the age range of 15-64 years. It is however observed from the above that the proportion of the dependent and productive population is quite small, with about 2 percent difference. The constriction of the pyramid at the base indicates a current decrease in birth rate which could be awareness and adoption of birth control measures. The profile, however, generally fits into those of developing countries with an expansive population, indicating a large population of children of school age. A

steady slope of the pyramid between the 50-54 and the 64-74 age classes indicates a low death rate and suggests a boom in child birth about 50 years ago which incidentally coincides with the post world war era, described by Ehrlich and Ehrlich (1970) as characterized by high birth rate and low infant mortality and seen as a product of improvement in the medical sciences.

Educational Implications of the Pyramid

Population pyramids as earlier seen are important tools for planning and one of such planning areas is in the allocation of facilities and services in our school system. A high population of young people of school age as depicted in the pyramid above (fig.1.1) indicates a high dependency on education, requiring a constantly increasing educational provision and expenditure. New schools need to be built where they do not exist and the already existing ones need expansion and improvement. The huge and increasing number of children of school age is not new in Cross River State and for some time now this has put tremendous strain on our school system. In the 1970 to mid 90s for instance, most urban schools had to run double shifts and an extreme shortage of teacher training colleges, the training of Nigeria Certificate of Education (NCE) teachers through Distance learning systems (DLS) and the re-introduction of the pivotal teachers training programme (PTTP) – the last two coordinated by the National Teachers Institute (NTI) – are efforts at improving the already deplorable situation. The issue now is whether the facilities in our public schools are adequate and the number of schools sufficient to contain the population.

Analysis of School Enrolment and Classroom Numbers

The contemporary situation in Cross River State can be generalized from the illustration of the sampled areas as shown in table 1.2.

Analysis of this table shows that 47 percent of the population was of school age. Of these, 29 percent

Table 1.2 SCHOOL ENROLMENT AND CLASSROOM IN THE SAMPLE AREAS

LEVEL OF SCHOOL	% OF SCHOOL AGE	% ENROLMENT	NO OF CLASSROOMS	AVERAGE PERSONS/ CLASSROOM
Primary	29	72.6	1432	51
Secondary	18	66.5	1023	54
Total	47		2955	

Source: Dept. of Planning, Research & Statistics, Ministry of Education, Calabar (2002).

Table 1.3: PERCENTAGE DIFFERENTIAL ENROLMENT BY SEX AND AGE (2002)

Age group	% male enrolment	% female enrolment	% difference	Total % enrolment	Total % Not enrolled
5-14	33.8	36.7	2.9	70.5	29.5
15-19	32.6	33.9	1.3	66.5	33.5
Total	66.4	70.6	4.2		

Source: Author's computation using figures collected from Ministry of Education, Calabar.

was of primary school age while 28 percent were of secondary age. Of the percentage in the primary age, 72.6 percent was enrolled in school and 66.5 percent was enrolled in secondary school. This implies increased investment and adequate provision of educational facilities/service such as adequate classroom accommodation and staff.

Analysis was made of adequacy of classrooms in our public schools and a comparison was made with the recommended standard set by the ministry of education in conformity with 6-3-3-4 system standard. It was discovered that there were a total of 2455 classrooms with a total floor area of 129,378.6m². A total of 1432 of these classes were to accommodate 151,905 pupils in the primary and 1023 to accommodate 94152 enrolled in the secondary schools. The average pupil per classroom calculated from above was 51 per classroom for primary schools and 54 per classroom for secondary schools. From the recommended standard as put in place by government as 20-25 pupils per classroom for primary schools and 30-35 for secondary schools (Cross River Ministry of Education Blue print, 2000), it is clear that our public schools are heavily congested. This is obvious from current observable conditions in the school system. Based on the recommended standard, primary schools require twice the number of the present classrooms and secondary schools, one and a half times.

One other issue that comes to mind is the likely impact of the 29.7 percent who are not enrolled in the public school at either level. The most likely answer to this issue is that those not in secondary may be dropouts who now constitute a pool of cheap labour or miscreants who constitute a social menace in most of the urban centers. These may come from low income parents who cannot afford training their children.

ENVIRONMENTAL IMPLICATIONS OF THE SITUATION

The result of the analysis above and the present apparent overcrowding in our public school classrooms call for concern from stakeholders in education. This is so because of the eminent and monumental environmental consequences, particularly from the perspective of environmental degradation and health, that may result if unchecked.

Overcrowded classrooms have enormous impact on the classroom environment, making it un-conducive for both the teachers and the pupils. Such classrooms impede the free flow of air resulting usually in respiratory problems. The air thus becomes polluted by the noxious carbon dioxides that is constantly in circulation as a result of inhalation and exhalation (Breathing). Occasionally the air also becomes polluted by release of gas resulting from breaking of wind by the pupils and which does not readily evaporate to the outside of the classroom, but is concentrated within. This in turn impedes breathing, and the case is particularly more serious in the afternoon when the pupils must have come back from break, sweating. This makes teaching during this period a Herculean task.

Apart from the above situation, diseases, both communicable and contagious can easily be transmitted

from person to person because the contact between them is direct and close. Diseases associated with overcrowding and heat such as cerebrospinal meningitis (CMS) easily get transmitted in the event of their outbreak.

Overcrowding also usually results in pressure on available sanitary facilities because they become apparently inadequate and this can result in serious degradation of the entire school environment. Wastes will be disposed indiscriminately because of ineffective control. This uncontrolled disposal can invariably lead to pollution, particularly of nearby water sources, a serious environmental problem even to the school neighborhood.

There are also other economic and social problems associated with overcrowding, but these are outside the scope of this study.

Gender Differential Enrolment

Data on enrolment collected from the survey shows that enrolment was not uniform for both males and females. Table 1.3 shows percentage enrolment by sex and age and indicates that of the 70.5 percent who were enrolled in the primary school, 36.7 percent were females and of the 60.5 percent rolled in secondary schools 33.9 percent were females. Of all the females of school age 70.6 percent were enrolled in school.

The essence of showing this differential enrolment is to evaluate progress in women education, which is said to be at the disadvantaged position especially in Africa. The result of this study shows that this assertion has been over generalized at least for Cross River State, particularly at the basic and post basic-levels of education. This result indicates a fairly or near uniform enrolment ratio. However, female enrolment outstrip[s] that of males. For the gender spread of the remaining percentage that is not enrolled in school at all, it can be deduced that 33.6% were males and 29.4% were females. It can be however assumed that the female gender not enrolled particularly in secondary schools may be learning a trade or are married, thereby contributing to the increase in population. The high level of female enrolment is very encouraging as this helps to reduce fertility. The World Resources Institute (1994) has established a significant correlation between education of women, especially among those who have, some form of secondary and fertility. According to the study, fertility rate declines as educational levels rise. To reduce fertility therefore requires encouragement of female education, especially up to the post primary level. This is so as it has been identified that rates of contraceptive use is far too low for women with no schooling, while secondary school education produces the highest level use.

CONCLUSION

The population structure of the Cross River region indicates a highly dependent and expansive population. The high percentage of those of basic and post basic school age indicates an urgent need for the provision of adequate facilities and services in the form

of school expansion. Analysis of the current situation indicates that the available facilities are inadequate. This is occasioned by the high rate of overcrowding of the schools both at the primary and post primary levels. It is therefore recommended that more new schools should be established to decongest the already over bloated school enrolment and also to cater for the explosive population of children of school age. This is in addition to ameliorating the already chaotic environmental condition and to serve as mitigative measures.

The higher rates of female enrolment would certainly curtail higher fertility levels in the short or medium term. The observed trend is a pointer that government requires an emphatic propagandist policy to achieve high levels of school enrolment (both for boys as well as the girls) than the prevailing situation. This would reduce early marriages, excessive birth and thereby stabilize fertility levels to create a sustainable population age distribution in the short term. Higher planning objectives and goals are normally achievable within this scenario.

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